

Friday, January 08, 2010

Page 1 of 4  
REQUEST NUMBER: 10-1162

**LOS ALAMOS**  
**NATIONAL LABORATORY**

ATTN: Valerie Davis

These Samples are on:

General Engineering Laboratories, Inc., Charleston, SC.

LANL Request Number: 10-1162

2040 Savage Rd

Per Agreement Number: 126310011

Charleston, SC 29407

Project Cost Code: MR3A05529E00

Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 1/8/2010

TURNAROUND/REPORT DUE: 2/7/2010

TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background

LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1		1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	

Friday, January 08, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
EPA:901.1						
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
		1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	

HASL-300:AM-241

Friday, January 08, 2010

Page 3 of 4

REQUEST NUMBER: 10-1162

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
HASL-300:AM-241		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
		1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
HASL-300:ISOPU		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
HASL-300:ISOU		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
		1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	

Friday, January 08, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
HASL-300:ISOU						
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	

Final Page of REQUEST NUMBER 10-1162



Friday, January 08, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1162

LOS ALAMOS

REQUEST NUMBER: 10-1162

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/7/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE12-10-7734	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7701	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7702	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7700	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7699	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7727	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7710	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7715	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7707	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7719	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7717	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7708	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7706	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7714	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7705	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7709	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7711	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7712	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7716	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7718	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7713	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Relinquished By:

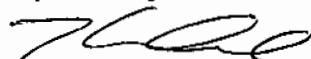
Date

Time

Received By:

Date

Time



1/8/10

3:00

Printed Name

Signature

Printed Name

Signature

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7699

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ALLH
TIME COLLECTED (HH:MM)		0957		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610667			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.5		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES (NO) NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES (NO) NA			
BOREHOLE: YES (NO) NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8082+NMED-HEXP	250 ML AMBER GLASS	Ice	Yes	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY 73m 1/6/10	None	Yes	
1		Met+U+CLO4+CN	1 GAL POLY 1 Liter	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC:

Dark brown moist sandy silt, some clay  
few roots, some rocks

SAMPLE COMMENTS:

NA

LOCATION DESC: 1a-15 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 27$  dpm $\text{BY} \leq 2480$  dpm

PID

ambient  
reading0.0  
0.0 ppm

HE NEG

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT)

TLMcFarland

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARIQU (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7700

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	OBT3		ok
TIME COLLECTED (HH:MM)		1012		SUB-MEDIA:	TUFF 1		L
PRS ID:	12-001(a)-99		ok	SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610667			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0		1.0	SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0		2.0	SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R		ok	EXCAVATED: YES <input checked="" type="checkbox"/> / NA			
COMPOSITE TYPE:	N/A			COMPOSITE TIME INTERVAL:	N/A		WATER FLOWING: YES <input checked="" type="checkbox"/> / NA
BOREHOLE: YES <input checked="" type="checkbox"/> / NA				BOREHOLE DECLINATION:	N/A		BOREHOLE DIRECTION:
					N/A		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	NORMAL	8082+NMED-HEXP	250 ML AMBER GLASS	Ice	Yes	
1	↓	AM241+GS+ISO PU+ISOU	1 LITER POLY 13m 1/6/10	None	Yes	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: Pinkish gray weathered tuff, some clay

SAMPLE COMMENTS: NA

LOCATION DESC: 1a-15 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

$\alpha \leq 11$  dpm  
 $BY \leq 2750$  dpm  
 PID Ambient 0.0 ppm  
 reading 0.0 HE NEG

COLLECTED BY (PRINT)

Nick Gallegos

REVIEWED BY (PRINT)

TL McFarlane

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) R Saunders	01/06/2010	S. MADURAN	1/6/10
(Signature) R. Saunders	1555	W	1555
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7701

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	OBT3		11h
TIME COLLECTED(HH:MM)		1259		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610668			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	1.0		SCREEN/PORT DESC:			
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			NA
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NO/NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	8082+NMED-HEXP	250 ML AMBER GLASS	Ice	Y	
1	↓	AM241+GS+ISO PU+ISOU	1 LITER POLY 12/16/10	None	Y	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: Wet brown silty sand

FD RE12-10-77271

SAMPLE COMMENTS:

Drainage

LOCATION DESC: 1a-19

FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 11$  dpm

PID

ambient  
reading0.0 ppm  
0.0

HE NEG

 $BY \leq 2450$  ppm

COLLECTED BY (PRINT)

TL McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) Tracy [Signature]	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARIZ AK (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

**SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY**

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7702

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA: QBT3		ok	
TIME COLLECTED(HH:MM)		1320		SUB-MEDIA: TUFF 1		↓	
PRS ID: 12-001(a)-99		ok		SAMPLE TECH CODE: HA		ok	
LOCATION ID: 12-610668		↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE: GENERIC		↓		FIELD PREP: NA		↓	
TOP DEPTH: 0		1.0		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH: 0		1.9		SCREEN/PORT DESC: NA			
FIELD MATRIX: R		ok		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+NMED-HEXP	250 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brown moist weathered tuff

SAMPLE COMMENTS:

NA

LOCATION DESC:

1a-19, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 11$  dpm

PID

ambient  
reading $\frac{0.0}{0.0}$  ppmBY  $\leq 2770$  dpm

COLLECTED BY (PRINT)

TLMcFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) Tracy Ruff	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARCAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7705

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		Alh
TIME COLLECTED (HH:MM)		932		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610670			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.7		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY Tm 1/6/10	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: Brown sandy silt, moist, some clay and pinkish gray, buff

SAMPLE COMMENTS: Hit tuff at 0.5 ft

LOCATION DESC: 1a-14, drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  38 dpm  
Beta/Gamma  $\leq$  2100 dpm

PID  $\frac{\text{Ambient}}{\text{Reading}} \frac{0.0}{0.0}$  ppm  
HE negative

COLLECTED BY (PRINT)

T. McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) T. McFarland (Signature) Tracy Z...	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MADRAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7706

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/06/2010	MEDIA:		OBT3
TIME COLLECTED (HH:MM)		945	SUB-MEDIA:		TUFF 1
PRS ID:	12-001(a)-99	OK	SAMPLE TECH CODE:		HA
LOCATION ID:	12-610670	↓	FIELD QC TYPE:		NA
LOCATION TYPE:	GENERIC	↓	FIELD PREP:		NA
TOP DEPTH:	0	1.0	SAMPLE USAGE:		INV
BOTTOM DEPTH:	0	2.0	SCREEN/PORT DESC:		NA
FIELD MATRIX:	R	R	EXCAVATED: YES/NO/NA		NO/NA
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA		NO/NA
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA		NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 12-1/6/2010	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: Pinkish - Gray, weathered tuff, some clay  
FR RE12-10-7738

SAMPLE COMMENTS: IN OAK Bush AREA

LOCATION DESC: 1a-14, south of Road

## FIELD SCREENING/MEASUREMENT RESULTS:

PID Ambient 00  
Remains 00 ppm

Alpha 22 dpm  
Beta/Gamma 2390 dpm

COLLECTED BY (PRINT)

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) TLMcFarland	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARCAY (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7707

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	OBT3		Alh
TIME COLLECTED (HH:MM)		1029		SUB-MEDIA:	TUFF 1		Na
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610671			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.3		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY Tam 1/6/2010	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: Brown loamy, silty sand, roots and rocks

SAMPLE COMMENTS: small sediment pocket in drainage

LOCATION DESC: 1a-1c drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  2460 dpm

PID  $\frac{\text{Ambient}}{\text{Reading}} \frac{0.0}{0.0}$  ppm  
HE neg

COLLECTED BY (PRINT)  
TL McFarlane

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) TLMcFarlane (Signature) <i>TLMcFarlane</i>	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MAROZAK (Signature) <i>[Signature]</i>	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7708

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ok
TIME COLLECTED (HH:MM)		1049		SUB-MEDIA:	TUFF 1		↓
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610671	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	7m 1.8 2.0		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	110616 ok		EXCAVATED: YES/NO/NA	NO/NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NO/NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 7m 1/6/10	None	Y	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1	↓	NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: Pinkish gray Tuff

SAMPLE COMMENTS: Tuff at 0.5 ft

LOCATION DESC: 1a-16 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  44 dpm  
Beta/Gamma  $\leq$  2790 dpm

PID  $\frac{\text{Ambient Reading}}{0.0} = 0.0$  ppm

COLLECTED BY (PRINT)

TLMcFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) TLMcFarland	Date/Time 1101 1/6/10 01/06/2010 1555	RECEIVED BY (Printed Name) S. Madigan (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7709

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ALLH
TIME COLLECTED (HH:MM)		1108		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99		ok	SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610672		↓	FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC		↓	FIELD PREP:	NA		↓
TOP DEPTH:	0		0.0	SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0		0.8	SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R		S	EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 12m 1/06/10	None	Yes	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1	↓	NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: brown silty sand, some rocks, some roots

SAMPLE COMMENTS: NA

LOCATION DESC: 1a-17 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  27 dpm  
Beta/Gamma  $\leq$  3060 dpm

PID  $\frac{\text{Ambient Reading}}{0.0} = 0.0$  ppm

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT) TLMcFarlane

RELINQUISHED BY (Printed Name) TLMcFarlane (Signature) TLMcFarlane	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MAZURAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7710

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		OK
TIME COLLECTED (HH:MM)		1118		SUB-MEDIA:	TUFF1		OK
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610672			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	2.8		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	R		EXCAVATED: YES/NO/NA	NO/NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
BOREHOLE: YES/NO/NA	NO/NA			BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 12m 1/06/10	None	Yes	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: pinkish grey tuff

FD RE12-10-7734

SAMPLE COMMENTS:

NA

LOCATION DESC: 1a-17 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  44 dpm  
Beta/Gamma  $\leq$  2930 dpm

PID  $\frac{\text{Ambient}}{\text{Reading}} = \frac{0.0}{0.0}$  ppb

COLLECTED BY (PRINT)

Nickolas Gallegos

REVIEWED BY (PRINT) T. L. McFarlane

RELINQUISHED BY (Printed Name) T. L. McFarlane (Signature) Tray 20	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. M. Ador... (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7711

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		allh
TIME COLLECTED (HH:MM)		1137		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610673			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.9		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 73m 1/06/2010	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: brown sandy silt, slightly moist, rocks, few roots

SAMPLE COMMENTS: NA

LOCATION DESC: 1a-18, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  22 dpm  
Beta/Gamma  $\leq$  2550 dpm

HE neg  
PID  $\frac{\text{Ambient Reading}}{0.0}$  ppm

COLLECTED BY (PRINT)

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) TLMcFarland (Signature) Tracy Zart	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARUZAY (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7712

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		OK
TIME COLLECTED (HH:MM)		1147		SUB-MEDIA:	TUFF 1		OK
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610673			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	1.9		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	OK		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 13m 1/06/2010	None	Yes	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: brownish grey weathered tuff, slightly moist

## SAMPLE COMMENTS:

Hit tuff at 1.5 ft

LOCATION DESC: 1a-16, drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  27 dpm  
Beta/Gamma  $\leq$  21070 dpm

PID  $\frac{\text{Ambient}}{\text{Reading}} = \frac{0.0}{0.0}$  ppm

COLLECTED BY (PRINT)

TL McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) TL McFarland (Signature) <i>TL McFarland</i>	Date/Time 01/06/2010 1555	RECEIVED BY S. MARIAN (Printed Name) (Signature) <i>S. Marian</i>	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7713

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	OBT3		ALLH
TIME COLLECTED (HH:MM)		1303		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610674			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	0.10		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA		BOREHOLE DECLINATION:	NA	BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 12m 1/6/10	None	Yes	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: silty-brown with some root fragments - loose soil  
sand

## SAMPLE COMMENTS:

DRAINAGE AREA

LOCATION DESC: 1a-20 drainage

## FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\pm$  33 dpm  
Beta/Gamma  $\pm$  2210 dpm

PID  $\frac{\text{Ambient } 0.0}{\text{Reading } 0.0}$  ppm  
HE negative

COLLECTED BY (PRINT)

R Saunders

REVIEWED BY (PRINT)

Larry A. Lopez

RELINQUISHED BY (Printed Name) Larry A. Lopez (Signature) Larry A. Lopez	Date/Time 01/06/10 1555	RECEIVED BY (Printed Name) C. MADRAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

**SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY**

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7714

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ALLH
TIME COLLECTED (HH:MM)		1315		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610674	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	2.0		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA	NO		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NO			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 7am 1/6/10	None	Yes	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1	↓	NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1	✓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: Light brown with root fragments  
silty sand

SAMPLE COMMENTS:

7am 01/06/10  
Drainage area / location

LOCATION DESC: 1a-20 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  44 dpm  
Beta/Gamma  $\leq$  2640 dpm

PID  $\frac{\text{Ambient Reading}}{0.0}$  ppm

COLLECTED BY (PRINT)

Larry A. Lopez

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name) Larry A. Lopez	01/06/10	G. MADRUKY	1/6/10
(Signature) Larry A. Lopez	1555	LM	1555
RELINQUISHED BY	Date/Time	RECEIVED BY	Date/Time
(Printed Name)		(Printed Name)	
(Signature)		(Signature)	

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7715

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA: QBT3		ALLH	
TIME COLLECTED (HH:MM)		1331		SUB-MEDIA: TUFF 1		NA	
PRS ID: 12-001(a)-99		OK		SAMPLE TECH CODE: HA		OK	
LOCATION ID: 12-610675		↓		FIELD QC TYPE: NA		↓	
LOCATION TYPE: GENERIC		↓		FIELD PREP: NA		↓	
TOP DEPTH: 0		0.0		SAMPLE USAGE: INV		↓	
BOTTOM DEPTH: 0		0.12		SCREEN/PORT DESC: NA			
FIELD MATRIX: R		S		EXCAVATED: YES/NO NA			
COMPOSITE TYPE: NA		COMPOSITE TIME INTERVAL: NA		WATER FLOWING: YES/NO NA			
BOREHOLE: YES/NO NA		BOREHOLE DECLINATION: NA		BOREHOLE DIRECTION: NA			

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 12m 1/6/10	None	Yes	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1	↓	NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: sandy silt tan 1/6/10  
Dark brown, moist, soil - rocks - roots

SAMPLE COMMENTS:

N/A

LOCATION DESC: 1a-21 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\leq$  33 dpm  
Beta/Gamma  $\leq$  2220 dpm

PID Ambient Reading 0.0 ppm

HE NEG

COLLECTED BY (PRINT)

R. Saunders

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) G. MAROZAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time



## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7716

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ALL H
TIME COLLECTED (HH:MM)		1350		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610675	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC	↓		FIELD PREP:	NA		↓
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	2.0		SCREEN/PORT DESC:			NA
FIELD MATRIX:	R	S		EXCAVATED: YES/NO	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO	NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	AM241+GS+ISO PU+ISOU	1 LITER POLY tam 1/6/10	None	Yes	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1	↓	NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: brown silty sand, few roots, some rock

SAMPLE COMMENTS:

NA

LOCATION DESC: 1a-21 drainage

FIELD SCREENING/MEASUREMENT RESULTS:

Alpha  $\pm$  16 dpm  
Beta/Gamma  $\pm$  2460 dpm

PID ambient  
reading 0.0  
0.0 ppm

COLLECTED BY (PRINT)

R. Saunders

REVIEWED BY (PRINT) T. McFarland

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MAREZKY (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7717

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	OBT3		Alk
TIME COLLECTED (HH:MM)		1344		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610676	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	0.3		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES/NO/NA	NA		
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY Tam 1/6/10	None	Y	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1	↓	NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

wet sand

SAMPLE COMMENTS:

NA

LOCATION DESC:

1a-22, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 22$  dpm $\text{BY} \leq 2430$  dpmPID  $\frac{\text{ambient}}{\text{reading}} = \frac{0.0}{0.0}$  ppm

HE neg

COLLECTED BY (PRINT)

TL McFarlane

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. Markozay (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

**SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY**

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7718

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ok
TIME COLLECTED (HH:MM)		1411		SUB-MEDIA:	TUFF 1		L
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	12-610676			FIELD QC TYPE:	NA		
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	INV		
BOTTOM DEPTH:	0	1.5		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	ok		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 3m 1/6/10	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC:

Brownish gray tuff

SAMPLE COMMENTS:

NA

LOCATION DESC: 1a-22, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

$\alpha \leq 11$  dpm  
 $\text{PID ambient reading } 0.0$   
 $\text{BX} \leq 3110$  dpm  
 $0.0$  ppm

COLLECTED BY (PRINT)

T. M. O'Farland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARICAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7719

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		ALLH
TIME COLLECTED(HH:MM)		1431		SUB-MEDIA:	TUFF 1		RS 01-06-10 0 NA
PRS ID:	12-001(a)-99	OK		SAMPLE TECH CODE:	HA		OK
LOCATION ID:	12-610677	↓		FIELD QC TYPE:	NA		↓
LOCATION TYPE:	GENERIC			FIELD PREP:	NA		
TOP DEPTH:	0			SAMPLE USAGE:	INV		↓
BOTTOM DEPTH:	0	RS 01-06-10 0.3 0.7		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	S		EXCAVATED: YES (NO) NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES (NO) NA
BOREHOLE: YES (NO) NA		BOREHOLE DECLINATION:	NA	BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	normal	AM241+GS+ISO PU+ISOU	1 LITER POLY 12/16/10	None	Yes	
1	↓	Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Yes	
1		NMED Explosives list	250 ML AMBER GLASS	Ice	Yes	
1	↓	RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Yes	

SAMPLE DESC: dark brown wet silty sand, some roots

FR RE12-10-7737

SAMPLE COMMENTS:

NA

LOCATION DESC: 1a-23, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

 $\alpha \leq 27$  dpm $\beta \leq 2230$  dpm

COLLECTED BY (PRINT)

R. Saunders

HE negative

PID

ambient  
reading 0.0  
0.0 ppm

REVIEWED BY (PRINT) TLMcFarland

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARCZAK (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7727

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	QBT3		Alh
TIME COLLECTED (HH:MM)		1259		SUB-MEDIA:	TUFF 1		NA
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		ok
LOCATION ID:	UNK	12-910668		FIELD QC TYPE:	NA		FD
LOCATION TYPE:	GENERIC	ok		FIELD PREP:	NA		ok
TOP DEPTH:	0	0.0		SAMPLE USAGE:	INV		QC
BOTTOM DEPTH:	0	1.0		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	B	S		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		WATER FLOWING: YES/NO/NA
BOREHOLE: YES/NO/NA	NA			BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION: NA

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	8082+NMED-HEXP	250 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY 13m 116/10	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1L	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: QC sample of RE12-10-7701  
Wet brown silty sand

SAMPLE COMMENTS:  
NA

LOCATION DESC: 1a-19, drainage

FIELD SCREENING/MEASUREMENT RESULTS:  
 $\alpha \pm 11$  dpm      PID ambient 0.0  
 $\beta \pm 2450$  dpm      reading 0.0  
 HE neg

COLLECTED BY (PRINT)

TL McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARZARU (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7734

WORK ORDER:

AS PLANNED		AS COLLECTED		AS PLANNED		AS COLLECTED	
DATE COLLECTED(MM/DD/YYYY):		01/06/2010		MEDIA:	OBT3		ok
TIME COLLECTED (HH:MM)		1118		SUB-MEDIA:	TUFF 1		
PRS ID:	12-001(a)-99	ok		SAMPLE TECH CODE:	HA		
LOCATION ID:	UNK	12-610672		FIELD QC TYPE:	ED		
LOCATION TYPE:	GENERIC	ok		FIELD PREP:	NA		
TOP DEPTH:	0	1.0		SAMPLE USAGE:	QC		
BOTTOM DEPTH:	0	2.8		SCREEN/PORT DESC:	NA		
FIELD MATRIX:	R	ok		EXCAVATED: YES/NO/NA			
COMPOSITE TYPE:	NA			COMPOSITE TIME INTERVAL:	NA		
				WATER FLOWING: YES/NO/NA			
BOREHOLE: YES/NO/NA				BOREHOLE DECLINATION:	NA		
				BOREHOLE DIRECTION:	NA		

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	724 1/6/2010 8082+NMED-HEXP	250 ML AMBER GLASS	Ice	Y	
1		AM241+GS+ISO PU+ISOU	1 LITER POLY	None	Y	
1		Met+U+CLO4+C N	1 GAL POLY 1 Liter	Ice	Y	
1		RADVANA+B+G	1 EA 8 IN RESEALABLE POLY BAG	None	Y	

SAMPLE DESC: QC Sample of RE12-10-7710

Pinkish gray tuff

SAMPLE COMMENTS:

NA

LOCATION DESC: 1a-17, drainage

FIELD SCREENING/MEASUREMENT RESULTS:

α ≤ 44 dpm  
 BX ≤ 2930 dpm

PID ambient  
 reading 0.0  
 0.0

COLLECTED BY (PRINT)

NICKOLAS GALLEGOS

REVIEWED BY (PRINT)

TL McFarland

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MARCZAK (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7737

WORK ORDER:

AS PLANNED	AS COLLECTED	AS PLANNED	AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):	01/06/2010	MEDIA:	NA
TIME COLLECTED (HH:MM)	1507	SUB-MEDIA:	OTHER
PRS ID: 12-001(a)-99	OK	SAMPLE TECH CODE:	DC
LOCATION ID: UNK	12-G10677	FIELD QC TYPE:	ER
LOCATION TYPE: GENERIC	OK	FIELD PREP:	UF
TOP DEPTH: 0	↓	SAMPLE USAGE:	QC
BOTTOM DEPTH: 0	↓	SCREEN/PORT DESC:	NA
FIELD MATRIX: W	W	EXCAVATED: YES/NO/NA	
COMPOSITE TYPE: NA	COMPOSITE TIME INTERVAL: NA	WATER FLOWING: YES/NO/NA	
BOREHOLE: YES/NO/NA	BOREHOLE DECLINATION: NA	BOREHOLE DIRECTION: NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	METALS+U-GEL	1 LITER POLY	Nitric Acid	Y	
1	↓	SW-846:6850	250 ML POLY	Ice	Y	
1	↓	TCN	500 ML POLY	Sodium Hydroxide	Y	

SAMPLE DESC: QC Sample of RE12-10-7719

## SAMPLE COMMENTS:

Rinsate

## LOCATION DESC:

1a-23

## FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)

TL McFarland

REVIEWED BY (PRINT)

R Saunders

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MADRAN (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time

## SAMPLE COLLECTION LOG/FIELD CHAIN OF CUSTODY

EVENT ID: 2493

EVENT NAME: 4th Qtr. FY09 - CU 12-001(a)-99 - Threemile Canyon

SAMPLE ID: RE12-10-7738

WORK ORDER:

AS PLANNED		AS COLLECTED	AS PLANNED		AS COLLECTED
DATE COLLECTED(MM/DD/YYYY):		01/06/2010	MEDIA:	NA	ok
TIME COLLECTED (HH:MM)		1000	SUB-MEDIA:	OTHER	
PRS ID:	12-001(a)-99	ok	SAMPLE TECH CODE:	DC	
LOCATION ID:	UNK	13-610670	FIELD QC TYPE:	ER	
LOCATION TYPE:	GENERIC	ok	FIELD PREP:	UF	
TOP DEPTH:	0	↓	SAMPLE USAGE:	QC	↓
BOTTOM DEPTH:	0	↓	SCREEN/PORT DESC:	NA	
FIELD MATRIX:	W	W	EXCAVATED: YES/NO/NA		
COMPOSITE TYPE:	NA		COMPOSITE TIME INTERVAL:	NA	
BOREHOLE: YES/NO/NA			WATER FLOWING: YES/NO/NA		
BOREHOLE DECLINATION:	NA		BOREHOLE DIRECTION:	NA	

#	PRIORITY	ORDER	CNTNR	PRESERVATIVE	COLLECTED Y/N	SPECIAL INSTRUCTIONS
1	Normal	METALS+U-GEL	1 LITER POLY	Nitric Acid	Y	
1	↓	SW-846:6850	250 ML POLY	Ice	Y	
1	↓	TCN	500 ML POLY	Sodium Hydroxide	Y	

SAMPLE DESC: QC Sample of RE12-10-7706

SAMPLE COMMENTS: Rinsate

LOCATION DESC:

1a-14

FIELD SCREENING/MEASUREMENT RESULTS:

NA

COLLECTED BY (PRINT)


Th McFarland

REVIEWED BY (PRINT)

R. Saunders

RELINQUISHED BY (Printed Name) R. Saunders (Signature) R. Saunders	Date/Time 01/06/2010 1555	RECEIVED BY (Printed Name) S. MATHIAS (Signature) [Signature]	Date/Time 1/6/10 1555
RELINQUISHED BY (Printed Name) (Signature)	Date/Time	RECEIVED BY (Printed Name) (Signature)	Date/Time



DATA VALIDATION COVER SHEET	
5119-1	Records Use only
Data Validation Cover Sheet	
	

**Section I.**

REQUEST NUMBER: 10-1162 VALIDATION DATE: 02/17/10 LAB CODE: GEL

CONTRACT LABORATORY NAME: GEL Laboratories LLC

VALIDATOR: David Schwent ORGANIZATION: Analytical Quality Associates, Inc.

ANALYTICAL SUITE (CHECK ALL THAT APPLY):

<input type="checkbox"/> TPH-GRO	<input type="checkbox"/> HIGH EXPLOSIVES	<input type="checkbox"/> DIOXIN FURANS	<input type="checkbox"/> LCMSMS PERCHLORATES
<input type="checkbox"/> TPH-DRO	<input type="checkbox"/> METALS	<input type="checkbox"/> PCB CONGENERS	<input type="checkbox"/> ORGANOCHLORINE PESTICIDES/POLYCHLORINATED BIPHENYLS
<input type="checkbox"/> GENERAL CHEMISTRY	<input checked="" type="checkbox"/> RADIOCHEMISTRY	<input type="checkbox"/> LCMSMS HIGH EXPLOSIVES	
<input type="checkbox"/> OTHER (DESCRIBE): _____			


**Section II. Completeness Check**


YES	NO	N/A	(CHECK ONE)	YES	NO	N/A	(CHECK ONE)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. CHAIN-OF-CUSTODY FORM(S)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. RAW/BSS DATA
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. CASE NARRATIVE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. QUALITY CONTROL FORMS
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. SAMPLE RESULT FORMS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8. QUANTITATION REPORTS
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. SAMPLE CHROMATOGRAMS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. TICS FORMS
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. STANDARD CHROMATOGRAMS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10. TICS MASS SPECTRA

Comments/problems noted (include information about requests for further information submitted to the contract laboratory and agreed-upon date of resolution and contract laboratory point of contact):


1. All reported sample results that were rejected by the laboratory due to interference or low abundance were qualified R,R5a. In the QC samples, several results were also rejected by the laboratory. No sample data were qualified as a result.
2. It should be noted that the matrix QC analyses for all the radiochemistry batches of SDG 244231 in this RN were performed on LANL samples from other RNs. No sample data were qualified as a result.

**Reviewed by:** Monica Dymerski **Level I** **Date:** 02/17/10


DATA VALIDATION COVER SHEET	
5119-1	Records Use only
Data Validation Cover Sheet	 Los Alamos NATIONAL LABORATORY EST. 1943
VALIDATOR'S SIGNATURE: <u>David Schwartz</u> DATE: <u>02/17/10</u>	
Form 5119-1, Revision 0.0	LOS ALAMOS Environmental Restoration Project

RAD ANALYTICAL DATA VALIDATION CHECKLIST	
5119-2  Rad Analytical Data Validation Checklist	Records Use only  

Yes No N/A (Check One)				Assign Qualifier Listed Below If Criterion = Yes	
				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1. The holding time was >1 and ≤2 times the applicable holding time requirement.	UJ, R9	J-, R9
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2. The holding time was >2 times the applicable holding time requirement.	R, R9a	J-, R9a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. The results for the affected analytes are considered not detected (U) because the associated sample concentration was less than or equal to the MDC.	U, R5	N/A
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. The analyte should be regarded as rejected because spectral interferences prevent positive identification of the analytes.	R, R5a	R, R5a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. The MDC and/or TPU documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R5b	J-, R5b
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. The results for the affected analytes should be regarded as not detected (U) because the associated sample concentration was less than 3X the 1 sigma TPU.	U, R11	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7. The sample result is ≤5X the concentration of the related analyte in the method blank.	U, R4	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8. The affected analytes are considered estimated and biased high because this analyte was identified in the method blank but was >5X.	N/A	J, R4a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	9. The sample result is ≤5X the concentration of the related analyte in the trip blank, rinsate blank, or equipment blank.	U, R4d	N/A
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10. Required method blank information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R4e	R, R4e
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11. The tracer is <10%R. Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3	R, R3

RAD ANALYTICAL DATA VALIDATION CHECKLIST	
5119-2	Records Use only
Rad Analytical Data Validation Checklist	
	

Yes No N/A				Assign Qualifier Listed Below If Criterion = Yes	
(Check One)				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12. The tracer is < the Lower Acceptance Level (LAL) but $\geq 10\%R$ . Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	UJ, R3a	J-, R3a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. The Tracer%R value is > the Upper Acceptance Limit (UAL). Follow the external laboratory limits located within the associated data package. Tracer%R is not applicable for Gamma Spectroscopy.	N/A	J+, R3b
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14. Required tracer information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. Tracer%R is not applicable for Gamma Spectroscopy.	R, R3d	R, R3d
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15. The LCS percent recovery was <10%. Follow the external laboratory limits located within the associated data package.	R, R12	R, R12
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16. The LCS percent recovery was < the LAL but >10%. Follow the external laboratory limits located within the associated data package.	UJ, R12a	J-, R12a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	17. The LCS percent recovery was > the UAL. Follow the external laboratory limits located within the associated data package.	N/A	J+, R12b
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	18. The LCS documentation is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R12c	R, R12c
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19. Associated duplicate sample has DER or RER > the analytical laboratory's acceptance limits.	R, R10	J, J10
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	20. The duplicate sample was not prepared and/or analyzed with the samples for unspecified reasons. The duplicate information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information.	R, R6	R, R6

RAD ANALYTICAL DATA VALIDATION CHECKLIST	
5119-2  Rad Analytical Data Validation Checklist	Records Use only  

Yes   No   N/A (Check One)				Assign Qualifier Listed Below If Criterion = Yes	
				Non-detected Analyte	Detected Analyte
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	21. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6	R, R6
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	22. The associated matrix spike recovery was <10%. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6a	J-, R6a
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	23. The associated matrix spike recovery was above the UAL. Follow the external laboratory limits. MS/MSD is not applicable to Gamma Spectroscopy.	UJ, R6b	J+, R6b
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	24. Required matrix spike information is missing. Data may not be acceptable for use. Contact the SMO or external laboratory for information. If LCS information is present, do not Reject. Qualify data based on LCS information. MS/MSD is not applicable to Gamma Spectroscopy.	R, R6c	R, R6c
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25. Duplicate, dilution, or reanalysis.	UJ, R88	J, R88
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	26. The LANL project chemist identified quality deficiencies in the reported data that require further qualification. This code can ONLY be used and/or under advisement by the LANL project chemist.	UJ, R, R19	J, R, R19
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. Quantification of data via data validation did not occur based on Quality Control requirements in this procedure. Adhere to the external laboratory qualifiers found within the Form I analytical data summary sheets generated by the external laboratory.	U, U_LAB	J, J_LAB NQ, NQ

### Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:	RE12-10-7734	Project:	LANL01004
Sample ID:	244229001	Client ID:	LANL010
Matrix:	R		
Collect Date:	06-JAN-10		
Receive Date:	12-JAN-10		
Collector:	Client		
Moisture:	6.55%		

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00088	0.0226	+/-0.00217	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00232	0.0192	+/-0.00403	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	-0.00232	0.022	+/-0.00285	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.794	0.0827	+/-0.0715	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0396	0.0513	+/-0.0135	0.100	pCi/g						
Uranium-238		0.744	0.048	+/-0.068	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.387	0.483	+/-0.154	0.200	pCi/g		MXR1	01/22/10	1256	941239	4
Bismuth-211	UI	4.63	R,R5a	0.378	+/-0.301	pCi/g						
Bismuth-214		1.34		0.117	+/-0.098	0.200	pCi/g					
Cadmium-109	UI	2.57	R,R5a	1.47	+/-0.674	pCi/g						
Cerium-139	U	0.0393		0.0588	+/-0.0172	0.050	pCi/g					
Cesium-134	UI	0.093	R,R5a	0.0927	+/-0.0283	0.100	pCi/g					
Cesium-137	U	-0.0223		0.0628	+/-0.0202	0.100	pCi/g					
Cobalt-60	U	-0.0178		0.0659	+/-0.0214	0.100	pCi/g					
Europium-152	U	-0.0314		0.176	+/-0.0781	0.200	pCi/g					
Lanthanum-140	U	-0.0681		0.116	+/-0.0402	pCi/g						
Lead-212		1.97		0.102	+/-0.103	0.100	pCi/g					
Lead-214		1.61		0.132	+/-0.113	0.100	pCi/g					
Mercury-203	U	0.00606		0.0778	+/-0.0261	0.100	pCi/g					
Potassium-40		35.5		0.577	+/-1.63	1.00	pCi/g					
Radium-223	U	-1.25		1.16	+/-0.385	pCi/g						
Radium-224	UI	5.94	R,R5a	1.16	+/-0.830	pCi/g						
Radium-226		1.34		0.117	+/-0.098	pCi/g						
Radium-228		2.08		0.220	+/-0.194	0.500	pCi/g					
Ruthenium-106	U	-0.358		0.514	+/-0.171	0.800	pCi/g					
Sodium-22	U	-0.00418		0.0798	+/-0.0249	0.080	pCi/g					
Strontium-85	UI	0.0822	R,R5a	0.0711	+/-0.022	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7734  
Sample ID: 244229001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thallium-208		0.619	0.0646	+/-0.0451	0.080	pCi/g						
Thorium-227	U	0.141	0.752	+/-0.218		pCi/g						
Thorium-231	U	-1.25	1.16	+/-0.385		pCi/g						
Thorium-234	U	0.921	3.56	+/-1.45	2.00	pCi/g						
Tin-113	U	0.0174	0.0862	+/-0.0254	0.100	pCi/g						
Uranium-235	U	0.0242	0.402	+/-0.124	0.500	pCi/g						
Yttrium-88	U	0.00803	0.0562	+/-0.0166	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	81.8	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.0	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	99.1	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

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- > Result is greater than value reported
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- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7701  
Sample ID: 244229002  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 25.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00847	0.0218	+/-0.00689	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00768	0.0211	+/-0.00316	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.0179	0.0242	+/-0.00487	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.98	0.103	+/-0.161	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.107	0.0639	+/-0.0222	0.100	pCi/g						
Uranium-238		2.32	0.0597	+/-0.184	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00547	0.226	+/-0.0702	0.200	pCi/g		MXR1	01/22/10	1257	941239	4
Bismuth-211	UI	3.23	R,R5a	0.196	+/-0.180	pCi/g						
Bismuth-214		0.950		0.0712	+/-0.0608	pCi/g						
Cadmium-109	UI	2.18	R,R5a	0.934	+/-0.348	pCi/g						
Cerium-139	U	-0.00337		0.0333	+/-0.00945	pCi/g						
Cesium-134	UI	0.071	R,R5a	0.056	+/-0.0187	pCi/g						
Cesium-137		0.226		0.0384	+/-0.0215	pCi/g						
Cobalt-60	U	-0.00472		0.0383	+/-0.0118	pCi/g						
Europium-152	U	-0.0127		0.100	+/-0.0358	pCi/g						
Lanthanum-140	U	-0.0126		0.0829	+/-0.0255	pCi/g						
Lead-212		1.41		0.0571	+/-0.0616	pCi/g						
Lead-214		1.12		0.0682	+/-0.0691	pCi/g						
Mercury-203	U	0.0179		0.0453	+/-0.0149	pCi/g						
Potassium-40		32.0		0.300	+/-1.35	pCi/g						
Radium-223	U	-0.037		0.662	+/-0.229	pCi/g						
Radium-224	UI	3.26	R,R5a	0.648	+/-0.433	pCi/g						
Radium-226		0.950		0.0712	+/-0.0608	pCi/g						
Radium-228		1.37		0.133	+/-0.141	pCi/g						
Ruthenium-106	U	0.0429		0.337	+/-0.101	pCi/g						
Sodium-22	U	-0.0266		0.0426	+/-0.0138	pCi/g						
Strontium-85	UI	0.099	R,R5a	0.0452	+/-0.013	pCi/g						
Thallium-208		0.425		0.0352	+/-0.0304	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7701  
Sample ID: 244229002  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.131	0.404	+/-0.121		pCi/g						
Thorium-231	U	-0.037	0.662	+/-0.229		pCi/g						
Thorium-234		2.52	1.85	+/-0.794	2.00	pCi/g						
Tin-113	U	0.00523	0.0471	+/-0.0135	0.100	pCi/g						
Uranium-235	U	0.0573	0.242	+/-0.073	0.500	pCi/g						
Yttrium-88	U	0.00842	0.0379	+/-0.0111	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	91.0	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7702  
Sample ID: 244229003  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 15%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00837	0.0216	+/-0.00521	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0192	+/-0.00165	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	-0.00116	0.022	+/-0.00308	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.843	0.103	+/-0.0793	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0493	0.0639	+/-0.0146	0.100	pCi/g						
Uranium-238		0.877	0.0597	+/-0.0818	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0254	0.070	+/-0.0214	0.200	pCi/g		MXR1	01/22/10	1257	941239	4
Bismuth-211	UI	4.85	R,R5a	0.276	+/-0.304	pCi/g						
Bismuth-214		1.49		0.110	+/-0.118	0.200	pCi/g					
Cadmium-109	UI	4.28	R,R5a	0.746	+/-0.377	pCi/g						
Cerium-139	U	-0.00318		0.0379	+/-0.0109	0.050	pCi/g					
Cesium-134	UI	0.110	R,R5a	0.0969	+/-0.0312	0.100	pCi/g					
Cesium-137	U	0.00741		0.0715	+/-0.0216	0.100	pCi/g					
Cobalt-60	U	0.0359		0.0799	+/-0.022	0.100	pCi/g					
Europium-152	U	-0.0279		0.136	+/-0.0426	0.200	pCi/g					
Lanthanum-140	U	-0.0241		0.178	+/-0.0559	pCi/g						
Lead-212		1.95		0.0738	+/-0.109	0.100	pCi/g					
Lead-214		1.69		0.0962	+/-0.115	0.100	pCi/g					
Mercury-203	U	0.0112		0.0563	+/-0.0185	0.100	pCi/g					
Potassium-40		35.4		0.588	+/-1.83	1.00	pCi/g					
Radium-223	U	-0.17		0.934	+/-0.326	pCi/g						
Radium-224	UI	6.05	R,R5a	0.843	+/-0.706	pCi/g						
Radium-226		1.49		0.110	+/-0.118	pCi/g						
Radium-228		1.93		0.230	+/-0.201	0.500	pCi/g					
Ruthenium-106	U	0.236		0.591	+/-0.171	0.800	pCi/g					
Sodium-22	U	-0.0454		0.0808	+/-0.0276	0.080	pCi/g					
Strontium-85	U	0.0341		0.0591	+/-0.0184	pCi/g						
Thallium-208		0.660		0.0594	+/-0.0576	0.080	pCi/g					

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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7702  
Sample ID: 244229003  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.31	0.488	+/-0.156		pCi/g						
Thorium-231	U	-0.17	0.934	+/-0.326		pCi/g						
Thorium-234		2.09	0.682	+/-0.463	2.00	pCi/g						
Tin-113	U	0.00432	0.069	+/-0.0213	0.100	pCi/g						
Uranium-235	U	0.0632	0.264	+/-0.0812	0.500	pCi/g						
Yttrium-88	U	0.036	0.0753	+/-0.0198	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.3	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7700  
Sample ID: 244229004  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 6.34%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0142	0.0246	+/-0.0065	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00112	0.0185	+/-0.00372	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	-0.00112	0.0212	+/-0.00251	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.441	0.0958	+/-0.0486	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0458	0.0595	+/-0.0146	0.100	pCi/g						
Uranium-238		0.352	0.0556	+/-0.0423	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0441	0.184	+/-0.060	0.200	pCi/g		MXR1	01/22/10	1258	941239	4
Bismuth-211	UI	3.41	R,R5a	0.263	+/-0.257	pCi/g						
Bismuth-214		0.901		0.0915	+/-0.0829	pCi/g						
Cadmium-109	UI	2.15	R,R5a	0.987	+/-0.431	pCi/g						
Cerium-139	U	-0.000967		0.0422	+/-0.0125	pCi/g						
Cesium-134	UI	0.078	R,R5a	0.0705	+/-0.0204	pCi/g						
Cesium-137	U	-0.000371		0.0503	+/-0.0153	pCi/g						
Cobalt-60	U	0.012		0.0558	+/-0.0166	pCi/g						
Europium-152	U	-0.0328		0.132	+/-0.0443	pCi/g						
Lanthanum-140	U	0.038		0.117	+/-0.0391	pCi/g						
Lead-212		1.54		0.0765	+/-0.111	pCi/g						
Lead-214		1.19		0.0933	+/-0.0945	pCi/g						
Mercury-203	U	0.0432		0.0606	+/-0.0207	pCi/g						
Potassium-40		37.3		0.366	+/-1.85	pCi/g						
Radium-223	U	0.538		0.913	+/-0.303	pCi/g						
Radium-224	UI	4.16	R,R5a	0.869	+/-0.568	pCi/g						
Radium-226		0.901		0.0915	+/-0.0829	pCi/g						
Radium-228		1.56		0.173	+/-0.162	pCi/g						
Ruthenium-106	U	-0.107		0.419	+/-0.130	pCi/g						
Sodium-22	U	-0.0185		0.0558	+/-0.0175	pCi/g						
Strontium-85	UI	0.156	R,R5a	0.0649	+/-0.0207	pCi/g						
Thallium-208		0.496		0.0453	+/-0.0441	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7700  
Sample ID: 244229004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0369	0.525	+/-0.163		pCi/g						
Thorium-231	U	0.538	0.913	+/-0.303		pCi/g						
Thorium-234	U	0.334	1.55	+/-0.768	2.00	pCi/g						
Tin-113	U	0.00287	0.0592	+/-0.0179	0.100	pCi/g						
Uranium-235	U	0.263	0.294	+/-0.118	0.500	pCi/g						
Yttrium-88	U	-0.0227	0.0438	+/-0.0147	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	74.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

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- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7699  
Sample ID: 244229005  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 20.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00371	0.0235	+/-0.003	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00114	0.0188	+/-0.00591	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.00569	0.0215	+/-0.00342	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.54	0.0955	+/-0.127	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.103	0.0593	+/-0.021	0.100	pCi/g						
Uranium-238		1.55	0.0554	+/-0.128	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0131	0.339	+/-0.110	0.200	pCi/g		MXR1	01/22/10	1305	941239	4
Bismuth-211	UI	4.01	R,R5a	0.358	+/-0.276	pCi/g						
Bismuth-214		1.08		0.127	+/-0.0883	0.200	pCi/g					
Cadmium-109	U	1.65		1.70	+/-0.701	pCi/g						
Cerium-139	U	0.0132		0.0565	+/-0.0167	0.050	pCi/g					
Cesium-134	U	0.0946		0.102	+/-0.0267	0.100	pCi/g					
Cesium-137		0.146		0.0639	+/-0.0425	0.100	pCi/g					
Cobalt-60	U	-0.0339		0.0657	+/-0.0227	0.100	pCi/g					
Europium-152	U	0.0294		0.184	+/-0.0646	0.200	pCi/g					
Lanthanum-140	U	-0.0304		0.150	+/-0.0478	pCi/g						
Lead-212		1.30		0.141	+/-0.0816	0.100	pCi/g					
Lead-214		1.39		0.125	+/-0.103	0.100	pCi/g					
Mercury-203	U	0.0491		0.0815	+/-0.0226	0.100	pCi/g					
Potassium-40		24.7		0.560	+/-1.30	1.00	pCi/g					
Radium-223	U	-0.0656		1.25	+/-0.424	pCi/g						
Radium-224	UI	2.21	R,R5a	1.60	+/-0.468	pCi/g						
Radium-226		1.08		0.127	+/-0.0883	pCi/g						
Radium-228		1.37		0.243	+/-0.152	0.500	pCi/g					
Ruthenium-106	U	-0.0999		0.561	+/-0.176	0.800	pCi/g					
Sodium-22	U	-0.00119		0.0791	+/-0.0243	0.080	pCi/g					
Strontium-85	U	0.0654		0.0694	+/-0.0207	pCi/g						
Thallium-208		0.480		0.0606	+/-0.0421	0.080	pCi/g					

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# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7699  
Sample ID: 244229005  
Project: I.LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0959	0.750	+/-0.232		pCi/g						
Thorium-231	U	-0.0656	1.25	+/-0.424		pCi/g						
Thorium-234		3.46	2.76	+/-1.07	2.00	pCi/g						
Tin-113	U	-0.0299	0.0787	+/-0.0244	0.100	pCi/g						
Uranium-235	U	0.0175	0.391	+/-0.118	0.500	pCi/g						
Yttrium-88	U	-0.0151	0.0561	+/-0.0187	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	87.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	97.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.9	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

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- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7727  
Sample ID: 244229006  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 25.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00456	0.0217	+/-0.00302	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.001	0.0166	+/-0.00142	0.050	pCi/g		JXD2	01/22/10	1318	941357	2
Plutonium-239/240	U	0.0141	0.019	+/-0.00408	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		4.55	0.0976	+/-0.340	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.241	0.0606	+/-0.035	0.100	pCi/g						
Uranium-238		4.87	0.0566	+/-0.362	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	-0.108	0.253	+/-0.102	0.200	pCi/g		MXR1	01/22/10	1340	941239	4
Bismuth-211	UI	3.08	R,R5a	0.314	+/-0.217	pCi/g						
Bismuth-214		1.01		0.101	+/-0.0782	pCi/g						
Cadmium-109	UI	3.77	R,R5a	1.22	+/-0.570	pCi/g						
Cerium-139	U	-0.00822		0.0462	+/-0.014	pCi/g						
Cesium-134	U	0.0752		0.089	+/-0.0257	pCi/g						
Cesium-137		0.306		0.0628	+/-0.035	pCi/g						
Cobalt-60	U	-0.0127		0.062	+/-0.0197	pCi/g						
Europium-152	U	0.0339		0.164	+/-0.051	pCi/g						
Lanthanum-140	U	-0.0895		0.132	+/-0.0459	pCi/g						
Lead-212		1.55		0.0851	+/-0.0757	pCi/g						
Lead-214		1.07		0.110	+/-0.0805	pCi/g						
Mercury-203	U	-0.0396		0.0606	+/-0.019	pCi/g						
Potassium-40		31.8		0.580	+/-1.45	pCi/g						
Radium-223	U	-0.251		1.01	+/-0.349	pCi/g						
Radium-224	UI	3.99	R,R5a	0.968	+/-0.650	pCi/g						
Radium-226		1.01		0.101	+/-0.0782	pCi/g						
Radium-228		1.65		0.211	+/-0.188	pCi/g						
Ruthenium-106	U	-0.266		0.504	+/-0.159	pCi/g						
Sodium-22	U	0.0566		0.0818	+/-0.0222	pCi/g						
Strontium-85	U	0.0181		0.0586	+/-0.0196	pCi/g						
Thallium-208		0.494		0.0613	+/-0.0428	pCi/g						

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Company : Los Alamos National Laboratory  
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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7727  
Sample ID: 244229006  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.128	0.613	+/-0.174		pCi/g					
Thorium-231	U	-0.251	1.01	+/-0.349		pCi/g					
Thorium-234		5.57	2.07	+/-1.30	2.00	pCi/g					
Tin-113	U	-0.0254	0.0727	+/-0.0225	0.100	pCi/g					
Uranium-235	U	0.189	0.349	+/-0.101	0.500	pCi/g					
Yttrium-88	U	0.0446	0.0733	+/-0.0188	0.100	pCi/g					

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	88.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.0	(50%-105%)

**Notes:**

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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7710  
Sample ID: 244229007  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 6.38%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.00181	0.0202	+/-0.00384	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0194	+/-0.00166	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.00821	0.0222	+/-0.00313	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.862	0.102	+/-0.081	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0487	0.0631	+/-0.0166	0.100	pCi/g						
Uranium-238		0.742	0.059	+/-0.0721	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0188	0.081	+/-0.0258	0.200	pCi/g		MXR1	01/22/10	1340	941239	4
Bismuth-211	UI	4.80	R,R5a	0.308	+/-0.346	pCi/g						
Bismuth-214		1.47		0.103	+/-0.126	pCi/g						
Cadmium-109	UI	4.52	R,R5a	0.760	+/-0.430	pCi/g						
Cerium-139	U	0.00861		0.0445	+/-0.0128	pCi/g						
Cesium-134	U	0.0763		0.0998	+/-0.0353	pCi/g						
Cesium-137	U	0.0575		0.0717	+/-0.0282	pCi/g						
Cobalt-60	U	0.0766		0.0846	+/-0.0221	pCi/g						
Europium-152	U	-0.0211		0.149	+/-0.0455	pCi/g						
Lanthanum-140	U	-0.0619		0.177	+/-0.0567	pCi/g						
Lead-212		1.98		0.0777	+/-0.126	pCi/g						
Lead-214		1.67		0.107	+/-0.128	pCi/g						
Mercury-203	U	0.0503		0.0685	+/-0.0219	pCi/g						
Potassium-40		35.9		0.477	+/-1.80	pCi/g						
Radium-223	U	-0.196		1.06	+/-0.355	pCi/g						
Radium-224	UI	5.58	R,R5a	0.885	+/-0.643	pCi/g						
Radium-226		1.47		0.103	+/-0.126	pCi/g						
Radium-228		1.97		0.242	+/-0.198	pCi/g						
Ruthenium-106	U	-0.152		0.540	+/-0.164	pCi/g						
Sodium-22	U	-0.0139		0.0788	+/-0.0246	pCi/g						
Strontium-85	U	0.00293		0.0589	+/-0.0203	pCi/g						
Thallium-208		0.535		0.0618	+/-0.0476	pCi/g						

## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7710  
Sample ID: 244229007  
Project: LANL 01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.200	0.603	+/-0.179		pCi/g						
Thorium-231	U	-0.196	1.06	+/-0.355		pCi/g						
Thorium-234		1.51	0.802	+/-0.347	2.00	pCi/g						
Tin-113	U	0.0124	0.0754	+/-0.0219	0.100	pCi/g						
Uranium-235	U	0.170	0.312	+/-0.0897	0.500	pCi/g						
Yttrium-88	U	-0.0148	0.0557	+/-0.0184	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	86.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	90.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.7	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

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- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- II Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

### Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7715  
Sample ID: 244229008  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 26%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0121	0.0237	+/-0.00825	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00192	0.0159	+/-0.00384	0.050	pCi/g		JXD2	01/22/10	1318	941357	2
Plutonium-239/240		0.0682	0.0181	+/-0.00874	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.86	0.142	+/-0.236	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.220	0.0879	+/-0.0395	0.100	pCi/g						
Uranium-238		3.68	0.0821	+/-0.295	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.078	0.202	+/-0.0644	0.200	pCi/g		MXR1	01/22/10	1403	941239	4
Bismuth-211	UI	4.52	R,R5a	0.286	+/-0.379	pCi/g						
Bismuth-214		1.25		0.103	+/-0.104	pCi/g						
Cadmium-109	U	0.718		1.37	+/-0.511	pCi/g						
Cerium-139	U	-0.0125		0.0452	+/-0.0136	pCi/g						
Cesium-134	UI	0.0939	R,R5a	0.0901	+/-0.0293	0.100	pCi/g					
Cesium-137		0.838		0.0614	+/-0.0609	0.100	pCi/g					
Cobalt-60	U	-0.00031		0.065	+/-0.0201	0.100	pCi/g					
Europium-152	U	-0.0601		0.148	+/-0.0483	0.200	pCi/g					
Lanthanum-140	U	0.0654		0.142	+/-0.0394	pCi/g						
Lead-212		1.53		0.0939	+/-0.123	0.100	pCi/g					
Lead-214		1.57		0.0995	+/-0.138	0.100	pCi/g					
Mercury-203	U	0.0191		0.066	+/-0.0196	0.100	pCi/g					
Potassium-40		28.7		0.407	+/-1.52	1.00	pCi/g					
Radium-223	U	0.685		1.06	+/-0.343	pCi/g						
Radium-224	UI	2.98	R,R5a	1.19	+/-0.536	pCi/g						
Radium-226		1.25		0.103	+/-0.104	pCi/g						
Radium-228		1.66		0.200	+/-0.184	0.500	pCi/g					
Ruthenium-106	U	0.206		0.537	+/-0.155	0.800	pCi/g					
Sodium-22	U	-0.0181		0.067	+/-0.0217	0.080	pCi/g					
Strontium-85	U	0.0567		0.066	+/-0.020	pCi/g						
Thallium-208		0.569		0.0504	+/-0.0489	0.080	pCi/g					

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## Certificate of Analysis

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TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7715  
Sample ID: 244229008  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0227	0.580	+/-0.176		pCi/g						
Thorium-231	U	0.685	1.06	+/-0.343		pCi/g						
Thorium-234		4.14	1.55	+/-0.892	2.00	pCi/g						
Tin-113	U	-0.0089	0.0705	+/-0.0209	0.100	pCi/g						
Uranium-235	U	0.232	0.308	+/-0.126	0.500	pCi/g						
Yttrium-88	U	0.00662	0.0642	+/-0.019	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	79.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	97.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	61.7	(50%-105%)

**Notes:**

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- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7707  
Sample ID: 244229009  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 21.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0108	0.0178	+/-0.00373	0.050	pCi/g		JXD2	01/22/10	1249	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0161	+/-0.00195	0.050	pCi/g		JXD2	01/22/10	1318	941357	3
Plutonium-239/240		0.0478	0.0184	+/-0.00735	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.65	0.0938	+/-0.205	0.100	pCi/g		JXD2	01/21/10	2009	941358	4
Uranium-235/236		0.161	0.0582	+/-0.0275	0.100	pCi/g						
Uranium-238		3.64	0.0544	+/-0.275	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.129	0.246	+/-0.0804	0.200	pCi/g		MXR1	01/22/10	1404	941239	5
Bismuth-211	UI	4.03	R,R5a	0.335	+/-0.250	pCi/g						
Bismuth-214		1.23		0.114	+/-0.0897	pCi/g						
Cadmium-109	U	1.04		1.69	+/-0.624	pCi/g						
Cerium-139	U	-0.00578		0.0547	+/-0.0168	pCi/g						
Cesium-134	UI	0.0973	R,R5a	0.0915	+/-0.0349	pCi/g						
Cesium-137		0.714		0.0655	+/-0.048	pCi/g						
Cobalt-60	U	0.035		0.0771	+/-0.0217	pCi/g						
Europium-152	U	0.00447		0.165	+/-0.0597	pCi/g						
Lanthanum-140	U	-0.0373		0.131	+/-0.0434	pCi/g						
Lead-212		1.50		0.0916	+/-0.0775	pCi/g						
Lead-214		1.40		0.122	+/-0.0942	pCi/g						
Mercury-203	U	0.0692		0.0761	+/-0.0236	pCi/g						
Potassium-40		26.9		0.531	+/-1.30	pCi/g						
Radium-223	U	-0.145		1.15	+/-0.396	pCi/g						
Radium-224	UI	4.17	R,R5a	1.04	+/-0.800	pCi/g						
Radium-226		1.23		0.114	+/-0.0897	pCi/g						
Radium-228	UI	1.52	R,R5a	0.488	+/-0.158	pCi/g						
Ruthenium-106	U	0.0654		0.562	+/-0.169	pCi/g						
Sodium-22	U	0.000812		0.0798	+/-0.0242	pCi/g						
Strontium-85	UI	0.107	R,R5a	0.0776	+/-0.0207	pCi/g						
Thallium-208		0.465		0.0642	+/-0.0433	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7707  
Sample ID: 244229009  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.106	0.670	+/-0.194		pCi/g						
Thorium-231	U	-0.145	1.15	+/-0.396		pCi/g						
Thorium-234		5.94	2.05	+/-1.01	2.00	pCi/g						
Tin-113	U	-0.0287	0.0782	+/-0.0241	0.100	pCi/g						
Uranium-235	U	0.115	0.385	+/-0.115	0.500	pCi/g						
Yttrium-88	U	0.00243	0.0516	+/-0.0158	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	86.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	79.2	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

### Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7719  
Sample ID: 244229010  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 16.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0139	0.0222	+/-0.00472	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00127	0.021	+/-0.00659	0.050	pCi/g		JXD2	01/23/10	1208	941357	2
Plutonium-239/240		0.0343	0.024	+/-0.00751	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.91	0.104	+/-0.156	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.0915	0.0647	+/-0.0214	0.100	pCi/g						
Uranium-238		2.44	0.0605	+/-0.193	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.171	0.367	+/-0.116	0.200	pCi/g		MXR1	01/22/10	1411	941239	4
Bismuth-211	UI	3.82	R,R5a	0.427	+/-0.269	pCi/g						
Bismuth-214		1.16		0.144	+/-0.111	0.200	pCi/g					
Cadmium-109	UI	5.00	R,R5a	1.49	+/-0.686	pCi/g						
Cerium-139	U	-0.0133		0.0622	+/-0.0189	0.050	pCi/g					
Cesium-134	U	0.0635		0.101	+/-0.0275	0.100	pCi/g					
Cesium-137		0.790		0.0778	+/-0.0593	0.100	pCi/g					
Cobalt-60	U	-0.0222		0.0676	+/-0.0226	0.100	pCi/g					
Europium-152	U	0.0727		0.206	+/-0.0704	0.200	pCi/g					
Lanthanum-140	U	-0.126		0.170	+/-0.0603	pCi/g						
Lead-212		1.61		0.123	+/-0.0874	0.100	pCi/g					
Lead-214		1.33		0.150	+/-0.0997	0.100	pCi/g					
Mercury-203	U	0.0717		0.0953	+/-0.0268	0.100	pCi/g					
Potassium-40		31.8		0.594	+/-1.45	1.00	pCi/g					
Radium-223	U	-1.07		1.44	+/-0.457	pCi/g						
Radium-224	UI	5.39	R,R5a	1.40	+/-0.880	pCi/g						
Radium-226		1.16		0.144	+/-0.111	pCi/g						
Radium-228		1.49		0.283	+/-0.221	0.500	pCi/g					
Ruthenium-106	U	0.0529		0.621	+/-0.187	0.800	pCi/g					
Sodium-22	U	-0.0144		0.0862	+/-0.0272	0.080	pCi/g					
Strontium-85	U	0.0411		0.0814	+/-0.0264	pCi/g						
Thallium-208		0.614		0.0679	+/-0.0542	0.080	pCi/g					

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
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TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7719  
Sample ID: 244229010  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.133	0.815	+/-0.246		pCi/g						
Thorium-231	U	-1.07	1.44	+/-0.457		pCi/g						
Thorium-234		5.90	3.08	+/-1.48	2.00	pCi/g						
Tin-113	U	0.001	0.095	+/-0.0281	0.100	pCi/g						
Uranium-235	U	0.369	0.428	+/-0.186	0.500	pCi/g						
Yttrium-88	U	0.0111	0.0681	+/-0.0196	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.7	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).  
The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- E Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than ILLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7717  
Sample ID: 244229011  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 18.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00314	0.0209	+/-0.00315	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00216	0.0178	+/-0.00529	0.050	pCi/g		JXD2	01/23/10	1208	941357	2
Plutonium-239/240	U	0.0183	0.0204	+/-0.00526	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.14	0.0986	+/-0.101	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.0708	0.0612	+/-0.0183	0.100	pCi/g						
Uranium-238		1.60	0.0572	+/-0.133	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.192	0.255	+/-0.0776	0.200	pCi/g		MXR1	01/22/10	1416	941239	4
Bismuth-211	UI	2.71	R,R5a	0.335	+/-0.239	pCi/g						
Bismuth-214		0.856		0.107	+/-0.0829	0.200	pCi/g					
Cadmium-109	UI	3.23	R,R5a	1.24	+/-0.611	pCi/g						
Cerium-139	U	-0.0064		0.0484	+/-0.0143	0.050	pCi/g					
Cesium-134	U	0.0441		0.076	+/-0.0212	0.100	pCi/g					
Cesium-137		0.514		0.0612	+/-0.0383	0.100	pCi/g					
Cobalt-60	U	0.0138		0.0661	+/-0.019	0.100	pCi/g					
Europium-152	U	-0.0174		0.148	+/-0.0568	0.200	pCi/g					
Lanthanum-140	U	0.0111		0.129	+/-0.0384	pCi/g						
Lead-212		1.32		0.0896	+/-0.0679	0.100	pCi/g					
Lead-214		0.942		0.117	+/-0.0867	0.100	pCi/g					
Mercury-203	U	0.00954		0.0666	+/-0.0187	0.100	pCi/g					
Potassium-40		31.7		0.480	+/-1.45	1.00	pCi/g					
Radium-223	U	0.112		1.10	+/-0.358	pCi/g						
Radium-224	UI	3.88	R,R5a	1.02	+/-0.675	pCi/g						
Radium-226		0.856		0.107	+/-0.0829	pCi/g						
Radium-228		1.17		0.203	+/-0.145	0.500	pCi/g					
Ruthenium-106	U	-0.0425		0.456	+/-0.138	0.800	pCi/g					
Sodium-22	U	-0.0138		0.0694	+/-0.0213	0.080	pCi/g					
Strontium-85	UI	0.0742	R,R5a	0.065	+/-0.0189	pCi/g						
Thallium-208		0.388		0.0547	+/-0.038	0.080	pCi/g					

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02/17/10

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7717  
Sample ID: 244229011  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.107	0.621	+/-0.183		pCi/g						
Thorium-231	U	0.112	1.10	+/-0.358		pCi/g						
Thorium-234		2.33	2.05	+/-0.912	2.00	pCi/g						
Tin-113	U	-0.0101	0.0762	+/-0.0223	0.100	pCi/g						
Uranium-235	U	0.221	0.342	+/-0.117	0.500	pCi/g						
Yttrium-88	U	0.000579	0.0432	+/-0.0132	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.8	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	101	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.6	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

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- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:	RE12-10-7708	Project:	LANL01004
Sample ID:	244229012	Client ID:	LANL010
Matrix:	R		
Collect Date:	06-JAN-10		
Receive Date:	12-JAN-10		
Collector:	Client		
Moisture:	3.21%		

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00211	0.0221	+/-0.00166	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00358	0.0197	+/-0.00315	0.050	pCi/g		JXD2	01/21/10	1704	941357	2
Plutonium-239/240	U	0.00	0.0225	+/-0.00413	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.391	0.085	+/-0.0432	0.100	pCi/g		JXD2	01/21/10	2009	941358	4
Uranium-235/236	U	0.00678	0.0528	+/-0.0068	0.100	pCi/g						
Uranium-238		0.326	0.0493	+/-0.0381	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0435	0.405	+/-0.130	0.200	pCi/g		MXR1	01/22/10	1449	941239	5
Bismuth-211	UI	2.97	R,R5a	0.319	+/-0.254	pCi/g						
Bismuth-214		1.01		0.110	+/-0.0896	pCi/g						
Cadmium-109	UI	2.75	R,R5a	1.58	+/-0.623	pCi/g						
Cerium-139	U	-0.00879	0.0477	+/-0.0149	0.050	pCi/g						
Cesium-134	U	0.0908	0.0915	+/-0.0249	0.100	pCi/g						
Cesium-137	U	0.0107	0.0637	+/-0.0185	0.100	pCi/g						
Cobalt-60	U	-0.0188	0.0652	+/-0.021	0.100	pCi/g						
Europium-152	U	0.0188	0.161	+/-0.0513	0.200	pCi/g						
Lanthanum-140	U	-0.0899	0.137	+/-0.050		pCi/g						
Lead-212		1.46	0.117	+/-0.0867	0.100	pCi/g						
Lead-214		1.03	0.111	+/-0.0922	0.100	pCi/g						
Mercury-203	U	0.0347	0.0706	+/-0.020	0.100	pCi/g						
Potassium-40		38.6	0.490	+/-1.99	1.00	pCi/g						
Radium-223	U	0.229	1.14	+/-0.380		pCi/g						
Radium-224	UI	2.75	R,R5a	1.33	+/-0.452	pCi/g						
Radium-226		1.01	0.110	+/-0.0896		pCi/g						
Radium-228		1.64	0.235	+/-0.191	0.500	pCi/g						
Ruthenium-106	U	0.143	0.529	+/-0.151	0.800	pCi/g						
Sodium-22	U	-0.0461	0.0783	+/-0.026	0.080	pCi/g						
Strontium-85	U	0.0681	0.0718	+/-0.0222		pCi/g						
Thallium-208		0.439	0.0548	+/-0.0461	0.080	pCi/g						

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02/17/10

## Certificate of Analysis

Company : Los Alamos National Laboratory  
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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7708  
Sample ID: 244229012  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.0356	0.628	+/-0.184		pCi/g					
Thorium-231	U	0.229	1.14	+/-0.380		pCi/g					
Thorium-234	U	1.91	3.00	+/-1.32	2.00	pCi/g					
Tin-113	U	-0.0238	0.0744	+/-0.0234	0.100	pCi/g					
Uranium-235	U	0.0243	0.351	+/-0.109	0.500	pCi/g					
Yttrium-88	U	0.0049	0.0547	+/-0.0165	0.100	pCi/g					

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	101	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

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- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7706  
Sample ID: 244229013  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 10.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00571	0.0254	+/-0.00294	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0202	+/-0.00123	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	1.46E-10	0.0232	+/-0.00245	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.502	0.110	+/-0.0554	0.100	pCi/g		JXD2	01/21/10	2007	941358	3
Uranium-235/236	U	0.0572	0.0685	+/-0.0164	0.100	pCi/g						
Uranium-238		0.570	0.064	+/-0.0607	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0468	0.114	+/-0.0352	0.200	pCi/g		MXR1	01/22/10	1650	941239	4
Bismuth-211	UI	3.02	R,R5a	0.455	+/-0.271	pCi/g						
Bismuth-214		1.11		0.139	+/-0.132	pCi/g						
Cadmium-109	UI	4.06	R,R5a	1.09	+/-0.573	pCi/g						
Cerium-139	U	-0.0309		0.0548	+/-0.0176	pCi/g						
Cesium-134	U	0.0474		0.121	+/-0.0347	pCi/g						
Cesium-137	U	-0.0366		0.0824	+/-0.0266	pCi/g						
Cobalt-60	U	-0.0548		0.0829	+/-0.0292	pCi/g						
Europium-152	U	-0.026		0.196	+/-0.0692	pCi/g						
Lanthanum-140	U	0.0512		0.226	+/-0.0665	pCi/g						
Lead-212		1.48		0.106	+/-0.0923	pCi/g						
Lead-214		1.05		0.159	+/-0.0981	pCi/g						
Mercury-203	U	0.0234		0.0867	+/-0.0253	pCi/g						
Potassium-40		28.8		0.804	+/-1.39	pCi/g						
Radium-223	U	-0.391		1.33	+/-0.474	pCi/g						
Radium-224	UI	3.96	R,R5a	1.21	+/-0.815	pCi/g						
Radium-226		1.11		0.139	+/-0.132	pCi/g						
Radium-228		1.20		0.306	+/-0.233	pCi/g						
Ruthenium-106	U	-0.142		0.694	+/-0.217	pCi/g						
Sodium-22	U	-0.0331		0.101	+/-0.0319	pCi/g						
Strontium-85	U	0.0632		0.0891	+/-0.0281	pCi/g						
Thallium-208		0.532		0.0805	+/-0.057	pCi/g						

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## Certificate of Analysis

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Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7706  
Sample ID: 244229013  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0724	0.749	+/-0.224		pCi/g						
Thorium-231	U	-0.391	1.33	+/-0.474		pCi/g						
Thorium-234	U	1.09	1.12	+/-0.605	2.00	pCi/g						
Tin-113	U	-0.0452	0.0876	+/-0.0285	0.100	pCi/g						
Uranium-235	U	0.0483	0.419	+/-0.129	0.500	pCi/g						
Yttrium-88	U	0.00984	0.0685	+/-0.0198	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	76.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	94.5	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).  
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- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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**Certificate of Analysis**

Company : Los Alamos National Laboratory  
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 Los Alamos, New Mexico 87545  
 Contact: Ms. Joylene Valdez  
 Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7714  
 Sample ID: 244229014  
 Matrix: R  
 Collect Date: 06-JAN-10  
 Receive Date: 12-JAN-10  
 Collector: Client  
 Moisture: 9.61%

Project: LANL01004  
 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0101	0.0225	+/-0.00558	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	1.49E-10	0.0206	+/-0.00249	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.00125	0.0236	+/-0.00125	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.588	0.126	+/-0.0629	0.100	pCi/g		JXD2	01/21/10	2007	941358	3
Uranium-235/236	U	0.0551	0.0779	+/-0.017	0.100	pCi/g						
Uranium-238		0.616	0.0728	+/-0.065	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0794	0.474	+/-0.150	0.200	pCi/g		MXR1	01/22/10	1650	941239	4
Bismuth-211	UI	3.84	R,R5a	0.369	+/-0.298	pCi/g						
Bismuth-214		1.02		0.125	+/-0.0948	pCi/g						
Cadmium-109	U	1.35		1.76	+/-0.986	pCi/g						
Cerium-139	U	-0.00871		0.0594	+/-0.0177	pCi/g						
Cesium-134	U	0.0784		0.0969	+/-0.0294	pCi/g						
Cesium-137	U	0.034		0.0746	+/-0.0214	pCi/g						
Cobalt-60	U	-0.00284		0.0704	+/-0.0219	pCi/g						
Europium-152	U	0.136		0.189	+/-0.0834	pCi/g						
Lanthanum-140	U	0.0208		0.169	+/-0.0493	pCi/g						
Lead-212		1.55		0.112	+/-0.0905	pCi/g						
Lead-214		1.34		0.129	+/-0.109	pCi/g						
Mercury-203	U	0.0603		0.0899	+/-0.0247	pCi/g						
Potassium-40		30.5		0.638	+/-1.50	pCi/g						
Radium-223	U	-0.127		1.26	+/-0.425	pCi/g						
Radium-224	UI	4.23	R,R5a	1.27	+/-0.604	pCi/g						
Radium-226		1.02		0.125	+/-0.0948	pCi/g						
Radium-228		1.42		0.258	+/-0.171	pCi/g						
Ruthenium-106	U	0.00604		0.565	+/-0.171	pCi/g						
Sodium-22	U	0.00587		0.0882	+/-0.0268	pCi/g						
Strontium-85	U	0.0691		0.0723	+/-0.0218	pCi/g						
Thallium-208		0.470		0.0686	+/-0.054	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7714  
Sample ID: 244229014  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.000316	0.759	+/-0.217		pCi/g						
Thorium-231	U	-0.127	1.26	+/-0.425		pCi/g						
Thorium-234	U	2.50	3.82	+/-1.38	2.00	pCi/g						
Tin-113	U	-0.01	0.0845	+/-0.0251	0.100	pCi/g						
Uranium-235	U	-0.0522	0.432	+/-0.129	0.500	pCi/g						
Yttrium-88	U	0.0035	0.0508	+/-0.0151	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.1	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

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- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7705  
Sample ID: 244229015  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 16.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.000473	0.0194	+/-0.00178	0.050	pCi/g		JXD2	01/22/10	1249	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00119	0.0196	+/-0.00266	0.050	pCi/g		JXD2	01/20/10	1641	941357	3
Plutonium-239/240	U	0.00356	0.0225	+/-0.00207	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.593	0.116	+/-0.0631	0.100	pCi/g		JXD2	01/21/10	2007	941358	4
Uranium-235/236	U	0.0277	0.0718	+/-0.0115	0.100	pCi/g						
Uranium-238		0.743	0.0671	+/-0.0745	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0039	0.291	+/-0.0841	0.200	pCi/g		MXR1	01/22/10	1651	941239	5
Bismuth-211	UI	3.72	R,R5a	0.249	+/-0.231	pCi/g						
Bismuth-214		0.959		0.0948	+/-0.0827	0.200	pCi/g					
Cadmium-109	UI	2.63	R,R5a	1.14	+/-0.502	pCi/g						
Cerium-139	U	-0.00515	0.0418	+/-0.0122	0.050	pCi/g						
Cesium-134	UI	0.115	R,R5a	0.0758	+/-0.0267	0.100	pCi/g					
Cesium-137	U	0.000719	0.0511	+/-0.0151	0.100	pCi/g						
Cobalt-60	U	0.00137	0.0517	+/-0.0158	0.100	pCi/g						
Europium-152	U	0.00018	0.129	+/-0.0547	0.200	pCi/g						
Lanthanum-140	U	-0.0297	0.113	+/-0.0403		pCi/g						
Lead-212		1.57	0.0769	+/-0.0741	0.100	pCi/g						
Lead-214		1.29	0.0868	+/-0.0873	0.100	pCi/g						
Mercury-203	U	0.0179	0.0604	+/-0.0178	0.100	pCi/g						
Potassium-40		31.7	0.344	+/-1.41	1.00	pCi/g						
Radium-223	U	0.695	0.978	+/-0.322		pCi/g						
Radium-224	UI	3.87	R,R5a	0.874	+/-0.475	pCi/g						
Radium-226		0.959	0.0948	+/-0.0827		pCi/g						
Radium-228		1.48	0.167	+/-0.172	0.500	pCi/g						
Ruthenium-106	U	-0.266	0.413	+/-0.137	0.800	pCi/g						
Sodium-22	U	-0.000394	0.0641	+/-0.0196	0.080	pCi/g						
Strontium-85	UI	0.100	R,R5a	0.0639	+/-0.019	pCi/g						
Thallium-208		0.477	0.0516	+/-0.0342	0.080	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
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TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7705  
Sample ID: 244229015  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0452	0.524	+/-0.158		pCi/g						
Thorium-231	U	0.695	0.978	+/-0.322		pCi/g						
Thorium-234	U	0.959	2.55	+/-0.737	2.00	pCi/g						
Tin-113	U	0.0308	0.0681	+/-0.0194	0.100	pCi/g						
Uranium-235	U	-0.0388	0.305	+/-0.0962	0.500	pCi/g						
Yttrium-88	U	0.0128	0.0454	+/-0.0129	0.100	pCi/g						

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.1	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).  
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- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

## Certificate of Analysis

Company : Los Alamos National Laboratory  
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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:	RE12-10-7709	Project:	LANL01004
Sample ID:	244231001	Client ID:	LANL010
Matrix:	R		
Collect Date:	06-JAN-10		
Receive Date:	12-JAN-10		
Collector:	Client		
Moisture:	15.8%		

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241		0.0257	0.0195	+/-0.00844	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-2.41E-09	0.0208	+/-0.00667	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240		0.0353	0.0238	+/-0.00736	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.50	0.124	+/-0.205	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236		0.153	0.0768	+/-0.0296	0.100	pCi/g						
Uranium-238		2.90	0.0718	+/-0.233	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0582	0.313	+/-0.0947	0.200	pCi/g		MXR1	01/21/10	0901	941242	4
Bismuth-211	UI	3.41	R,R5a	0.343	+/-0.302	pCi/g						
Bismuth-214		0.991		0.115	+/-0.0957	0.200	pCi/g					
Cadmium-109	UI	3.17	R,R5a	1.22	+/-0.448	pCi/g						
Cerium-139	U	0.0019		0.0516	+/-0.0153	0.050	pCi/g					
Cesium-134	UI	0.105	R,R5a	0.0983	+/-0.0261	0.100	pCi/g					
Cesium-137		0.700		0.0681	+/-0.0595	0.100	pCi/g					
Cobalt-60	U	0.0263		0.0707	+/-0.0199	0.100	pCi/g					
Europium-152	U	-0.00556		0.170	+/-0.0519	0.200	pCi/g					
Lanthanum-140	U	-0.00833		0.159	+/-0.048	pCi/g						
Lead-212		1.47		0.0929	+/-0.108	0.100	pCi/g					
Lead-214		1.19		0.119	+/-0.109	0.100	pCi/g					
Mercury-203	U	0.0232		0.0768	+/-0.0217	0.100	pCi/g					
Potassium-40		31.0		0.422	+/-1.75	1.00	pCi/g					
Radium-223	U	-0.255		1.22	+/-0.363	pCi/g						
Radium-224	UI	3.85	R,R5a	1.06	+/-0.762	pCi/g						
Radium-226		0.991		0.115	+/-0.0957	pCi/g						
Radium-228		1.26		0.236	+/-0.180	0.500	pCi/g					
Ruthenium-106	U	-0.29		0.539	+/-0.170	0.800	pCi/g					
Sodium-22	U	-0.0371		0.0808	+/-0.0263	0.080	pCi/g					
Strontium-85	U	0.0245		0.0668	+/-0.0222	pCi/g						

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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7709  
Sample ID: 244231001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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### Rad Gamma Spec Analysis

#### GAMMA SPEC "Dry Weight Corrected"

Thallium-208		0.442	0.0645	+/-0.0457	0.080	pCi/g					
Thorium-227	U	-0.221	0.634	+/-0.189		pCi/g					
Thorium-231	U	-0.255	1.22	+/-0.363		pCi/g					
Thorium-234	U	2.11	2.44	+/-1.24	2.00	pCi/g					
Tin-113	U	-0.00773	0.0822	+/-0.0247	0.100	pCi/g					
Uranium-235	U	0.313	0.400	+/-0.115	0.500	pCi/g					
Yttrium-88	U	0.0106	0.0668	+/-0.0194	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	86.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.4	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

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- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7711  
Sample ID: 244231002  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 17.8%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0174	0.0204	+/-0.00499	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00509	0.021	+/-0.0057	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240		0.0458	0.0241	+/-0.00819	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.24	0.123	+/-0.185	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236		0.205	0.0761	+/-0.0349	0.100	pCi/g						
Uranium-238		3.05	0.0711	+/-0.243	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.113	0.367	+/-0.117	0.200	pCi/g		MXR1	01/21/10	0901	941242	4
Bismuth-211	UI	3.89	R,R5a	0.401	+/-0.259	pCi/g						
Bismuth-214		1.27		0.140	+/-0.105	pCi/g						
Cadmium-109	UI	2.42	R,R5a	1.62	+/-0.625	pCi/g						
Cerium-139	U	0.00152		0.0591	+/-0.0177	pCi/g						
Cesium-134	U	0.0684		0.104	+/-0.0282	pCi/g						
Cesium-137		0.696		0.0782	+/-0.0542	pCi/g						
Cobalt-60	U	0.00788		0.0766	+/-0.0232	pCi/g						
Europium-152	U	-0.0287		0.205	+/-0.0703	pCi/g						
Lanthanum-140	U	0.0148		0.161	+/-0.0472	pCi/g						
Lead-212		1.54		0.123	+/-0.0836	pCi/g						
Lead-214		1.35		0.139	+/-0.0968	pCi/g						
Mercury-203	U	0.0301		0.0906	+/-0.0262	pCi/g						
Potassium-40		32.6		0.530	+/-1.49	pCi/g						
Radium-223	U	0.679		1.48	+/-0.477	pCi/g						
Radium-224	UI	4.38	R,R5a	1.39	+/-0.792	pCi/g						
Radium-226		1.27		0.140	+/-0.105	pCi/g						
Radium-228		1.56		0.273	+/-0.202	pCi/g						
Ruthenium-106	U	0.0524		0.672	+/-0.203	pCi/g						
Sodium-22	U	-0.0451		0.074	+/-0.0255	pCi/g						
Strontium-85	U	0.0762		0.0878	+/-0.0273	pCi/g						
Thallium-208		0.541		0.0701	+/-0.0517	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7711  
Sample ID: 244231002

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.191	0.821	+/-0.247		pCi/g					
Thorium-231	U	0.679	1.48	+/-0.477		pCi/g					
Thorium-234		3.65	3.02	+/-1.21	2.00	pCi/g					
Tin-113	U	-0.0604	0.0937	+/-0.0296	0.100	pCi/g					
Uranium-235	U	0.0774	0.459	+/-0.137	0.500	pCi/g					
Yttrium-88	U	0.0257	0.0716	+/-0.0193	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	87.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

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- > Result is greater than value reported
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- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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 Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7712  
 Sample ID: 244231003  
 Matrix: R  
 Collect Date: 06-JAN-10  
 Receive Date: 12-JAN-10  
 Collector: Client  
 Moisture: 10.5%

Project: LANL01004  
 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00381	0.0192	+/-0.00346	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00115	0.019	+/-0.00162	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240	U	0.00574	0.0217	+/-0.00258	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.739	0.110	+/-0.0731	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236	U	0.0481	0.068	+/-0.0149	0.100	pCi/g						
Uranium-238		0.771	0.0636	+/-0.0755	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0548	0.188	+/-0.0594	0.200	pCi/g		MXR1	01/21/10	0902	941242	4
Bismuth-211	UI	4.29	R,R5a	0.300	+/-0.356	pCi/g						
Bismuth-214		1.23		0.105	+/-0.108	pCi/g						
Cadmium-109	UI	4.48	R,R5a	1.02	+/-0.518	pCi/g						
Cerium-139	U	0.0197		0.0467	+/-0.0131	pCi/g						
Cesium-134	U	0.0893		0.0958	+/-0.0347	pCi/g						
Cesium-137	U	0.0151		0.0637	+/-0.0187	pCi/g						
Cobalt-60	U	0.0274		0.0731	+/-0.0211	pCi/g						
Europium-152	U	0.00888		0.137	+/-0.0415	pCi/g						
Lanthanum-140	U	-0.0203		0.114	+/-0.0357	pCi/g						
Lead-212		2.00		0.0802	+/-0.151	pCi/g						
Lead-214		1.49		0.104	+/-0.130	pCi/g						
Mercury-203	U	0.0554		0.0668	+/-0.0209	pCi/g						
Potassium-40		35.9		0.427	+/-1.80	pCi/g						
Radium-223	U	-0.223		0.962	+/-0.340	pCi/g						
Radium-224	UI	5.28	R,R5a	0.912	+/-0.729	pCi/g						
Radium-226		1.23		0.105	+/-0.108	pCi/g						
Radium-228		1.95		0.192	+/-0.186	pCi/g						
Ruthenium-106	U	0.353		0.541	+/-0.150	pCi/g						
Sodium-22	U	-0.0384		0.0609	+/-0.0209	pCi/g						
Strontium-85	U	0.0391		0.062	+/-0.0192	pCi/g						
Thallium-208		0.573		0.0516	+/-0.0505	pCi/g						

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Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7712  
Sample ID: 244231003  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.0959	0.574	+/-0.169		pCi/g					
Thorium-231	U	-0.223	0.962	+/-0.340		pCi/g					
Thorium-234		1.70	1.65	+/-0.693	2.00	pCi/g					
Tin-113	U	0.00426	0.0672	+/-0.0193	0.100	pCi/g					
Uranium-235	U	0.0205	0.317	+/-0.0921	0.500	pCi/g					
Yttrium-88	U	-0.000297	0.0504	+/-0.0154	0.100	pCi/g					

**The following Analytical Methods were performed**

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	96.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	90.7	(50%-105%)

**Notes:**

TPU is calculated at the 67% confidence level (1-sigma).

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- D Results are reported from a diluted aliquot of the sample
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- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7716  
Sample ID: 244231004  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 4.68%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.000996	0.0235	+/-0.00229	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00514	0.0212	+/-0.00365	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240	U	0.00643	0.0243	+/-0.00289	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.580	0.114	+/-0.0623	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236	U	0.0274	0.0711	+/-0.0146	0.100	pCi/g						
Uranium-238		0.565	0.0664	+/-0.0607	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00725	0.221	+/-0.0663	0.200	pCi/g		MXR1	01/21/10	0902	941242	4
Bismuth-211	UI	3.28	R,R5a	0.294	+/-0.230	pCi/g						
Bismuth-214		0.995		0.103	+/-0.088	pCi/g						
Cadmium-109	UI	3.78	R,R5a	1.22	+/-0.479	pCi/g						
Cerium-139	U	-0.0209		0.0425	+/-0.0129	pCi/g						
Cesium-134	UI	0.0848	R,R5a	0.0837	+/-0.0258	pCi/g						
Cesium-137	U	-0.00992		0.0552	+/-0.0172	pCi/g						
Cobalt-60	U	0.0216		0.0661	+/-0.0189	pCi/g						
Europium-152	U	-0.0313		0.139	+/-0.0428	pCi/g						
Lanthanum-140	U	-0.0799		0.105	+/-0.0374	pCi/g						
Lead-212		1.59		0.0792	+/-0.0754	pCi/g						
Lead-214		1.14		0.103	+/-0.0852	pCi/g						
Mercury-203	U	0.0339		0.0638	+/-0.0197	pCi/g						
Potassium-40		28.8		0.553	+/-1.31	pCi/g						
Radium-223	U	0.0278		0.920	+/-0.301	pCi/g						
Radium-224	UI	3.92	R,R5a	0.901	+/-0.583	pCi/g						
Radium-226		0.995		0.103	+/-0.088	pCi/g						
Radium-228		1.36		0.178	+/-0.136	pCi/g						
Ruthenium-106	U	0.167		0.504	+/-0.141	pCi/g						
Sodium-22	U	-0.0166		0.0663	+/-0.0208	pCi/g						
Strontium-85	U	0.0339		0.0544	+/-0.0171	pCi/g						
Thallium-208		0.501		0.0486	+/-0.0413	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7716  
Sample ID: 244231004  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.0827	0.559	+/-0.156		pCi/g						
Thorium-231	U	0.0278	0.920	+/-0.301		pCi/g						
Thorium-234	U	1.88	1.96	+/-0.739	2.00	pCi/g						
Tin-113	U	0.016	0.0671	+/-0.0192	0.100	pCi/g						
Uranium-235	U	0.073	0.318	+/-0.0908	0.500	pCi/g						
Yttrium-88	U	-0.0015	0.0462	+/-0.0141	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	86.1	(50%-105%)
Uranium-232 Tracer	ISOOU "Dry Weight Corrected"	95.9	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

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- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7718  
Sample ID: 244231005  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 13%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00694	0.0211	+/-0.00678	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00335	0.0184	+/-0.00194	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240	U	0.0156	0.0211	+/-0.00453	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.20	0.105	+/-0.106	0.100	pCi/g		MXE1	01/20/10	2015	941354	3
Uranium-235/236		0.0714	0.0654	+/-0.018	0.100	pCi/g						
Uranium-238		2.67	0.0611	+/-0.211	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0877	0.0988	+/-0.030	0.200	pCi/g		MXR1	01/21/10	0903	941242	4
Bismuth-211	UI	4.04	R,R5a	0.360	+/-0.281	pCi/g						
Bismuth-214		1.32		0.124	+/-0.109	pCi/g						
Cadmium-109	UI	4.16	R,R5a	0.948	+/-0.456	pCi/g						
Cerium-139	U	0.0218		0.0492	+/-0.0147	pCi/g						
Cesium-134	U	0.0911		0.104	+/-0.0288	pCi/g						
Cesium-137		0.227		0.0729	+/-0.034	pCi/g						
Cobalt-60	U	0.0244		0.0832	+/-0.0257	pCi/g						
Europium-152	U	0.0264		0.165	+/-0.0605	pCi/g						
Lanthanum-140	U	0.0193		0.171	+/-0.0519	pCi/g						
Lead-212		1.53		0.126	+/-0.096	pCi/g						
Lead-214		1.41		0.126	+/-0.104	pCi/g						
Mercury-203	U	0.0114		0.0691	+/-0.0203	pCi/g						
Potassium-40		36.5		0.591	+/-1.47	pCi/g						
Radium-223	U	0.0758		1.13	+/-0.388	pCi/g						
Radium-224	UI	2.48	R,R5a	1.12	+/-0.406	pCi/g						
Radium-226		1.32		0.124	+/-0.109	pCi/g						
Radium-228		1.80		0.262	+/-0.182	pCi/g						
Ruthenium-106	U	0.170		0.658	+/-0.195	pCi/g						
Sodium-22	U	-0.0454		0.085	+/-0.0271	pCi/g						
Strontium-85	U	0.0561		0.0717	+/-0.0228	pCi/g						
Thallium-208		0.570		0.0694	+/-0.0482	pCi/g						

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7718  
244231005

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

### Rad Gamma Spec Analysis

#### GAMMA SPEC "Dry Weight Corrected"

Thorium-227	U	-0.0628	0.634	+/-0.189		pCi/g						
Thorium-231	U	0.0758	1.13	+/-0.388		pCi/g						
Thorium-234		2.19	0.959	+/-0.555	2.00	pCi/g						
Tin-113	U	-0.0499	0.0739	+/-0.024	0.100	pCi/g						
Uranium-235	U	0.186	0.360	+/-0.112	0.500	pCi/g						
Yttrium-88	U	-0.0123	0.0591	+/-0.0188	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	104	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	101	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:	RE12-10-7713	Project: LANL01004
Sample ID:	244231006	Client ID: LANL010
Matrix:	R	
Collect Date:	06-JAN-10	
Receive Date:	12-JAN-10	
Collector:	Client	
Moisture:	26.1%	

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0119	0.0211	+/-0.00723	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00135	0.0223	+/-0.00135	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240		0.0404	0.0255	+/-0.00813	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.58	0.122	+/-0.209	0.100	pCi/g		MXE1	01/20/10	2015	941354	3
Uranium-235/236		0.116	0.0755	+/-0.0261	0.100	pCi/g						
Uranium-238		2.91	0.0705	+/-0.232	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0812	0.189	+/-0.0586	0.200	pCi/g		MXR1	01/21/10	0903	941242	4
Bismuth-211	UI	3.53	R,R5a	0.300	+/-0.261	pCi/g						
Bismuth-214		1.14		0.112	+/-0.102	pCi/g						
Cadmium-109	UI	3.41	R,R5a	1.03	+/-0.484	pCi/g						
Cerium-139	U	-0.0242		0.0427	+/-0.0135	pCi/g						
Cesium-134	U	0.0607		0.0831	+/-0.0226	pCi/g						
Cesium-137		0.726		0.0619	+/-0.0591	pCi/g						
Cobalt-60	U	0.0146		0.0602	+/-0.0178	pCi/g						
Europium-152	U	-0.0226		0.142	+/-0.0459	pCi/g						
Lanthanum-140	U	0.036		0.105	+/-0.0318	pCi/g						
Lead-212		1.53		0.0821	+/-0.096	pCi/g						
Lead-214		1.23		0.105	+/-0.0962	pCi/g						
Mercury-203	U	0.0322		0.0633	+/-0.0176	pCi/g						
Potassium-40		33.0		0.504	+/-1.68	pCi/g						
Radium-223	U	0.371		1.02	+/-0.326	pCi/g						
Radium-224	UI	4.97	R,R5a	0.934	+/-0.685	pCi/g						
Radium-226		1.14		0.112	+/-0.102	pCi/g						
Radium-228		1.64		0.172	+/-0.157	pCi/g						
Ruthenium-106	U	-0.22		0.447	+/-0.148	pCi/g						
Sodium-22	U	0.0391		0.0762	+/-0.0217	pCi/g						
Strontium-85	U	0.0497		0.0582	+/-0.0179	pCi/g						
Thallium-208		0.431		0.0551	+/-0.0454	pCi/g						

# GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7713  
244231006

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.147	0.563	+/-0.167		pCi/g						
Thorium-231	U	0.371	1.02	+/-0.326		pCi/g						
Thorium-234		3.50	1.69	+/-0.877	2.00	pCi/g						
Tin-113	U	-0.00616	0.0671	+/-0.0201	0.100	pCi/g						
Uranium-235	U	0.0364	0.339	+/-0.102	0.500	pCi/g						
Yttrium-88	U	0.00239	0.0417	+/-0.0124	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.4	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

Friday, January 08, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1162

LOS ALAMOS

REQUEST NUMBER: 10-1162

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/7/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

244229, 244231%

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE12-10-7734	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7701	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7702	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7700	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7699	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7727	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7710	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7715	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7707	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7719	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7717	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7708	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7706	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7714	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7705	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7709	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7711	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7712	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7716	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7718	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7713	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Relinquished By:

Date

Time

Received By:

Date

Time P.D.D

Printed Name

Signature

Printed Name

Signature

1-12-10 09:16  
1-12-10 09:10



Friday, January 08, 2010

**LOS ALAMOS**  
NATIONAL LABORATORY

ATTN: Valerie Davis

General Engineering Laboratories, Inc., Charleston, SC.  
2040 Savage Rd  
Charleston, SC 29407

These Samples are on:  
LANL Request Number: 10-1162  
Per Agreement Number: 126310011  
Project Cost Code: MR3A05529E00

Please analyse the enclosed samples  
according to the schedule indicated:

SHIP DATE: 1/8/2010  
TURNAROUND/REPORT DUE: 2/7/2010  
TURNAROUND REQ'D: 30 Days

RAD SCREENING: Yes, Below Background  
LAB REQUEST COMMENTS:

LANL ER SMO CONTACT:

Signature:



PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1					
		1	RE12-10-7689	R	1/8/2010	
		1	RE12-10-7700	R	1/8/2010	
		1	RE12-10-7701	R	1/8/2010	
		1	RE12-10-7702	R	1/8/2010	
		1	RE12-10-7705	R	1/8/2010	
		1	RE12-10-7706	R	1/8/2010	
		1	RE12-10-7707	R	1/8/2010	
		1	RE12-10-7708	R	1/8/2010	
		1	RE12-10-7709	R	1/8/2010	

Friday, January 08, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-901.1	1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
	HASL-300-AM-241	1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	

Friday, January 08, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
	HASL-300:ISOPU	1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
	HASL-300:ISOU	1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	

Friday, January 08, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300.SOU	1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	

Final Page of REQUEST NUMBER 10-1162



January 13, 2010

www.gel.com

Ms. Joylene Valdez  
Los Alamos National Laboratory  
PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm111  
Los Alamos, New Mexico 87545

Re: LANL ER Project  
Work Orders: 244229 244231  
SDG: 10-1162

Dear Ms. Valdez:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on January 12, 2010, and analyzed for Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

*Valerie Davis*

Valerie Davis  
Project Manager

Purchase Order: 72733-001-09  
Chain of Custody: 10-1162  
Enclosures

**Los Alamos National Laboratory (72733-001-09)**  
**LANL ER Project**  
**Work Order #: 244229 and 244231**  
**SDG: 10-1162**

## Table of Contents

<b>Case Narrative.....</b>	<b>1</b>
<b>Chain of Custody and Supporting Documentation .....</b>	<b>5</b>
<b>Data Review Qualifier Flag Definition Sheet .....</b>	<b>17</b>
<b>Radiological Analysis.....</b>	<b>19</b>
Sample Data Summary .....	31
Quality Control Data .....	78
Raw Data.....	85
Background and Efficiency Data .....	964
Standards Data .....	1132
Runlogs .....	1164
<b>Radiological Analysis.....</b>	<b>1169</b>
Sample Data Summary .....	1180
Quality Control Data .....	1200
Raw Data.....	1207
Background and Efficiency Data .....	1706
Standards Data .....	1813
Runlogs .....	1845

# Case Narrative



**Case Narrative for  
Los Alamos National Laboratory (72733-001-09)  
LANL ER Project  
Workorder #: 244229 and 244231  
SDG # : 10-1162**

**January 13, 2010**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary**

**Sample receipt** The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on January 12, 2010 for analysis. The samples were prepared/analyzed within the required holding time. Shipping container temperatures were checked, documented, and within specifications. The samples were screened according to GEL Standard Operating Procedure. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. The containers for radiochemistry were received at 14C temperature. Shipping container temperature was within specification (0 - 6C).

**Sample Identification** The laboratory received the following samples:

<b><u>Laboratory ID</u></b>	<b><u>Client ID</u></b>
244229001	RE12-10-7734
244229002	RE12-10-7701
244229003	RE12-10-7702
244229004	RE12-10-7700
244229005	RE12-10-7699
244229006	RE12-10-7727
244229007	RE12-10-7710
244229008	RE12-10-7715
244229009	RE12-10-7707
244229010	RE12-10-7719
244229011	RE12-10-7717
244229012	RE12-10-7708
244229013	RE12-10-7706
244229014	RE12-10-7714
244229015	RE12-10-7705
244231001	RE12-10-7709
244231002	RE12-10-7711
244231003	RE12-10-7712
244231004	RE12-10-7716
244231005	RE12-10-7718
244231006	RE12-10-7713

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package** The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.



Valerie Davis

Project Manager

**List of current GEL Certifications as of 13 January 2010**

<b>State</b>	<b>Certification</b>
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California - NELAP	01151CA
Colorado	GEL
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA Region 5	WG-15J
Florida - NELAP	E87156
Georgia	E87156 (FL/NELAP)
Georgia DW	967
Hawaii	N/A
ISO 17025	2567.01
Idaho	SC00012
Illinois - NELAP	200029
Indiana	C-SC-01
Kansas - NELAP	E-10332
Kentucky	90129
Louisiana - NELAP	03046
Maryland	270
Massachusetts	M-SC012
Nevada	SC00012
New Jersey - NELAP	SC002
New Mexico	FL NELAP E87156
New York - NELAP	11501
North Carolina	233
North Carolina DW	45709
Oklahoma	9904
Pennsylvania - NELAP	68-00485
South Carolina	10120001/10120002
Tennessee	TN 02934
Texas - NELAP	T104704235-07B-TX
U.S. Dept. of Agriculture	S-52597
Utah - NELAP	GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**

Friday, January 08, 2010

LAB CHAIN OF CUSTODY DOCUMENT NUMBER: 10-1162

LOS ALAMOS

REQUEST NUMBER: 10-1162

NATIONAL LABORATORY

ATTN: Valerie Davis

TURNAROUND/REPORT DUE: 2/7/2010

General Engineering Laboratories, Inc.,  
Charleston, SC.

TURNAROUND REQ'D: 30

2040 Savage Rd

Charleston, SC 29407

LAB REQUEST COMMENTS:

*244229, 244231%*

SAMPLE ID	CTNR	CTNR DESC	ORDER	PRESERV	MATRIX
RE12-10-7734	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7701	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7702	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7700	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7699	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7727	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7710	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7715	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7707	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7719	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7717	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7708	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7706	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7714	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7705	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7709	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7711	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7712	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7716	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7718	1	POLY	AM241+GS+ISOPU+ISO U	None	R
RE12-10-7713	1	POLY	AM241+GS+ISOPU+ISO U	None	R

Relinquished By:

Date

Time

Received By:

Date

Time

Printed Name

Signature

Printed Name

Signature

Friday, January 08, 2010

**LOS ALAMOS**  
NATIONAL LABORATORY

ATTN: Valerie Davis

General Engineering Laboratories, Inc., Charleston, SC.

2040 Savage Rd

Charleston, SC 29407

Please analyse the enclosed samples  
according to the schedule indicated:

**SHIP DATE: 1/8/2010**

**TURNAROUND/REPORT DUE: 2/7/2010**

**TURNAROUND REQ'D: 30 Days**

**RAD SCREENING: Yes, Below Background**  
**LAB REQUEST COMMENTS:**

LANL ER SMO CONTACT:

Signature:



REQUEST NUMBER: 10-1162

These Samples are on:

LANL Request Number: 10-1162

Per Agreement Number: 126310011

Project Cost Code: MR3A05529E00

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA:901.1					
		1	RE12-10-7699	R	1/8/2010	
		1	RE12-10-7700	R	1/8/2010	
		1	RE12-10-7701	R	1/8/2010	
		1	RE12-10-7702	R	1/8/2010	
		1	RE12-10-7705	R	1/8/2010	
		1	RE12-10-7706	R	1/8/2010	
		1	RE12-10-7707	R	1/8/2010	
		1	RE12-10-7708	R	1/8/2010	
		1	RE12-10-7709	R	1/8/2010	

Friday, January 08, 2010

REQUEST NUMBER: 10-1162

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	EPA-901.1	1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
	HASL-300:AM-241	1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	

Friday, January 08, 2010 Page 3 of 4  
 REQUEST NUMBER: 10-1162

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:AM-241	1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
	HASL-300:ISOPU	1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	
		1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	
	HASL-300:ISOU	1	RE12-10-7699	R	1/6/2010	
		1	RE12-10-7700	R	1/6/2010	



Friday, January 08, 2010

PRIORITY	METHOD CODE	CNTNR	SAMPLE ID	SAMPLE MATRIX	DATE SAMPLED	SPECIAL INSTRUCTIONS
	HASL-300:ISOU	1	RE12-10-7701	R	1/6/2010	
		1	RE12-10-7702	R	1/6/2010	
		1	RE12-10-7705	R	1/6/2010	
		1	RE12-10-7706	R	1/6/2010	
		1	RE12-10-7707	R	1/6/2010	
		1	RE12-10-7708	R	1/6/2010	
		1	RE12-10-7709	R	1/6/2010	
		1	RE12-10-7710	R	1/6/2010	
		1	RE12-10-7711	R	1/6/2010	
		1	RE12-10-7712	R	1/6/2010	
		1	RE12-10-7713	R	1/6/2010	
		1	RE12-10-7714	R	1/6/2010	
		1	RE12-10-7715	R	1/6/2010	
		1	RE12-10-7716	R	1/6/2010	
		1	RE12-10-7717	R	1/6/2010	
		1	RE12-10-7718	R	1/6/2010	
		1	RE12-10-7719	R	1/6/2010	
		1	RE12-10-7727	R	1/6/2010	
		1	RE12-10-7734	R	1/6/2010	

Final Page of REQUEST NUMBER 10-1162



## SAMPLE RECEIPT &amp; REVIEW FORM

Client: LANL			SDG/ARCOC/Work Order: 10-1162		
Received By: Patricia Dover-Dent			Date Received: JANUARY 12, 2009		
Suspected Hazard Information		Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further	
COC/Samples marked as radioactive?			X	Maximum Counts Observed*: 60CPM	
Classified Radioactive II by RSO?			X		
COC/Samples marked containing PCBs?			X		
Shipped as a DOT Hazardous?			X	Hazard Class Shipped: UN#:	
Samples identified as Foreign Soil?			X		

Sample Receipt Criteria		Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	X			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2	Samples requiring cold preservation within (0 < 6 deg. C)?	X			Preservation Method: ice bags    BLUE ICE    dry ice    NONE    other (describe) 1,4-6,14C
3	Chain of custody documents included with shipment?	X			
4	Sample containers intact and sealed?	X			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5	Samples requiring chemical preservation at proper pH?		X		Sample ID's, containers affected and observed pH. If Preservative added Lot#
6	VOA vials free of headspace (defined as < 6mm bubble)?		X		Sample ID's and containers affected:
7	Are Encore containers present?			X	(If yes, immediately deliver to Volatiles laboratory)
8	Samples received within holding time?	X			Id's and tests affected:
9	Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?		X		Sample ID's affected: No Time on Chain of Custody
11	Number of containers received match number indicated on COC?	X			Sample ID's affected:
12	COC form is properly signed in relinquished/received sections?	X			

Comments: FED EX #S  
7209 7849 4718 1C      7209 7849 4692 14C  
7209 7849 4751 1C      7209 7849 4707 14C  
7209 7849 4729 4C  
7209 7849 4730 4C  
7209 7849 4773 4C  
7209 7849 4784 4C  
7209 7849 4762 5C  
7209 7849 4740 6C

PM (or PMA) review: Initials

Date

1/13/10

**Subject:** Re: Sample Receipt for 1/9/10

**From:** Keith Grene <kgreene@lanl.gov>

**Date:** Mon, 11 Jan 2010 13:53:07 -0700

**To:** Dionne Francis <Dionne.Francis@gel.com>, Joylene Valdez <joylenev@lanl.gov>, Valerie Davis <vds@gel.com>

At 11:11 AM 1/11/2010, Dionne Francis wrote:

Keith,

RN 10-1170: the Gross A/B containers were preserved prior to analysis.

RN 10-1169: the lab did not receive the GENINORG poly container for sample CALA-10-9198. Please advise. Cancel

RN 10-1163: the lab did not received the (2) glass 8260B+TPH-GRO containers for sample WST21-10-5544 and the 40ml vial 8260B container for sample WST21-10-5546. Please advise. Cancel

RN 10-1149: the lab rec'd (1) 40ml vial 8260B container for sample RE16-10-2795 instead of (2) as indicated on the COC.

RN 10-1162: the lab did not receive any containers. Will recieve tommorrow

\_ \*The following samples were rec'd without a COC: \*\_

\_ \*Waters

\* \_RE16-10- 477 - containers for Metals, TCN, NO3NO2, ClO4+Anions

RE16-10-1431 - containers for Metals, NO3NO2, ClO4+Anions Will get request tommorrow/Faxed

RE49-10-8994, 9041, 9042, 9047 - poly containers for AM241, ISOU, ISOPU, GS Will get request tommorrow/Faxed but could you check the sample id for 9047?

\_ \*Soils

\* \_RE16-10-1282, 1406, 1280, 1284, 1300, 1412, 1428, 1410, 1278, 1414, 1408- containers for Metals, Anions+ClO4, 8270C+NMED, AM241+GS+ISOPU+ISOU Will get request tommorrow/Faxed

RE16-10-2786 - containers for Anions+ClO4, AM241+GS+ISOU+ISOPU add to 10-1150

RE16-10-418, 419, 420, 422, 423, 441 - containers for Metals, NMED, 8270C, CN, Anions, ClO4, AM241+ISOU+ISOPU Will get request tommorrow/Faxed

Thanks,  
Dionne

--

Dionne Francis  
Project Manager Assistant

GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC (USA) 29407  
Direct: 843.769.7376 Ext. 4432  
Main: 843.556.8171  
Fax: 843.766.1178  
E-mail: [daf@gel.com](mailto:daf@gel.com)  
Web: [www.gel.com](http://www.gel.com)

Let the Bible fill the memory, rule the heart, and guide the feet.

V ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

ERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
(843) 556-8171  
REF: 68010AMR2A0515BYD0

SHIP DATE: 11JAN10  
ACTWGT: 48.0 LB MAN  
CAD: 0014176/CAFE2449

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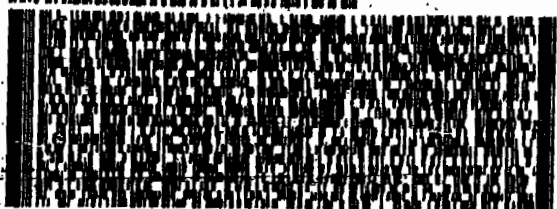
ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
BLDG 1237 DPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
ACTWGT: 49.0 LB MAN  
CAD: 0014176/CAFE2449

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

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REF: 68010AMR1A015AGWF0



4 of 4  
209 7849 4718  
7209 7849 4681 0201

TUE - 12JAN A1  
PRIORITY OVERNIGHT

CHSA

29407  
SC-US  
CHS



1 of 2  
TRKH  
0201 7209 7849 4751  
NN MASTER NN

TUE - 12JAN A1  
PRIORITY OVERNIGHT

XX CHSA

29407  
SC-US  
CHS



N ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
BLDG 1237 DPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
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BILL SENDER

ERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
(843) 556-8171  
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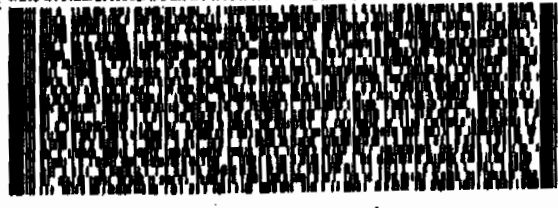
ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
BLDG 1237 DPU 03  
LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
ACTWGT: 47.0 LB MAN  
CAD: 0014176/CAFE2449

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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
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REF: 68010AMR2A0515BYD0



bioactive samples

1 of 3  
7209 7849 4729  
MASTER NN

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PRIORITY OVERNIGHT

29407  
SC-US  
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2 of 3  
MPSH  
0263 7209 7849 4730  
Master 7209 7849 4729 0201

TUE - 12JAN A1  
PRIORITY OVERNIGHT

XX CHSA

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SC-US  
CHS

IN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
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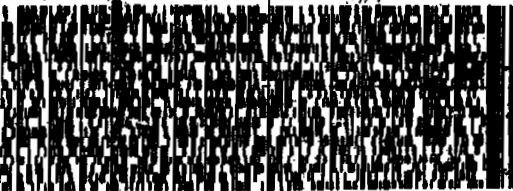
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NERAL ENGINEERING LAB  
40 SAVAGE RD

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F: 6B010AMR1015AGWF0

1 of 2



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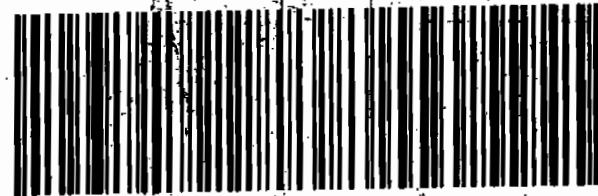


TUE - 12JAN A1  
PRIORITY OVERNIGHT

# 7209 7849 4773  
MASTER NM

29407  
SC-US  
CHS

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IN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
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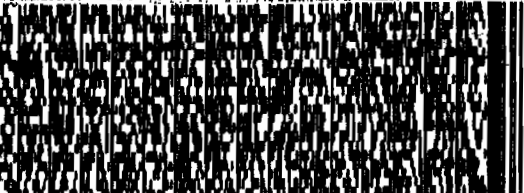
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LERIE DAVIS  
NERAL ENGINEERING LAB  
140 SAVAGE RD

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# 7209 7849 4762

7209 7849 4751 0201

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Page 15 of 1849

ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
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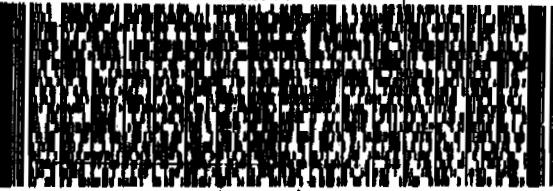
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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-9171  
REF: 6B010AMR1015AGWF0

2 of 2



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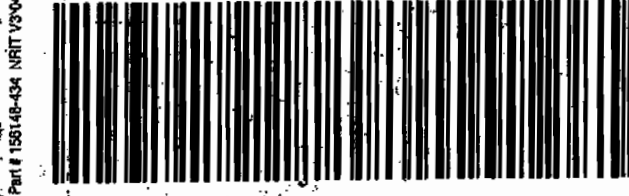
TUE - 12JAN A1  
PRIORITY OVERNIGHT

NPS# 7209 7849 4784

Matr# 7209 7849 4773 0201

29407  
SC-US  
CHS

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ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TA00 BLDG 1237 DPU 03

LOS ALAMOS, NM 87545  
UNITED STATES US

SHIP DATE: 11JAN10  
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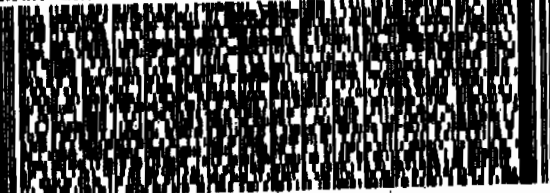
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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407

(843) 556-9171  
REF: 6B010AMR2A0515BYD0

3 of 3



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TUE - 12JAN A1  
PRIORITY OVERNIGHT

NPS# 7209 7849 4740

Matr# 7209 7849 4729 0201

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SC-US  
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ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGG BLDG 1237 DPU 03

LOS ALAMOS NM 87545  
UNITED STATES US

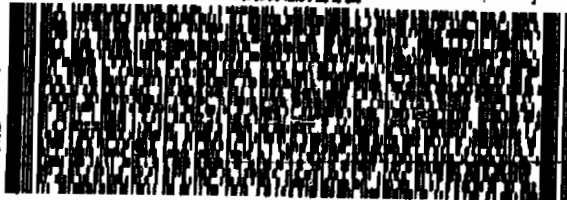
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VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

CHARLESTON SC 29407  
(843) 566-8171  
REF: 6B010AMR2A0515BYD0

14c



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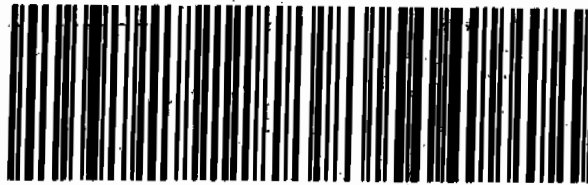


2 of 4  
MPS# 7209 7849 4692  
0263  
Matr# 7209 7849 4681 0201

TUE - 12JAN A1  
PRIORITY OVERNIGHT

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CHS

XX CHSA



Part # 156148-434 NRTV3 04-00

ORIGIN ID: SAFA (505) 665-9968  
JOYLENE VALDEZ  
LOS ALAMOS NATL LAB  
TAGG BLDG 1237 DPU 03

LOS ALAMOS NM 87545  
UNITED STATES US

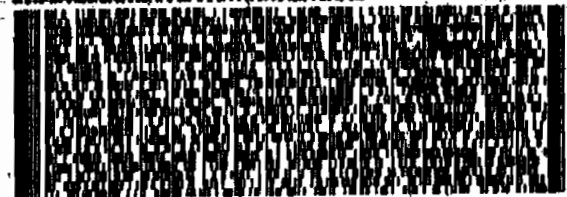
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BILL SENDER

VALERIE DAVIS  
GENERAL ENGINEERING LAB  
2040 SAVAGE RD

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REF: 6B010AMR2A0515BYD0

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3 of 4  
MPS# 7209 7849 4707  
0263  
Matr# 7209 7849 4681 0201

TUE - 12JAN A1  
PRIORITY OVERNIGHT

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XX CHSA

# **Data Review Qualifier Flag Definition Sheet**



## Data Review Qualifier Definitions

Qualifier    Explanation

\*    A quality control analyte recovery is outside of specified acceptance criteria

\*\*    Analyte is a surrogate compound

<    Result is less than value reported

>    Result is greater than value reported

^    RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL

A    The TIC is a suspected aldol-condensation product

B    Target analyte was detected in the associated blank

B    Metals-Either presence of analyte detected in the associated blank, or  
MDL/IDL < sample value < PQL

BD    Results are either below the MDC or tracer recovery is low

C    Analyte has been confirmed by GC/MS analysis

D    Results are reported from a diluted aliquot of the sample

d    5-day BOD-The 2:1 depletion requirement was not met for this sample

E    Organics-Concentration of the target analyte exceeds the instrument calibration range

E    Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria

H    Analytical holding time was exceeded

h    Preparation or preservation holding time was exceeded

J    Value is estimated

N    Metals-The Matrix spike sample recovery is not within specified control limits

N    Organics-Presumptive evidence based on mass spectral library search to make a tentative  
identification of the analyte (TIC). Quantitation is based on nearest internal standard  
response factor

N/A    Spike recovery limits do not apply. Sample concentration exceeds spike concentration  
by 4X or more

ND    Analyte concentration is not detected above the reporting limit

UI    Gamma Spectroscopy-Uncertain identification

X    Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y    QC Samples were not spiked with this compound

Z    Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative  
Los Alamos National Laboratory (LANL)  
SDG 10-1162**

**Method/Analysis Information**

**Product:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941356  
**Prep Batch Number:** 941233

<b>Sample ID</b>	<b>Client ID</b>
244229001	RE12-10-7734
244229002	RE12-10-7701
244229003	RE12-10-7702
244229004	RE12-10-7700
244229005	RE12-10-7699
244229006	RE12-10-7727
244229007	RE12-10-7710
244229008	RE12-10-7715
244229009	RE12-10-7707
244229010	RE12-10-7719
244229011	RE12-10-7717
244229012	RE12-10-7708
244229013	RE12-10-7706
244229014	RE12-10-7714
244229015	RE12-10-7705
1202014803	Method Blank (MB)
1202014804	244229008(RE12-10-7715) Sample Duplicate (DUP)
1202014805	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

**Calibration Information:****Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:****Blank Information**

Aliquot for sample 1202014803 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 244229008 (RE12-10-7715). The QC was from LANL work order 244229.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

Sample 244229015 (RE12-10-7705) was recounted due to a peak shift. Sample 244229009 (RE12-10-7707) was recounted due to a suspected false positive.

**Miscellaneous Information:****Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The MDCs are calculated using a blank population.

**Blank Decision Level**

The blank result is less than the decision level.

### **Qualifier information**

Manual qualifiers were not required.

### **Method/Analysis Information**

**Product:** ISOPU  
**Analytical Method:** DOE EML HASL-300, Pu-11-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941357  
**Prep Batch Number:** 941233

<b>Sample ID</b>	<b>Client ID</b>
244229001	RE12-10-7734
244229002	RE12-10-7701
244229003	RE12-10-7702
244229004	RE12-10-7700
244229005	RE12-10-7699
244229006	RE12-10-7727
244229007	RE12-10-7710
244229008	RE12-10-7715
244229009	RE12-10-7707
244229010	RE12-10-7719
244229011	RE12-10-7717
244229012	RE12-10-7708
244229013	RE12-10-7706
244229014	RE12-10-7714
244229015	RE12-10-7705
1202014806	Method Blank (MB)
1202014807	244229008(RE12-10-7715) Sample Duplicate (DUP)
1202014808	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly

using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

#### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

#### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

Aliquot for sample 1202014806 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 244229008 (RE12-10-7715). The QC was from LANL work order 244229.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The Pu-238 blank result is greater than 1.65 times the CSU but less than the MDC.

#### **Technical Information:**

##### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

##### **Sample Re-prep/Re-analysis**

Sample 244229012 (RE12-10-7708) was recounted due to a peak shift. Samples 1202014807 (RE12-10-7715), 244229006 (RE12-10-7727), 244229008 (RE12-10-7715), 244229009 (RE12-10-7707), 244229010 (RE12-10-7719) and 244229011 (RE12-10-7717) were recounted due to a suspected false positive.

#### **Miscellaneous Information:**

##### **Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

##### **Manual Integration**

No manual integrations were performed on data in this batch.

##### **Additional Comments**

The MDCs are calculated using a blank population.

##### **Blank Decision Level**

The Pu-238 blank result is greater than the decision level but less than the MDC.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** ISOU  
**Analytical Method:** DOE EML HASL-300, U-02-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941358  
**Prep Batch Number:** 941233

<b>Sample ID</b>	<b>Client ID</b>
244229001	RE12-10-7734
244229002	RE12-10-7701
244229003	RE12-10-7702
244229004	RE12-10-7700
244229005	RE12-10-7699
244229006	RE12-10-7727
244229007	RE12-10-7710
244229008	RE12-10-7715
244229009	RE12-10-7707
244229010	RE12-10-7719
244229011	RE12-10-7717
244229012	RE12-10-7708
244229013	RE12-10-7706
244229014	RE12-10-7714
244229015	RE12-10-7705
1202014809	Method Blank (MB)
1202014810	244229008(RE12-10-7715) Sample Duplicate (DUP)
1202014811	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

**Calibration Information:****Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly

using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

#### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

#### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

Aliquot for sample 1202014809 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 244229008 (RE12-10-7715). The QC was from LANL work order 244229.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The U-238 blank result is greater than 1.65 times the CSU but less than the MDC.

#### **Technical Information:**

##### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

##### **Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

#### **Miscellaneous Information:**

##### **Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

##### **Manual Integration**

No manual integrations were performed on data in this batch.

##### **Additional Comments**

The MDCs are calculated using a blank population.

##### **Blank Decision Level**

The blank result is less than the decision level.

#### **Qualifier information**

Manual qualifiers were not required.



### **Method/Analysis Information**

**Product:** GAMMA SPEC  
**Analytical Method:** DOE HASL 300, 4.5.2.3/Ga-01-R  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941239  
**Prep Batch Number:** 941233

<b>Sample ID</b>	<b>Client ID</b>
244229001	RE12-10-7734
244229002	RE12-10-7701
244229003	RE12-10-7702
244229004	RE12-10-7700
244229005	RE12-10-7699
244229006	RE12-10-7727
244229007	RE12-10-7710
244229008	RE12-10-7715
244229009	RE12-10-7707
244229010	RE12-10-7719
244229011	RE12-10-7717
244229012	RE12-10-7708
244229013	RE12-10-7706
244229014	RE12-10-7714
244229015	RE12-10-7705
1202014507	Method Blank (MB)
1202014508	244229006(RE12-10-7727) Sample Duplicate (DUP)
1202014509	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 18.

### **Calibration Information:**

#### **Calibration Information**

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in February 2009, March 2009, April 2009, June 2009, July 2009, October 2009, November 2009 and December 2009.

#### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

#### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

The blank volume is representative of the sample volume in this batch.

##### **Designated QC**

The following sample was used for QC: 244229006 (RE12-10-7727). The QC was from LANL work order 244229.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The blank result is less than 1.65 times the CSU.

#### **Technical Information:**

##### **Holding Time**

All sample procedures for this sample set were performed within the required holding time.

##### **Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

#### **Miscellaneous Information:**

##### **Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

##### **Additional Comments**

Additional comments were not required for this sample set.

##### **Blank Decision Level**

The blank result is less than the decision level.

#### **Qualifier information**

<b>Qualifier</b>	<b>Reason</b>	<b>Analyte</b>	<b>Sample</b>	<b>Client Sample</b>
UI	Data rejected due to interference.	Bismuth-211	244229001	RE12-10-7734
			244229002	RE12-10-7701

	244229003	RE12-10-7702
	244229004	RE12-10-7700
	244229005	RE12-10-7699
	244229006	RE12-10-7727
	244229007	RE12-10-7710
	244229008	RE12-10-7715
	244229009	RE12-10-7707
	244229010	RE12-10-7719
	244229011	RE12-10-7717
	244229012	RE12-10-7708
	244229013	RE12-10-7706
	244229014	RE12-10-7714
	244229015	RE12-10-7705
	1202014508	RE12-10-7727(244229006DUP)
Cadmium-109	244229001	RE12-10-7734
	244229002	RE12-10-7701
	244229003	RE12-10-7702
	244229004	RE12-10-7700
	244229006	RE12-10-7727
	244229007	RE12-10-7710
	244229010	RE12-10-7719
	244229011	RE12-10-7717
	244229012	RE12-10-7708
	244229013	RE12-10-7706
	244229015	RE12-10-7705
	1202014508	RE12-10-7727(244229006DUP)
Radium-224	244229001	RE12-10-7734
	244229002	RE12-10-7701
	244229003	RE12-10-7702
	244229004	RE12-10-7700

			244229005	RE12-10-7699
			244229006	RE12-10-7727
			244229007	RE12-10-7710
			244229008	RE12-10-7715
			244229009	RE12-10-7707
			244229010	RE12-10-7719
			244229011	RE12-10-7717
			244229012	RE12-10-7708
			244229013	RE12-10-7706
			244229014	RE12-10-7714
			244229015	RE12-10-7705
			1202014508	RE12-10-7727(244229006DUP)
UI	Data rejected due to low abundance.	Cesium-134	244229001	RE12-10-7734
			244229002	RE12-10-7701
			244229003	RE12-10-7702
			244229004	RE12-10-7700
			244229008	RE12-10-7715
			244229009	RE12-10-7707
			244229015	RE12-10-7705
			1202014508	RE12-10-7727(244229006DUP)
		Radium-228	244229009	RE12-10-7707
		Strontium-85	244229001	RE12-10-7734
			244229002	RE12-10-7701
			244229004	RE12-10-7700
			244229009	RE12-10-7707
			244229011	RE12-10-7717
			244229015	RE12-10-7705
			1202014507	MB for batch 941239

**Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

Reviewer/Date:  1/26/10

# SAMPLE DATA SUMMARY

## GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

### Certificate of Analysis Report for

LANL010 Los Alamos National Laboratory (72733-001-09)

Client SDG: 10-1162 GEL Work Order: 244229

**The Qualifiers in this report are defined as follows:**

- \* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
- \*\* Indicates the analyte is a surrogate compound.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

 1/26/10

# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7734  
Sample ID: 244229001  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 6.55%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00088	0.0226	+/-0.00217	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00232	0.0192	+/-0.00403	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	-0.00232	0.022	+/-0.00285	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.794	0.0827	+/-0.0715	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0396	0.0513	+/-0.0135	0.100	pCi/g						
Uranium-238		0.744	0.048	+/-0.068	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.387	0.483	+/-0.154	0.200	pCi/g		MXR1	01/22/10	1256	941239	4
Bismuth-211	UI	4.63	0.378	+/-0.301		pCi/g						
Bismuth-214		1.34	0.117	+/-0.098	0.200	pCi/g						
Cadmium-109	UI	2.57	1.47	+/-0.674		pCi/g						
Cerium-139	U	0.0393	0.0588	+/-0.0172	0.050	pCi/g						
Cesium-134	UI	0.093	0.0927	+/-0.0283	0.100	pCi/g						
Cesium-137	U	-0.0223	0.0628	+/-0.0202	0.100	pCi/g						
Cobalt-60	U	-0.0178	0.0659	+/-0.0214	0.100	pCi/g						
Europium-152	U	-0.0314	0.176	+/-0.0781	0.200	pCi/g						
Lanthanum-140	U	-0.0681	0.116	+/-0.0402		pCi/g						
Lead-212		1.97	0.102	+/-0.103	0.100	pCi/g						
Lead-214		1.61	0.132	+/-0.113	0.100	pCi/g						
Mercury-203	U	0.00606	0.0778	+/-0.0261	0.100	pCi/g						
Potassium-40		35.5	0.577	+/-1.63	1.00	pCi/g						
Radium-223	U	-1.25	1.16	+/-0.385		pCi/g						
Radium-224	UI	5.94	1.16	+/-0.830		pCi/g						
Radium-226		1.34	0.117	+/-0.098		pCi/g						
Radium-228		2.08	0.220	+/-0.194	0.500	pCi/g						
Ruthenium-106	U	-0.358	0.514	+/-0.171	0.800	pCi/g						
Sodium-22	U	-0.00418	0.0798	+/-0.0249	0.080	pCi/g						
Strontium-85	UI	0.0822	0.0711	+/-0.022		pCi/g						



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## Certificate of Analysis

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Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7734  
Sample ID: 244229001  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thallium-208		0.619	0.0646	+/-0.0451	0.080	pCi/g						
Thorium-227	U	0.141	0.752	+/-0.218		pCi/g						
Thorium-231	U	-1.25	1.16	+/-0.385		pCi/g						
Thorium-234	U	0.921	3.56	+/-1.45	2.00	pCi/g						
Tin-113	U	0.0174	0.0862	+/-0.0254	0.100	pCi/g						
Uranium-235	U	0.0242	0.402	+/-0.124	0.500	pCi/g						
Yttrium-88	U	0.00803	0.0562	+/-0.0166	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	81.8	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.0	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	99.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7734  
Sample ID: 244229001  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

N/A RPD or %Recovery limits do not apply.

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7701  
Sample ID: 244229002  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 25.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00847	0.0218	+/-0.00689	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00768	0.0211	+/-0.00316	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.0179	0.0242	+/-0.00487	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.98	0.103	+/-0.161	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.107	0.0639	+/-0.0222	0.100	pCi/g						
Uranium-238		2.32	0.0597	+/-0.184	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.00547	0.226	+/-0.0702	0.200	pCi/g		MXR1	01/22/10	1257	941239	4
Bismuth-211	UI	3.23	0.196	+/-0.180		pCi/g						
Bismuth-214		0.950	0.0712	+/-0.0608	0.200	pCi/g						
Cadmium-109	UI	2.18	0.934	+/-0.348		pCi/g						
Cerium-139	U	-0.00337	0.0333	+/-0.00945	0.050	pCi/g						
Cesium-134	UI	0.071	0.056	+/-0.0187	0.100	pCi/g						
Cesium-137		0.226	0.0384	+/-0.0215	0.100	pCi/g						
Cobalt-60	U	-0.00472	0.0383	+/-0.0118	0.100	pCi/g						
Europium-152	U	-0.0127	0.100	+/-0.0358	0.200	pCi/g						
Lanthanum-140	U	-0.0126	0.0829	+/-0.0255		pCi/g						
Lead-212		1.41	0.0571	+/-0.0616	0.100	pCi/g						
Lead-214		1.12	0.0682	+/-0.0691	0.100	pCi/g						
Mercury-203	U	0.0179	0.0453	+/-0.0149	0.100	pCi/g						
Potassium-40		32.0	0.300	+/-1.35	1.00	pCi/g						
Radium-223	U	-0.037	0.662	+/-0.229		pCi/g						
Radium-224	UI	3.26	0.648	+/-0.433		pCi/g						
Radium-226		0.950	0.0712	+/-0.0608		pCi/g						
Radium-228		1.37	0.133	+/-0.141	0.500	pCi/g						
Ruthenium-106	U	0.0429	0.337	+/-0.101	0.800	pCi/g						
Sodium-22	U	-0.0266	0.0426	+/-0.0138	0.080	pCi/g						
Strontium-85	UI	0.099	0.0452	+/-0.013		pCi/g						
Thallium-208		0.425	0.0352	+/-0.0304	0.080	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7701  
Sample ID: 244229002  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.131	0.404	+/-0.121		pCi/g						
Thorium-231	U	-0.037	0.662	+/-0.229		pCi/g						
Thorium-234		2.52	1.85	+/-0.794	2.00	pCi/g						
Tin-113	U	0.00523	0.0471	+/-0.0135	0.100	pCi/g						
Uranium-235	U	0.0573	0.242	+/-0.073	0.500	pCi/g						
Yttrium-88	U	0.00842	0.0379	+/-0.0111	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	91.0	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7701  
Sample ID: 244229002

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------------	------

ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7702  
Sample ID: 244229003  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 15%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00837	0.0216	+/-0.00521	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0192	+/-0.00165	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	-0.00116	0.022	+/-0.00308	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.843	0.103	+/-0.0793	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0493	0.0639	+/-0.0146	0.100	pCi/g						
Uranium-238		0.877	0.0597	+/-0.0818	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0254	0.070	+/-0.0214	0.200	pCi/g		MXR1	01/22/10	1257	941239	4
Bismuth-211	UI	4.85	0.276	+/-0.304		pCi/g						
Bismuth-214		1.49	0.110	+/-0.118	0.200	pCi/g						
Cadmium-109	UI	4.28	0.746	+/-0.377		pCi/g						
Cerium-139	U	-0.00318	0.0379	+/-0.0109	0.050	pCi/g						
Cesium-134	UI	0.110	0.0969	+/-0.0312	0.100	pCi/g						
Cesium-137	U	0.00741	0.0715	+/-0.0216	0.100	pCi/g						
Cobalt-60	U	0.0359	0.0799	+/-0.022	0.100	pCi/g						
Europium-152	U	-0.0279	0.136	+/-0.0426	0.200	pCi/g						
Lanthanum-140	U	-0.0241	0.178	+/-0.0559		pCi/g						
Lead-212		1.95	0.0738	+/-0.109	0.100	pCi/g						
Lead-214		1.69	0.0962	+/-0.115	0.100	pCi/g						
Mercury-203	U	0.0112	0.0563	+/-0.0185	0.100	pCi/g						
Potassium-40		35.4	0.588	+/-1.83	1.00	pCi/g						
Radium-223	U	-0.17	0.934	+/-0.326		pCi/g						
Radium-224	UI	6.05	0.843	+/-0.706		pCi/g						
Radium-226		1.49	0.110	+/-0.118		pCi/g						
Radium-228		1.93	0.230	+/-0.201	0.500	pCi/g						
Ruthenium-106	U	0.236	0.591	+/-0.171	0.800	pCi/g						
Sodium-22	U	-0.0454	0.0808	+/-0.0276	0.080	pCi/g						
Strontium-85	U	0.0341	0.0591	+/-0.0184		pCi/g						
Thallium-208		0.660	0.0594	+/-0.0576	0.080	pCi/g						

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7702  
244229003

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.31	0.488	+/-0.156		pCi/g						
Thorium-231	U	-0.17	0.934	+/-0.326		pCi/g						
Thorium-234		2.09	0.682	+/-0.463	2.00	pCi/g						
Tin-113	U	0.00432	0.069	+/-0.0213	0.100	pCi/g						
Uranium-235	U	0.0632	0.264	+/-0.0812	0.500	pCi/g						
Yttrium-88	U	0.036	0.0753	+/-0.0198	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	96.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	86.3	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7702  
Sample ID: 244229003

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.



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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7700  
Sample ID: 244229004  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 6.34%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0142	0.0246	+/-0.0065	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00112	0.0185	+/-0.00372	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	-0.00112	0.0212	+/-0.00251	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.441	0.0958	+/-0.0486	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0458	0.0595	+/-0.0146	0.100	pCi/g						
Uranium-238		0.352	0.0556	+/-0.0423	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0441	0.184	+/-0.060	0.200	pCi/g		MXR1	01/22/10	1258	941239	4
Bismuth-211	UI	3.41	0.263	+/-0.257		pCi/g						
Bismuth-214		0.901	0.0915	+/-0.0829	0.200	pCi/g						
Cadmium-109	UI	2.15	0.987	+/-0.431		pCi/g						
Cerium-139	U	-0.000967	0.0422	+/-0.0125	0.050	pCi/g						
Cesium-134	UI	0.078	0.0705	+/-0.0204	0.100	pCi/g						
Cesium-137	U	-0.000371	0.0503	+/-0.0153	0.100	pCi/g						
Cobalt-60	U	0.012	0.0558	+/-0.0166	0.100	pCi/g						
Europium-152	U	-0.0328	0.132	+/-0.0443	0.200	pCi/g						
Lanthanum-140	U	0.038	0.117	+/-0.0391		pCi/g						
Lead-212		1.54	0.0765	+/-0.111	0.100	pCi/g						
Lead-214		1.19	0.0933	+/-0.0945	0.100	pCi/g						
Mercury-203	U	0.0432	0.0606	+/-0.0207	0.100	pCi/g						
Potassium-40		37.3	0.366	+/-1.85	1.00	pCi/g						
Radium-223	U	0.538	0.913	+/-0.303		pCi/g						
Radium-224	UI	4.16	0.869	+/-0.568		pCi/g						
Radium-226		0.901	0.0915	+/-0.0829		pCi/g						
Radium-228		1.56	0.173	+/-0.162	0.500	pCi/g						
Ruthenium-106	U	-0.107	0.419	+/-0.130	0.800	pCi/g						
Sodium-22	U	-0.0185	0.0558	+/-0.0175	0.080	pCi/g						
Strontium-85	UI	0.156	0.0649	+/-0.0207		pCi/g						
Thallium-208		0.496	0.0453	+/-0.0441	0.080	pCi/g						

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Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7700  
Sample ID: 244229004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0369	0.525	+/-0.163		pCi/g						
Thorium-231	U	0.538	0.913	+/-0.303		pCi/g						
Thorium-234	U	0.334	1.55	+/-0.768	2.00	pCi/g						
Tin-113	U	0.00287	0.0592	+/-0.0179	0.100	pCi/g						
Uranium-235	U	0.263	0.294	+/-0.118	0.500	pCi/g						
Yttrium-88	U	-0.0227	0.0438	+/-0.0147	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	74.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	92.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7700  
244229004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------------	------

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

U1 Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7699  
Sample ID: 244229005  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 20.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00371	0.0235	+/-0.003	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00114	0.0188	+/-0.00591	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.00569	0.0215	+/-0.00342	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.54	0.0955	+/-0.127	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.103	0.0593	+/-0.021	0.100	pCi/g						
Uranium-238		1.55	0.0554	+/-0.128	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0131	0.339	+/-0.110	0.200	pCi/g		MXR1	01/22/10	1305	941239	4
Bismuth-211	UI	4.01	0.358	+/-0.276		pCi/g						
Bismuth-214		1.08	0.127	+/-0.0883	0.200	pCi/g						
Cadmium-109	U	1.65	1.70	+/-0.701		pCi/g						
Cerium-139	U	0.0132	0.0565	+/-0.0167	0.050	pCi/g						
Cesium-134	U	0.0946	0.102	+/-0.0267	0.100	pCi/g						
Cesium-137		0.146	0.0639	+/-0.0425	0.100	pCi/g						
Cobalt-60	U	-0.0339	0.0657	+/-0.0227	0.100	pCi/g						
Europium-152	U	0.0294	0.184	+/-0.0646	0.200	pCi/g						
Lanthanum-140	U	-0.0304	0.150	+/-0.0478		pCi/g						
Lead-212		1.30	0.141	+/-0.0816	0.100	pCi/g						
Lead-214		1.39	0.125	+/-0.103	0.100	pCi/g						
Mercury-203	U	0.0491	0.0815	+/-0.0226	0.100	pCi/g						
Potassium-40		24.7	0.560	+/-1.30	1.00	pCi/g						
Radium-223	U	-0.0656	1.25	+/-0.424		pCi/g						
Radium-224	UI	2.21	1.60	+/-0.468		pCi/g						
Radium-226		1.08	0.127	+/-0.0883		pCi/g						
Radium-228		1.37	0.243	+/-0.152	0.500	pCi/g						
Ruthenium-106	U	-0.0999	0.561	+/-0.176	0.800	pCi/g						
Sodium-22	U	-0.00119	0.0791	+/-0.0243	0.080	pCi/g						
Strontium-85	U	0.0654	0.0694	+/-0.0207		pCi/g						
Thallium-208		0.480	0.0606	+/-0.0421	0.080	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7699  
244229005

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0959	0.750	+/-0.232		pCi/g						
Thorium-231	U	-0.0656	1.25	+/-0.424		pCi/g						
Thorium-234		3.46	2.76	+/-1.07	2.00	pCi/g						
Tin-113	U	-0.0299	0.0787	+/-0.0244	0.100	pCi/g						
Uranium-235	U	0.0175	0.391	+/-0.118	0.500	pCi/g						
Yttrium-88	U	-0.0151	0.0561	+/-0.0187	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	87.5	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	97.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.9	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7699  
Sample ID: 244229005

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7727  
Sample ID: 244229006  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 25.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.00456	0.0217	+/-0.00302	0.050	pCi/g		JXD2	01/21/10	1704 941356	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	-0.001	0.0166	+/-0.00142	0.050	pCi/g		JXD2	01/22/10	1318 941357	2
Plutonium-239/240	U	0.0141	0.019	+/-0.00408	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		4.55	0.0976	+/-0.340	0.100	pCi/g		JXD2	01/21/10	2009 941358	3
Uranium-235/236		0.241	0.0606	+/-0.035	0.100	pCi/g					
Uranium-238		4.87	0.0566	+/-0.362	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	-0.108	0.253	+/-0.102	0.200	pCi/g		MXR1	01/22/10	1340 941239	4
Bismuth-211	UI	3.08	0.314	+/-0.217		pCi/g					
Bismuth-214		1.01	0.101	+/-0.0782	0.200	pCi/g					
Cadmium-109	UI	3.77	1.22	+/-0.570		pCi/g					
Cerium-139	U	-0.00822	0.0462	+/-0.014	0.050	pCi/g					
Cesium-134	U	0.0752	0.089	+/-0.0257	0.100	pCi/g					
Cesium-137		0.306	0.0628	+/-0.035	0.100	pCi/g					
Cobalt-60	U	-0.0127	0.062	+/-0.0197	0.100	pCi/g					
Europium-152	U	0.0339	0.164	+/-0.051	0.200	pCi/g					
Lanthanum-140	U	-0.0895	0.132	+/-0.0459		pCi/g					
Lead-212		1.55	0.0851	+/-0.0757	0.100	pCi/g					
Lead-214		1.07	0.110	+/-0.0805	0.100	pCi/g					
Mercury-203	U	-0.0396	0.0606	+/-0.019	0.100	pCi/g					
Potassium-40		31.8	0.580	+/-1.45	1.00	pCi/g					
Radium-223	U	-0.251	1.01	+/-0.349		pCi/g					
Radium-224	UI	3.99	0.968	+/-0.650		pCi/g					
Radium-226		1.01	0.101	+/-0.0782		pCi/g					
Radium-228		1.65	0.211	+/-0.188	0.500	pCi/g					
Ruthenium-106	U	-0.266	0.504	+/-0.159	0.800	pCi/g					
Sodium-22	U	0.0566	0.0818	+/-0.0222	0.080	pCi/g					
Strontium-85	U	0.0181	0.0586	+/-0.0196		pCi/g					
Thallium-208		0.494	0.0613	+/-0.0428	0.080	pCi/g					

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7727  
244229006

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.128	0.613	+/-0.174		pCi/g					
Thorium-231	U	-0.251	1.01	+/-0.349		pCi/g					
Thorium-234		5.57	2.07	+/-1.30	2.00	pCi/g					
Tin-113	U	-0.0254	0.0727	+/-0.0225	0.100	pCi/g					
Uranium-235	U	0.189	0.349	+/-0.101	0.500	pCi/g					
Yttrium-88	U	0.0446	0.0733	+/-0.0188	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	88.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	89.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.0	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.



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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7727  
Sample ID: 244229006

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7710  
Sample ID: 244229007  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 6.38%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	-0.00181	0.0202	+/-0.00384	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0194	+/-0.00166	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.00821	0.0222	+/-0.00313	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.862	0.102	+/-0.081	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236	U	0.0487	0.0631	+/-0.0166	0.100	pCi/g						
Uranium-238		0.742	0.059	+/-0.0721	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0188	0.081	+/-0.0258	0.200	pCi/g		MXR1	01/22/10	1340	941239	4
Bismuth-211	UI	4.80	0.308	+/-0.346		pCi/g						
Bismuth-214		1.47	0.103	+/-0.126	0.200	pCi/g						
Cadmium-109	UI	4.52	0.760	+/-0.430		pCi/g						
Cerium-139	U	0.00861	0.0445	+/-0.0128	0.050	pCi/g						
Cesium-134	U	0.0763	0.0998	+/-0.0353	0.100	pCi/g						
Cesium-137	U	0.0575	0.0717	+/-0.0282	0.100	pCi/g						
Cobalt-60	U	0.0766	0.0846	+/-0.0221	0.100	pCi/g						
Europium-152	U	-0.0211	0.149	+/-0.0455	0.200	pCi/g						
Lanthanum-140	U	-0.0619	0.177	+/-0.0567		pCi/g						
Lead-212		1.98	0.0777	+/-0.126	0.100	pCi/g						
Lead-214		1.67	0.107	+/-0.128	0.100	pCi/g						
Mercury-203	U	0.0503	0.0685	+/-0.0219	0.100	pCi/g						
Potassium-40		35.9	0.477	+/-1.80	1.00	pCi/g						
Radium-223	U	-0.196	1.06	+/-0.355		pCi/g						
Radium-224	UI	5.58	0.885	+/-0.643		pCi/g						
Radium-226		1.47	0.103	+/-0.126		pCi/g						
Radium-228		1.97	0.242	+/-0.198	0.500	pCi/g						
Ruthenium-106	U	-0.152	0.540	+/-0.164	0.800	pCi/g						
Sodium-22	U	-0.0139	0.0788	+/-0.0246	0.080	pCi/g						
Strontium-85	U	0.00293	0.0589	+/-0.0203		pCi/g						
Thallium-208		0.535	0.0618	+/-0.0476	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7710  
Sample ID: 244229007

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.200	0.603	+/-0.179		pCi/g						
Thorium-231	U	-0.196	1.06	+/-0.355		pCi/g						
Thorium-234		1.51	0.802	+/-0.347	2.00	pCi/g						
Tin-113	U	0.0124	0.0754	+/-0.0219	0.100	pCi/g						
Uranium-235	U	0.170	0.312	+/-0.0897	0.500	pCi/g						
Yttrium-88	U	-0.0148	0.0557	+/-0.0184	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	86.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	90.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.7	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7710 Project: LANL01004  
Sample ID: 244229007 Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------------	------

ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7715  
Sample ID: 244229008  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 26%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0121	0.0237	+/-0.00825	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00192	0.0159	+/-0.00384	0.050	pCi/g		JXD2	01/22/10	1318	941357	2
Plutonium-239/240		0.0682	0.0181	+/-0.00874	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.86	0.142	+/-0.236	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.220	0.0879	+/-0.0395	0.100	pCi/g						
Uranium-238		3.68	0.0821	+/-0.295	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.078	0.202	+/-0.0644	0.200	pCi/g		MXR1	01/22/10	1403	941239	4
Bismuth-211	UI	4.52	0.286	+/-0.379		pCi/g						
Bismuth-214		1.25	0.103	+/-0.104	0.200	pCi/g						
Cadmium-109	U	0.718	1.37	+/-0.511		pCi/g						
Cerium-139	U	-0.0125	0.0452	+/-0.0136	0.050	pCi/g						
Cesium-134	UI	0.0939	0.0901	+/-0.0293	0.100	pCi/g						
Cesium-137		0.838	0.0614	+/-0.0609	0.100	pCi/g						
Cobalt-60	U	-0.00031	0.065	+/-0.0201	0.100	pCi/g						
Europium-152	U	-0.0601	0.148	+/-0.0483	0.200	pCi/g						
Lanthanum-140	U	0.0654	0.142	+/-0.0394		pCi/g						
Lead-212		1.53	0.0939	+/-0.123	0.100	pCi/g						
Lead-214		1.57	0.0995	+/-0.138	0.100	pCi/g						
Mercury-203	U	0.0191	0.066	+/-0.0196	0.100	pCi/g						
Potassium-40		28.7	0.407	+/-1.52	1.00	pCi/g						
Radium-223	U	0.685	1.06	+/-0.343		pCi/g						
Radium-224	UI	2.98	1.19	+/-0.536		pCi/g						
Radium-226		1.25	0.103	+/-0.104		pCi/g						
Radium-228		1.66	0.200	+/-0.184	0.500	pCi/g						
Ruthenium-106	U	0.206	0.537	+/-0.155	0.800	pCi/g						
Sodium-22	U	-0.0181	0.067	+/-0.0217	0.080	pCi/g						
Strontium-85	U	0.0567	0.066	+/-0.020		pCi/g						
Thallium-208		0.569	0.0504	+/-0.0489	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7715  
Sample ID: 244229008  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0227	0.580	+/-0.176		pCi/g						
Thorium-231	U	0.685	1.06	+/-0.343		pCi/g						
Thorium-234		4.14	1.55	+/-0.892	2.00	pCi/g						
Tin-113	U	-0.0089	0.0705	+/-0.0209	0.100	pCi/g						
Uranium-235	U	0.232	0.308	+/-0.126	0.500	pCi/g						
Yttrium-88	U	0.00662	0.0642	+/-0.019	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	79.2	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	97.4	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	61.7	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7715  
Sample ID: 244229008  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7707  
Sample ID: 244229009  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 21.4%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0108	0.0178	+/-0.00373	0.050	pCi/g		JXD2	01/22/10	1249	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0161	+/-0.00195	0.050	pCi/g		JXD2	01/22/10	1318	941357	3
Plutonium-239/240		0.0478	0.0184	+/-0.00735	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.65	0.0938	+/-0.205	0.100	pCi/g		JXD2	01/21/10	2009	941358	4
Uranium-235/236		0.161	0.0582	+/-0.0275	0.100	pCi/g						
Uranium-238		3.64	0.0544	+/-0.275	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.129	0.246	+/-0.0804	0.200	pCi/g		MXR1	01/22/10	1404	941239	5
Bismuth-211	UI	4.03	0.335	+/-0.250		pCi/g						
Bismuth-214		1.23	0.114	+/-0.0897	0.200	pCi/g						
Cadmium-109	U	1.04	1.69	+/-0.624		pCi/g						
Cerium-139	U	-0.00578	0.0547	+/-0.0168	0.050	pCi/g						
Cesium-134	UI	0.0973	0.0915	+/-0.0349	0.100	pCi/g						
Cesium-137		0.714	0.0655	+/-0.048	0.100	pCi/g						
Cobalt-60	U	0.035	0.0771	+/-0.0217	0.100	pCi/g						
Europium-152	U	0.00447	0.165	+/-0.0597	0.200	pCi/g						
Lanthanum-140	U	-0.0373	0.131	+/-0.0434		pCi/g						
Lead-212		1.50	0.0916	+/-0.0775	0.100	pCi/g						
Lead-214		1.40	0.122	+/-0.0942	0.100	pCi/g						
Mercury-203	U	0.0692	0.0761	+/-0.0236	0.100	pCi/g						
Potassium-40		26.9	0.531	+/-1.30	1.00	pCi/g						
Radium-223	U	-0.145	1.15	+/-0.396		pCi/g						
Radium-224	UI	4.17	1.04	+/-0.800		pCi/g						
Radium-226		1.23	0.114	+/-0.0897		pCi/g						
Radium-228	UI	1.52	0.488	+/-0.158	0.500	pCi/g						
Ruthenium-106	U	0.0654	0.562	+/-0.169	0.800	pCi/g						
Sodium-22	U	0.000812	0.0798	+/-0.0242	0.080	pCi/g						
Strontium-85	UI	0.107	0.0776	+/-0.0207		pCi/g						
Thallium-208		0.465	0.0642	+/-0.0433	0.080	pCi/g						



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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7707  
Sample ID: 244229009

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.106	0.670	+/-0.194		pCi/g					
Thorium-231	U	-0.145	1.15	+/-0.396		pCi/g					
Thorium-234		5.94	2.05	+/-1.01	2.00	pCi/g					
Tin-113	U	-0.0287	0.0782	+/-0.0241	0.100	pCi/g					
Uranium-235	U	0.115	0.385	+/-0.115	0.500	pCi/g					
Yttrium-88	U	0.00243	0.0516	+/-0.0158	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	86.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	79.2	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7707  
Sample ID: 244229009  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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N/A RPD or %Recovery limits do not apply.

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7719  
Sample ID: 244229010  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 16.6%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0139	0.0222	+/-0.00472	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00127	0.021	+/-0.00659	0.050	pCi/g		JXD2	01/23/10	1208	941357	2
Plutonium-239/240		0.0343	0.024	+/-0.00751	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.91	0.104	+/-0.156	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.0915	0.0647	+/-0.0214	0.100	pCi/g						
Uranium-238		2.44	0.0605	+/-0.193	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.171	0.367	+/-0.116	0.200	pCi/g		MXR1	01/22/10	1411	941239	4
Bismuth-211	UI	3.82	0.427	+/-0.269		pCi/g						
Bismuth-214		1.16	0.144	+/-0.111	0.200	pCi/g						
Cadmium-109	UI	5.00	1.49	+/-0.686		pCi/g						
Cerium-139	U	-0.0133	0.0622	+/-0.0189	0.050	pCi/g						
Cesium-134	U	0.0635	0.101	+/-0.0275	0.100	pCi/g						
Cesium-137		0.790	0.0778	+/-0.0593	0.100	pCi/g						
Cobalt-60	U	-0.0222	0.0676	+/-0.0226	0.100	pCi/g						
Europium-152	U	0.0727	0.206	+/-0.0704	0.200	pCi/g						
Lanthanum-140	U	-0.126	0.170	+/-0.0603		pCi/g						
Lcad-212		1.61	0.123	+/-0.0874	0.100	pCi/g						
Lead-214		1.33	0.150	+/-0.0997	0.100	pCi/g						
Mercury-203	U	0.0717	0.0953	+/-0.0268	0.100	pCi/g						
Potassium-40		31.8	0.594	+/-1.45	1.00	pCi/g						
Radium-223	U	-1.07	1.44	+/-0.457		pCi/g						
Radium-224	UI	5.39	1.40	+/-0.880		pCi/g						
Radium-226		1.16	0.144	+/-0.111		pCi/g						
Radium-228		1.49	0.283	+/-0.221	0.500	pCi/g						
Ruthenium-106	U	0.0529	0.621	+/-0.187	0.800	pCi/g						
Sodium-22	U	-0.0144	0.0862	+/-0.0272	0.080	pCi/g						
Strontium-85	U	0.0411	0.0814	+/-0.0264		pCi/g						
Thallium-208		0.614	0.0679	+/-0.0542	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7719  
Sample ID: 244229010

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.133	0.815	+/-0.246		pCi/g					
Thorium-231	U	-1.07	1.44	+/-0.457		pCi/g					
Thorium-234		5.90	3.08	+/-1.48	2.00	pCi/g					
Tin-113	U	0.001	0.095	+/-0.0281	0.100	pCi/g					
Uranium-235	U	0.369	0.428	+/-0.186	0.500	pCi/g					
Yttrium-88	U	0.0111	0.0681	+/-0.0196	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	80.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.7	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7719  
Sample ID: 244229010  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7717  
Sample ID: 244229011  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 18.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00314	0.0209	+/-0.00315	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00216	0.0178	+/-0.00529	0.050	pCi/g		JXD2	01/23/10	1208	941357	2
Plutonium-239/240	U	0.0183	0.0204	+/-0.00526	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.14	0.0986	+/-0.101	0.100	pCi/g		JXD2	01/21/10	2009	941358	3
Uranium-235/236		0.0708	0.0612	+/-0.0183	0.100	pCi/g						
Uranium-238		1.60	0.0572	+/-0.133	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.192	0.255	+/-0.0776	0.200	pCi/g		MXR1	01/22/10	1416	941239	4
Bismuth-211	UI	2.71	0.335	+/-0.239		pCi/g						
Bismuth-214		0.856	0.107	+/-0.0829	0.200	pCi/g						
Cadmium-109	UI	3.23	1.24	+/-0.611		pCi/g						
Cerium-139	U	-0.0064	0.0484	+/-0.0143	0.050	pCi/g						
Cesium-134	U	0.0441	0.076	+/-0.0212	0.100	pCi/g						
Cesium-137		0.514	0.0612	+/-0.0383	0.100	pCi/g						
Cobalt-60	U	0.0138	0.0661	+/-0.019	0.100	pCi/g						
Europium-152	U	-0.0174	0.148	+/-0.0568	0.200	pCi/g						
Lanthanum-140	U	0.0111	0.129	+/-0.0384		pCi/g						
Lead-212		1.32	0.0896	+/-0.0679	0.100	pCi/g						
Lead-214		0.942	0.117	+/-0.0867	0.100	pCi/g						
Mercury-203	U	0.00954	0.0666	+/-0.0187	0.100	pCi/g						
Potassium-40		31.7	0.480	+/-1.45	1.00	pCi/g						
Radium-223	U	0.112	1.10	+/-0.358		pCi/g						
Radium-224	UI	3.88	1.02	+/-0.675		pCi/g						
Radium-226		0.856	0.107	+/-0.0829		pCi/g						
Radium-228		1.17	0.203	+/-0.145	0.500	pCi/g						
Ruthenium-106	U	-0.0425	0.456	+/-0.138	0.800	pCi/g						
Sodium-22	U	-0.0138	0.0694	+/-0.0213	0.080	pCi/g						
Strontium-85	UI	0.0742	0.065	+/-0.0189		pCi/g						
Thallium-208		0.388	0.0547	+/-0.038	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7717  
244229011

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.107	0.621	+/-0.183		pCi/g					
Thorium-231	U	0.112	1.10	+/-0.358		pCi/g					
Thorium-234		2.33	2.05	+/-0.912	2.00	pCi/g					
Tin-113	U	-0.0101	0.0762	+/-0.0223	0.100	pCi/g					
Uranium-235	U	0.221	0.342	+/-0.117	0.500	pCi/g					
Yttrium-88	U	0.000579	0.0432	+/-0.0132	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.8	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	101	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.6	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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### Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7717  
Sample ID: 244229011

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.



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## Certificate of Analysis

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Address : PO Box 1663  
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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7708  
Sample ID: 244229012  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 3.21%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00211	0.0221	+/-0.00166	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00358	0.0197	+/-0.00315	0.050	pCi/g		JXD2	01/21/10	1704	941357	2
Plutonium-239/240	U	0.00	0.0225	+/-0.00413	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.391	0.085	+/-0.0432	0.100	pCi/g		JXD2	01/21/10	2009	941358	4
Uranium-235/236	U	0.00678	0.0528	+/-0.0068	0.100	pCi/g						
Uranium-238		0.326	0.0493	+/-0.0381	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0435	0.405	+/-0.130	0.200	pCi/g		MXR1	01/22/10	1449	941239	5
Bismuth-211	UI	2.97	0.319	+/-0.254		pCi/g						
Bismuth-214		1.01	0.110	+/-0.0896	0.200	pCi/g						
Cadmium-109	UI	2.75	1.58	+/-0.623		pCi/g						
Cerium-139	U	-0.00879	0.0477	+/-0.0149	0.050	pCi/g						
Cesium-134	U	0.0908	0.0915	+/-0.0249	0.100	pCi/g						
Cesium-137	U	0.0107	0.0637	+/-0.0185	0.100	pCi/g						
Cobalt-60	U	-0.0188	0.0652	+/-0.021	0.100	pCi/g						
Europium-152	U	0.0188	0.161	+/-0.0513	0.200	pCi/g						
Lanthanum-140	U	-0.0899	0.137	+/-0.050		pCi/g						
Lead-212		1.46	0.117	+/-0.0867	0.100	pCi/g						
Lead-214		1.03	0.111	+/-0.0922	0.100	pCi/g						
Mercury-203	U	0.0347	0.0706	+/-0.020	0.100	pCi/g						
Potassium-40		38.6	0.490	+/-1.99	1.00	pCi/g						
Radium-223	U	0.229	1.14	+/-0.380		pCi/g						
Radium-224	UI	2.75	1.33	+/-0.452		pCi/g						
Radium-226		1.01	0.110	+/-0.0896		pCi/g						
Radium-228		1.64	0.235	+/-0.191	0.500	pCi/g						
Ruthenium-106	U	0.143	0.529	+/-0.151	0.800	pCi/g						
Sodium-22	U	-0.0461	0.0783	+/-0.026	0.080	pCi/g						
Strontium-85	U	0.0681	0.0718	+/-0.0222		pCi/g						
Thallium-208		0.439	0.0548	+/-0.0461	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7708  
Sample ID: 244229012

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.0356	0.628	+/-0.184		pCi/g						
Thorium-231	U	0.229	1.14	+/-0.380		pCi/g						
Thorium-234	U	1.91	3.00	+/-1.32	2.00	pCi/g						
Tin-113	U	-0.0238	0.0744	+/-0.0234	0.100	pCi/g						
Uranium-235	U	0.0243	0.351	+/-0.109	0.500	pCi/g						
Yttrium-88	U	0.0049	0.0547	+/-0.0165	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.3	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	101	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7708  
244229012

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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N/A RPD or %Recovery limits do not apply.

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7706  
Sample ID: 244229013  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 10.3%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00571	0.0254	+/-0.00294	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00	0.0202	+/-0.00123	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	1.46E-10	0.0232	+/-0.00245	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.502	0.110	+/-0.0554	0.100	pCi/g		JXD2	01/21/10	2007	941358	3
Uranium-235/236	U	0.0572	0.0685	+/-0.0164	0.100	pCi/g						
Uranium-238		0.570	0.064	+/-0.0607	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0468	0.114	+/-0.0352	0.200	pCi/g		MXR1	01/22/10	1650	941239	4
Bismuth-211	UI	3.02	0.455	+/-0.271		pCi/g						
Bismuth-214		1.11	0.139	+/-0.132	0.200	pCi/g						
Cadmium-109	UI	4.06	1.09	+/-0.573		pCi/g						
Cerium-139	U	-0.0309	0.0548	+/-0.0176	0.050	pCi/g						
Cesium-134	U	0.0474	0.121	+/-0.0347	0.100	pCi/g						
Cesium-137	U	-0.0366	0.0824	+/-0.0266	0.100	pCi/g						
Cobalt-60	U	-0.0548	0.0829	+/-0.0292	0.100	pCi/g						
Europium-152	U	-0.026	0.196	+/-0.0692	0.200	pCi/g						
Lanthanum-140	U	0.0512	0.226	+/-0.0665		pCi/g						
Lead-212		1.48	0.106	+/-0.0923	0.100	pCi/g						
Lead-214		1.05	0.159	+/-0.0981	0.100	pCi/g						
Mercury-203	U	0.0234	0.0867	+/-0.0253	0.100	pCi/g						
Potassium-40		28.8	0.804	+/-1.39	1.00	pCi/g						
Radium-223	U	-0.391	1.33	+/-0.474		pCi/g						
Radium-224	UI	3.96	1.21	+/-0.815		pCi/g						
Radium-226		1.11	0.139	+/-0.132		pCi/g						
Radium-228		1.20	0.306	+/-0.233	0.500	pCi/g						
Ruthenium-106	U	-0.142	0.694	+/-0.217	0.800	pCi/g						
Sodium-22	U	-0.0331	0.101	+/-0.0319	0.080	pCi/g						
Strontium-85	U	0.0632	0.0891	+/-0.0281		pCi/g						
Thallium-208		0.532	0.0805	+/-0.057	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7706  
Sample ID: 244229013

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0724	0.749	+/-0.224		pCi/g						
Thorium-231	U	-0.391	1.33	+/-0.474		pCi/g						
Thorium-234	U	1.09	1.12	+/-0.605	2.00	pCi/g						
Tin-113	U	-0.0452	0.0876	+/-0.0285	0.100	pCi/g						
Uranium-235	U	0.0483	0.419	+/-0.129	0.500	pCi/g						
Yttrium-88	U	0.00984	0.0685	+/-0.0198	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	76.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	88.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	94.5	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7706  
Sample ID: 244229013

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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## Certificate of Analysis

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TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7714  
Sample ID: 244229014  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 9.61%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0101	0.0225	+/-0.00558	0.050	pCi/g		JXD2	01/21/10	1704	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	1.49E-10	0.0206	+/-0.00249	0.050	pCi/g		JXD2	01/20/10	1641	941357	2
Plutonium-239/240	U	0.00125	0.0236	+/-0.00125	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.588	0.126	+/-0.0629	0.100	pCi/g		JXD2	01/21/10	2007	941358	3
Uranium-235/236	U	0.0551	0.0779	+/-0.017	0.100	pCi/g						
Uranium-238		0.616	0.0728	+/-0.065	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0794	0.474	+/-0.150	0.200	pCi/g		MXR1	01/22/10	1650	941239	4
Bismuth-211	UI	3.84	0.369	+/-0.298		pCi/g						
Bismuth-214		1.02	0.125	+/-0.0948	0.200	pCi/g						
Cadmium-109	U	1.35	1.76	+/-0.986		pCi/g						
Cerium-139	U	-0.00871	0.0594	+/-0.0177	0.050	pCi/g						
Cesium-134	U	0.0784	0.0969	+/-0.0294	0.100	pCi/g						
Cesium-137	U	0.034	0.0746	+/-0.0214	0.100	pCi/g						
Cobalt-60	U	-0.00284	0.0704	+/-0.0219	0.100	pCi/g						
Europium-152	U	0.136	0.189	+/-0.0834	0.200	pCi/g						
Lanthanum-140	U	0.0208	0.169	+/-0.0493		pCi/g						
Lead-212		1.55	0.112	+/-0.0905	0.100	pCi/g						
Lead-214		1.34	0.129	+/-0.109	0.100	pCi/g						
Mercury-203	U	0.0603	0.0899	+/-0.0247	0.100	pCi/g						
Potassium-40		30.5	0.638	+/-1.50	1.00	pCi/g						
Radium-223	U	-0.127	1.26	+/-0.425		pCi/g						
Radium-224	UI	4.23	1.27	+/-0.604		pCi/g						
Radium-226		1.02	0.125	+/-0.0948		pCi/g						
Radium-228		1.42	0.258	+/-0.171	0.500	pCi/g						
Ruthenium-106	U	0.00604	0.565	+/-0.171	0.800	pCi/g						
Sodium-22	U	0.00587	0.0882	+/-0.0268	0.080	pCi/g						
Strontium-85	U	0.0691	0.0723	+/-0.0218		pCi/g						
Thallium-208		0.470	0.0686	+/-0.054	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7714  
244229014

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	0.000316	0.759	+/-0.217		pCi/g						
Thorium-231	U	-0.127	1.26	+/-0.425		pCi/g						
Thorium-234	U	2.50	3.82	+/-1.38	2.00	pCi/g						
Tin-113	U	-0.01	0.0845	+/-0.0251	0.100	pCi/g						
Uranium-235	U	-0.0522	0.432	+/-0.129	0.500	pCi/g						
Yttrium-88	U	0.0035	0.0508	+/-0.0151	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	85.0	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.8	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	84.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.



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### Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7714  
Sample ID: 244229014

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7705  
Sample ID: 244229015  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 16.2%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.000473	0.0194	+/-0.00178	0.050	pCi/g		JXD2	01/22/10	1249	941356	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00119	0.0196	+/-0.00266	0.050	pCi/g		JXD2	01/20/10	1641	941357	3
Plutonium-239/240	U	0.00356	0.0225	+/-0.00207	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.593	0.116	+/-0.0631	0.100	pCi/g		JXD2	01/21/10	2007	941358	4
Uranium-235/236	U	0.0277	0.0718	+/-0.0115	0.100	pCi/g						
Uranium-238		0.743	0.0671	+/-0.0745	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0039	0.291	+/-0.0841	0.200	pCi/g		MXR1	01/22/10	1651	941239	5
Bismuth-211	UI	3.72	0.249	+/-0.231		pCi/g						
Bismuth-214		0.959	0.0948	+/-0.0827	0.200	pCi/g						
Cadmium-109	UI	2.63	1.14	+/-0.502		pCi/g						
Cerium-139	U	-0.00515	0.0418	+/-0.0122	0.050	pCi/g						
Cesium-134	UI	0.115	0.0758	+/-0.0267	0.100	pCi/g						
Cesium-137	U	0.000719	0.0511	+/-0.0151	0.100	pCi/g						
Cobalt-60	U	0.00137	0.0517	+/-0.0158	0.100	pCi/g						
Europium-152	U	0.00018	0.129	+/-0.0547	0.200	pCi/g						
Lanthanum-140	U	-0.0297	0.113	+/-0.0403		pCi/g						
Lead-212		1.57	0.0769	+/-0.0741	0.100	pCi/g						
Lead-214		1.29	0.0868	+/-0.0873	0.100	pCi/g						
Mercury-203	U	0.0179	0.0604	+/-0.0178	0.100	pCi/g						
Potassium-40		31.7	0.344	+/-1.41	1.00	pCi/g						
Radium-223	U	0.695	0.978	+/-0.322		pCi/g						
Radium-224	UI	3.87	0.874	+/-0.475		pCi/g						
Radium-226		0.959	0.0948	+/-0.0827		pCi/g						
Radium-228		1.48	0.167	+/-0.172	0.500	pCi/g						
Ruthenium-106	U	-0.266	0.413	+/-0.137	0.800	pCi/g						
Sodium-22	U	-0.000394	0.0641	+/-0.0196	0.080	pCi/g						
Strontium-85	UI	0.100	0.0639	+/-0.019		pCi/g						
Thallium-208		0.477	0.0516	+/-0.0342	0.080	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7705  
Sample ID: 244229015

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0452	0.524	+/-0.158		pCi/g						
Thorium-231	U	0.695	0.978	+/-0.322		pCi/g						
Thorium-234	U	0.959	2.55	+/-0.737	2.00	pCi/g						
Tin-113	U	0.0308	0.0681	+/-0.0194	0.100	pCi/g						
Uranium-235	U	-0.0388	0.305	+/-0.0962	0.500	pCi/g						
Yttrium-88	U	0.0128	0.0454	+/-0.0129	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Am-05-RC Modified
3	DOE EML HASL-300, Pu-11-RC Modified
4	DOE EML HASL-300, U-02-RC Modified
5	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	84.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	94.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

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## Certificate of Analysis

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Address : PO Box 1663  
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Los Alamos, New Mexico 87545  
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Report Date: January 26, 2010

Client Sample ID: RE12-10-7705  
Sample ID: 244229015

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

N/A RPD or %Recovery limits do not apply.

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

# QUALITY CONTROL DATA

# GEL LABORATORIES LLC

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## QC Summary

Report Date: January 26, 2010

Page 1 of 6

Client : Los Alamos National Laboratory  
PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico  
Contact: Ms. Joylene Valdez  
Workorder: 244229

Parmname	NOM	Sample	Qual	QC	Units	RER	REC %	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch 941356											
QC1202014804 244229008 DUP											
Americium-241	U	0.0121	U	0.0152	pCi/g	0.118		(0-1)	JXD2	01/21/10	17:04
	TPU:	+/-0.00825		+/-0.00493							
	Yield:	79.2		85.6							
QC1202014805 LCS											
Americium-241	33.2			29.9	pCi/g		90	(75%-125%)			
	TPU:			+/-2.13							
	Yield:			92.6							
QC1202014803 MB											
Americium-241			U	-0.000806	pCi/g						
	TPU:			+/-0.00275							
	Yield:			90.2							
Batch 941357											
QC1202014807 244229008 DUP											
Plutonium-238	U	-0.00192	U	0.00331	pCi/g	0.334		(0-1)	JXD2	01/23/10	12:08
	TPU:	+/-0.00384		+/-0.00398							
	Yield:	97.4		93.2							
Plutonium-239/240		0.0682		0.0508	pCi/g	0.509		(0-1)			
	TPU:	+/-0.00874		+/-0.00835							
	Yield:	97.4		93.2							
QC1202014808 LCS											
Plutonium-238				6.29	pCi/g			(75%-125%)		01/20/10	12:59
	TPU:			+/-0.462							
	Yield:			97.8							
Plutonium-239/240	41.8			36.2	pCi/g		86.5	(75%-125%)			
	TPU:			+/-2.20							
	Yield:			97.8							
QC1202014806 MB											
Plutonium-238			U	0.0104	pCi/g						
	TPU:			+/-0.00615							
	Yield:			88.0							
Plutonium-239/240			U	-0.00148	pCi/g						
	TPU:			+/-0.00332							
	Yield:			88.0							
Batch 941358											
QC1202014810 244229008 DUP											
Uranium-233/234		2.86		3.00	pCi/g	0.143		(0-1)	JXD2	01/21/10	20:08
	TPU:	+/-0.236		+/-0.256							
	Yield:	61.7		66.0							
Uranium-235/236		0.220		0.172	pCi/g	0.317		(0-1)			
	TPU:	+/-0.0395		+/-0.0367							
	Yield:	61.7		66.0							
Uranium-238		3.68		3.42	pCi/g	0.224		(0-1)			
	TPU:	+/-0.295		+/-0.287							

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## QC Summary

Workorder: 244229

Page 2 of 6

Parmname		NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec												
Batch	941358											
		Yield:		61.7	66.0							
QC1202014811	LCS				5.77	pCi/g			(75%-125%)		01/21/1020:08	
Uranium-233/234		TPU:			+/-0.548							
		Yield:			85.1							
Uranium-235/236			U		0.291	pCi/g			(75%-125%)			
		TPU:			+/-0.0894							
		Yield:			85.1							
Uranium-238	5.75				5.28	pCi/g		91.9	(75%-125%)			
		TPU:			+/-0.509							
		Yield:			85.1							
QC1202014809	MB											
Uranium-233/234			U		0.00861	pCi/g					01/21/1020:08	
		TPU:			+/-0.00532							
		Yield:			98.1							
Uranium-235/236			U		0.00	pCi/g						
		TPU:			+/-0.00311							
		Yield:			98.1							
Uranium-238			U		0.00533	pCi/g						
		TPU:			+/-0.0031							
		Yield:			98.1							
Rad Gamma Spec												
Batch	941239											
QC1202014508	244229006	DUP										
Americium-241		U	-0.108	U	-0.0156	pCi/g	0.217		(0-1)	MXR1	01/22/1016:52	
		TPU:	+/-0.102		+/-0.110							
Bismuth-211		UI	3.08	UI	3.55	pCi/g	0.502		(0-1)			
		TPU:	+/-0.217		+/-0.249							
Bismuth-214			1.01		0.966	pCi/g	0.135		(0-1)			
		TPU:	+/-0.0782		+/-0.0969							
Cadmium-109		UI	3.77	UI	3.49	pCi/g	0.120		(0-1)			
		TPU:	+/-0.570		+/-0.589							
Cerium-139		U	-0.00822	U	-0.0137	pCi/g	0.0892		(0-1)			
		TPU:	+/-0.014		+/-0.017							
Cesium-134		U	0.0752	UI	0.101	pCi/g	0.212		(0-1)			
		TPU:	+/-0.0257		+/-0.0351							
Cesium-137			0.306		0.262	pCi/g	0.304		(0-1)			
		TPU:	+/-0.035		+/-0.036							
Cobalt-60		U	-0.0127	U	-0.0216	pCi/g	0.104		(0-1)			
		TPU:	+/-0.0197		+/-0.0229							
Europium-152		U	0.0339	U	-0.00425	pCi/g	0.170		(0-1)			
		TPU:	+/-0.051		+/-0.061							
Lanthanum-140		U	-0.0895	U	-0.0705	pCi/g	0.105		(0-1)			
		TPU:	+/-0.0459		+/-0.0451							
Lead-212			1.55		1.65	pCi/g	0.295		(0-1)			
		TPU:	+/-0.0757		+/-0.0822							
Lead-214			1.07		1.23	pCi/g	0.468		(0-1)			
		TPU:	+/-0.0805		+/-0.0924							
Mercury-203		U	-0.0396	U	0.0548	pCi/g	1.10		(0-1)			
		TPU:	+/-0.019		+/-0.024							

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## QC Summary

Workorder: 244229

Page 3 of 6

Parname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Analst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	941239										
Potassium-40		31.8		30.0	pCi/g	0.306		(0-1)			
		TPU: +/-1.45		+/-1.52							
Radium-223		U -0.251	U	-0.26	pCi/g	0.00628		(0-1)			
		TPU: +/-0.349		+/-0.376							
Radium-224		UI 3.99	UI	4.26	pCi/g	0.112		(0-1)			
		TPU: +/-0.650		+/-0.578							
Radium-226		1.01		0.966	pCi/g	0.135		(0-1)			
		TPU: +/-0.0782		+/-0.0969							
Radium-228		1.65		1.46	pCi/g	0.260		(0-1)			
		TPU: +/-0.188		+/-0.189							
Ruthenium-106		U -0.266	U	-0.479	pCi/g	0.315		(0-1)			
		TPU: +/-0.159		+/-0.180							
Sodium-22		U 0.0566	U	-0.0265	pCi/g	0.868		(0-1)			
		TPU: +/-0.0222		+/-0.0257							
Strontium-85		U 0.0181	U	0.0541	pCi/g	0.434		(0-1)			
		TPU: +/-0.0196		+/-0.0218							
Thallium-208		0.494		0.436	pCi/g	0.335		(0-1)			
		TPU: +/-0.0428		+/-0.0442							
Thorium-227		U 0.128	U	0.220	pCi/g	0.116		(0-1)			
		TPU: +/-0.174		+/-0.221							
Thorium-231		U -0.251	U	-0.26	pCi/g	0.00628		(0-1)			
		TPU: +/-0.349		+/-0.376							
Thorium-234		5.57		3.54	pCi/g	0.350		(0-1)			
		TPU: +/-1.30		+/-1.60							
Tin-113		U -0.0254	U	-0.0383	pCi/g	0.138		(0-1)			
		TPU: +/-0.0225		+/-0.0241							
Uranium-235		U 0.189	U	0.231	pCi/g	0.0954		(0-1)			
		TPU: +/-0.101		+/-0.118							
Yttrium-88		U 0.0446	U	-0.00369	pCi/g	0.642		(0-1)			
		TPU: +/-0.0188		+/-0.0188							
QC1202014509	LCS										
Americium-241	15.9			14.0	pCi/g		88.2	(75%-125%)		01/22/10	16:52
		TPU: +/-0.692									
Bismuth-211				1.72	pCi/g						
		TPU: +/-0.326									
Bismuth-214				0.608	pCi/g						
		TPU: +/-0.132									
Cadmium-109				32.5	pCi/g						
		TPU: +/-1.98									
Cerium-139			U	0.0117	pCi/g						
		TPU: +/-0.0231									
Cesium-134			U	0.0468	pCi/g						
		TPU: +/-0.0455									
Cesium-137	5.57			6.04	pCi/g		109	(75%-125%)			
		TPU: +/-0.222									
Cobalt-60	6.45			6.47	pCi/g		100	(75%-125%)			
		TPU: +/-0.290									
Europium-152			U	-0.233	pCi/g						
		TPU: +/-0.094									
Lanthanum-140			U	-0.0617	pCi/g						
		TPU: +/-0.0454									



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## QC Summary

Workorder: 244229

Page 4 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	941239										
Lead-212				0.864	pCi/g						
	TPU:			+/-0.0839							
Lead-214				0.597	pCi/g						
	TPU:			+/-0.114							
Mercury-203			U	0.00274	pCi/g						
	TPU:			+/-0.0315							
Potassium-40			U	0.294	pCi/g						
	TPU:			+/-0.252							
Radium-223			U	-0.713	pCi/g						
	TPU:			+/-0.612							
Radium-224				7.07	pCi/g						
	TPU:			+/-0.814							
Radium-226				0.608	pCi/g						
	TPU:			+/-0.132							
Radium-228				0.951	pCi/g						
	TPU:			+/-0.261							
Ruthenium-106			U	-0.491	pCi/g						
	TPU:			+/-0.297							
Sodium-22			U	-0.0194	pCi/g						
	TPU:			+/-0.0257							
Strontium-85			U	0.0141	pCi/g						
	TPU:			+/-0.036							
Thallium-208				0.364	pCi/g						
	TPU:			+/-0.0723							
Thorium-227			U	0.366	pCi/g						
	TPU:			+/-0.332							
Thorium-231			U	-0.713	pCi/g						
	TPU:			+/-0.612							
Thorium-234			U	-0.976	pCi/g						
	TPU:			+/-1.14							
Tin-113			U	-0.0296	pCi/g						
	TPU:			+/-0.0414							
Uranium-235			U	0.219	pCi/g						
	TPU:			+/-0.164							
Yttrium-88			U	-0.00872	pCi/g						
	TPU:			+/-0.0198							
QC1202014507	MB										
Americium-241			U	0.00258	pCi/g					01/22/10	16:51
	TPU:			+/-0.0272							
Bismuth-211			U	0.0758	pCi/g						
	TPU:			+/-0.0596							
Bismuth-214			U	-0.0121	pCi/g						
	TPU:			+/-0.0215							
Cadmium-109			U	-0.329	pCi/g						
	TPU:			+/-0.176							
Cerium-139			U	0.00712	pCi/g						
	TPU:			+/-0.00726							
Cesium-134			U	0.00489	pCi/g						
	TPU:			+/-0.0109							
Cesium-137			U	0.00103	pCi/g						
	TPU:			+/-0.00893							

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## QC Summary

Workorder: 244229

Page 5 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>											
Batch	941239										
Cobalt-60			U	-0.00776	pCi/g						
	TPU:			+/-0.00923							
Europium-152			U	0.00383	pCi/g						
	TPU:			+/-0.0242							
Lanthanum-140			U	0.00761	pCi/g						
	TPU:			+/-0.0163							
Lead-212			U	-0.00796	pCi/g						
	TPU:			+/-0.0185							
Lead-214			U	0.0149	pCi/g						
	TPU:			+/-0.0209							
Mercury-203			U	0.00724	pCi/g						
	TPU:			+/-0.00969							
Potassium-40			U	-0.288	pCi/g						
	TPU:			+/-0.132							
Radium-223			U	0.0462	pCi/g						
	TPU:			+/-0.169							
Radium-224			U	-0.0249	pCi/g						
	TPU:			+/-0.192							
Radium-226			U	-0.0121	pCi/g						
	TPU:			+/-0.0215							
Radium-228			U	0.0698	pCi/g						
	TPU:			+/-0.0632							
Ruthenium-106			U	0.0813	pCi/g						
	TPU:			+/-0.083							
Sodium-22			U	0.00843	pCi/g						
	TPU:			+/-0.00844							
Strontium-85			UI	0.0848	pCi/g						
	TPU:			+/-0.0124							
Thallium-208			U	0.0125	pCi/g						
	TPU:			+/-0.0129							
Thorium-227			U	-0.0701	pCi/g						
	TPU:			+/-0.104							
Thorium-231			U	0.0462	pCi/g						
	TPU:			+/-0.169							
Thorium-234			U	-0.293	pCi/g						
	TPU:			+/-0.279							
Tin-113			U	0.0037	pCi/g						
	TPU:			+/-0.0114							
Uranium-235			U	-0.0166	pCi/g						
	TPU:			+/-0.0585							
Yttrium-88			U	0.00309	pCi/g						
	TPU:			+/-0.0097							

### Notes:

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported

## GEL LABORATORIES LLC

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### QC Summary

Workorder: 244229

Page 6 of 6

Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
A	The TIC is a suspected aldol-condensation product									
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.									
BD	Results are either below the MDC or tracer recovery is low									
C	Analyte has been confirmed by GC/MS analysis									
D	Results are reported from a diluted aliquot of the sample									
F	Estimated Value									
H	Analytical holding time was exceeded									
J	Value is estimated									
M	M if above MDC and less than LLD									
M	Matrix Related Failure									
N/A	RPD or %Recovery limits do not apply.									
ND	Analyte concentration is not detected above the detection limit									
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
R	Sample results are rejected									
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.									
UI	Gamma Spectroscopy--Uncertain identification									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	QC Samples were not spiked with this compound									
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h	Preparation or preservation holding time was exceeded									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

\*\* Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

**RAW DATA**

## Radiochemistry Batch Checklist, Rev10

Batch# 941356 Product: Am Date: 1/25/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		<del>N/A</del> 1/25/10
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: J. L. M. 1 - 1/25/10Secondary Review Performed By: CPW on 1/25/10

1/23

(2/2)

## Am/Cm Que Sheet

18-JAN-10

Batch #: 941356 Analyst: JXD2 First Client Due Date: 02-FEB-10 Internal Due Date 23-JAN-10 Comments:  
 Tracer(s): Am243/Cm244 Tracer Code: 445-96-2-SS Expiration Date: 05-11-10 Vol: 0.1  
 LCS Isotope(s): Am241/Cm244 LCS Code(s): 8444 / NA Expiration Date: / NA Vol(s): / NA  
 Spike Isotope(s): Am241/Cm244 Spike Code(s): NA / NA Expiration Date: / NA Vol(s): NA / NA  
 Prep Date: 01-18-10 Initials: gbl Pipet ID: 2271012 Balance ID: 50410727-2 Witness: MDA 119/10

Sample ID	Client Description	Type	Hazard	Min	Code	CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry	Aliquot (g/l/f)	Am/Cm	Det #
244229001-1	RE12-10-7734	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	1	1	1.283			36
244229002-1	RE12-10-7701	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	2	2	1.260			65
244229003-1	RE12-10-7702	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	3	3	1.258			66
244229004-1	RE12-10-7700	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	4	4	1.287			67
244229005-1	RE12-10-7699	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	5	5	1.259			68
244229006-1	RE12-10-7727	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	6	6	1.259			69
244229007-1	RE12-10-7710	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	7	7	1.261			70
244229008-1	RE12-10-7715	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	8	8	1.260			71
244229009-1	RE12-10-7707	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	9	9	1.286			231
244229010-1	RE12-10-7719	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	10	10	1.287			73
244229011-1	RE12-10-7717	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	11	11	1.291			74
244229012-1	RE12-10-7708	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	12	12	1.275			75
244229013-1	RE12-10-7706	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	13	13	1.283			76
244229014-1	RE12-10-7714	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	14	14	1.256			77
244229015-1	RE12-10-7705	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	15	15	1.261			232
244519001-1	RE16-10-418	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	16	16	1.255			79
244519002-1	RE16-10-419	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	17	17	1.282			80
244519004-1	RE16-10-422	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	18	18	1.257			81
244519005-1	RE16-10-423	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	19	19	1.253			82
244519006-1	RE16-10-441	SAMPLE				.05 pCi/g	SOIL	LANL010	06-JAN-10	20	20	1.284			83
1202014803-1	MB for batch 941356	MB				.05 pCi/g	SOIL	QC ACCOUNT		21	21	1.00			84
1202014804-1	RE12-10-7715(244229008DUP)	DUP				.05 pCi/g	SOIL	QC ACCOUNT	06-JAN-10	22	22	1.270			85
1202014805-1	LCS for batch 941356	LCS				.05 pCi/g	SOIL	QC ACCOUNT		23	23	0.108			86

Choose SOP Used: GL-RAD-A-011  
GL-RAD-A-036

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

Data Reviewed By: Jopel/1-1125/10

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

# Blank Correction Report

**Batch ID 941356**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014804	DUP	Americium-241	1.27E+00 g	1.52E-02	4.93E-03	2.23E-02	-.00063465	pCi/g	NO
1202014805	LCS	Americium-241	1.08E-01 g	2.99E+01	2.13E+00	2.57E-01	-.00746296	pCi/g	NO
1202014803	MB	Americium-241	1.00E+00 g	-8.06E-04	2.75E-03	2.51E-02	-.000806	pCi/g	NO
244229001	RE12-10-7734	Americium-241	1.28E+00 g	8.80E-04	2.17E-03	2.26E-02	-.00062969	pCi/g	NO
244229002	RE12-10-7701	Americium-241	1.26E+00 g	8.47E-03	6.89E-03	2.18E-02	-.00063968	pCi/g	NO
244229003	RE12-10-7702	Americium-241	1.26E+00 g	8.37E-03	5.21E-03	2.16E-02	-.00063968	pCi/g	NO
244229004	RE12-10-7700	Americium-241	1.29E+00 g	1.42E-02	6.50E-03	2.46E-02	-.00062481	pCi/g	NO
244229005	RE12-10-7699	Americium-241	1.26E+00 g	3.71E-03	3.00E-03	2.35E-02	-.00063968	pCi/g	NO
244229006	RE12-10-7727	Americium-241	1.26E+00 g	4.56E-03	3.02E-03	2.17E-02	-.00063968	pCi/g	NO
244229007	RE12-10-7710	Americium-241	1.26E+00 g	-1.81E-03	3.84E-03	2.02E-02	-.00063968	pCi/g	NO
244229008	RE12-10-7715	Americium-241	1.26E+00 g	1.21E-02	8.25E-03	2.37E-02	-.00063968	pCi/g	NO
244229009	RE12-10-7707	Americium-241	1.29E+00 g	1.08E-02	3.73E-03	1.78E-02	-.00062481	pCi/g	NO
244229010	RE12-10-7719	Americium-241	1.29E+00 g	1.39E-02	4.72E-03	2.22E-02	-.00062481	pCi/g	NO
244229011	RE12-10-7717	Americium-241	1.29E+00 g	3.14E-03	3.15E-03	2.09E-02	-.00062481	pCi/g	NO
244229012	RE12-10-7708	Americium-241	1.28E+00 g	2.11E-03	1.66E-03	2.21E-02	-.00062969	pCi/g	NO
244229013	RE12-10-7706	Americium-241	1.28E+00 g	5.71E-03	2.94E-03	2.54E-02	-.00062969	pCi/g	NO
244229014	RE12-10-7714	Americium-241	1.26E+00 g	1.01E-02	5.58E-03	2.25E-02	-.00063968	pCi/g	NO
244229015	RE12-10-7705	Americium-241	1.26E+00 g	4.73E-04	1.78E-03	1.94E-02	-.00063968	pCi/g	NO
244519001	RE16-10-418	Americium-241	1.26E+00 g	1.29E-02	4.23E-03	2.27E-02	-.00063968	pCi/g	NO
244519002	RE16-10-419	Americium-241	1.28E+00 g	2.44E-03	2.72E-03	2.39E-02	-.00062969	pCi/g	NO
244519004	RE16-10-422	Americium-241	1.26E+00 g	7.90E-03	4.77E-03	2.36E-02	-.00063968	pCi/g	NO
244519005	RE16-10-423	Americium-241	1.25E+00 g	7.19E-03	3.57E-03	2.19E-02	-.0006448	pCi/g	NO
244519006	RE16-10-441	Americium-241	1.28E+00 g	7.43E-03	6.15E-03	1.96E-02	-.00062969	pCi/g	NO

# Blank Correction Report

**Batch ID 941356**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Alliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014804	DUP	Americium-241	1.27E+00 g	1.52E-02	4.93E-03	2.23E-02	-0.0063465	pCi/g	NO
1202014805	LCS	Americium-241	1.08E-01 g	2.99E+01	2.13E+00	2.57E-01	-0.00746296	pCi/g	NO
1202014803	MB	Americium-241	1.00E+00 g	-8.06E-04	2.75E-03	2.51E-02	-0.000806	pCi/g	NO
244229001	RE12-10-7734	Americium-241	1.28E+00 g	8.80E-04	2.17E-03	2.26E-02	-0.0062969	pCi/g	NO
244229002	RE12-10-7701	Americium-241	1.26E+00 g	8.47E-03	6.89E-03	2.18E-02	-0.0063968	pCi/g	NO
244229003	RE12-10-7702	Americium-241	1.26E+00 g	8.37E-03	5.21E-03	2.16E-02	-0.0063968	pCi/g	NO
244229004	RE12-10-7700	Americium-241	1.29E+00 g	1.42E-02	6.50E-03	2.46E-02	-0.0062481	pCi/g	NO
244229005	RE12-10-7699	Americium-241	1.26E+00 g	3.71E-03	3.00E-03	2.35E-02	-0.0063968	pCi/g	NO
244229006	RE12-10-7727	Americium-241	1.26E+00 g	4.56E-03	3.02E-03	2.17E-02	-0.0063968	pCi/g	NO
244229007	RE12-10-7710	Americium-241	1.26E+00 g	-1.81E-03	3.84E-03	2.02E-02	-0.0063968	pCi/g	NO
244229008	RE12-10-7715	Americium-241	1.26E+00 g	1.21E-02	8.25E-03	2.37E-02	-0.0063968	pCi/g	NO
244229009	RE12-10-7707	Americium-241	1.29E+00 g	1.08E-02	3.73E-03	1.78E-02	-0.0062481	pCi/g	NO
244229010	RE12-10-7719	Americium-241	1.29E+00 g	1.39E-02	4.72E-03	2.22E-02	-0.0062481	pCi/g	NO
244229011	RE12-10-7717	Americium-241	1.29E+00 g	3.14E-03	3.15E-03	2.09E-02	-0.0062481	pCi/g	NO
244229012	RE12-10-7708	Americium-241	1.28E+00 g	2.11E-03	1.66E-03	2.21E-02	-0.0062969	pCi/g	NO
244229013	RE12-10-7706	Americium-241	1.28E+00 g	5.71E-03	2.94E-03	2.54E-02	-0.0062969	pCi/g	NO
244229014	RE12-10-7714	Americium-241	1.26E+00 g	1.01E-02	5.58E-03	2.25E-02	-0.0063968	pCi/g	NO
244229015	RE12-10-7705	Americium-241	1.26E+00 g	4.73E-04	1.78E-03	1.94E-02	-0.0063968	pCi/g	NO
244519001	RE16-10-418	Americium-241	1.26E+00 g	1.29E-02	4.23E-03	2.27E-02	-0.0063968	pCi/g	NO
244519002	RE16-10-419	Americium-241	1.28E+00 g	2.44E-03	2.72E-03	2.39E-02	-0.0062969	pCi/g	NO
244519004	RE16-10-422	Americium-241	1.26E+00 g	7.90E-03	4.77E-03	2.36E-02	-0.0063968	pCi/g	NO
244519005	RE16-10-423	Americium-241	1.25E+00 g	7.19E-03	3.57E-03	2.19E-02	-0.006448	pCi/g	NO
244519006	RE16-10-441	Americium-241	1.28E+00 g	7.43E-03	6.15E-03	1.96E-02	-0.0062969	pCi/g	NO



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229001_AM SAMPLE QTY: 1.283 G	
DETECTOR NUMBER :78203 AVERAGE %EFFICIENCY :32.3142 % YIELD : 81.774		COUNT DATE:21-JAN-2010 17:04:09 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.38501 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B036.CNF;1096 BKG DATE : 17-JAN-2010 EFF FILE : W036.CNF;329 CAL DATE : 4-JAN-2010

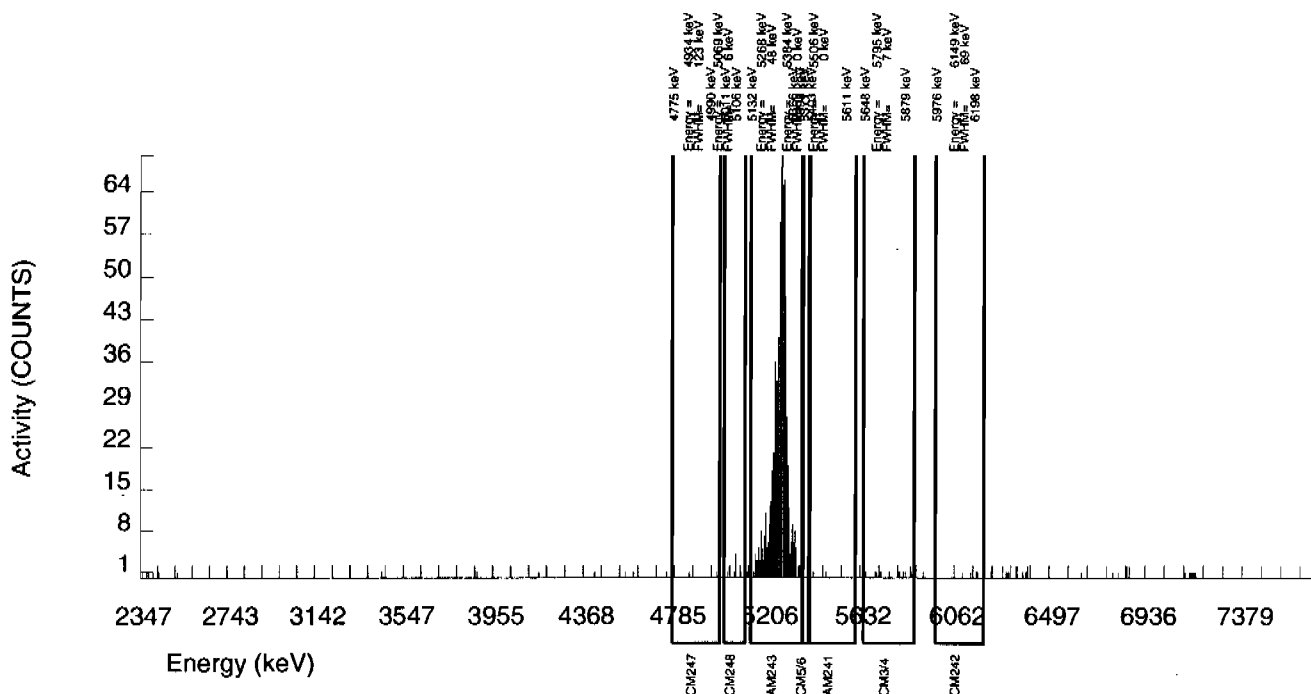
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	14.000	-4.000	18.000	5.2338	100.0000	-5.32E-03	7.53E-03	1.62E-02	3.60E-02	7.53E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.54E-03	1.55E-03	7.13E-02	1.47E-01	1.54E-03
AM-241	5479.150	3.000	0.662	1.000	3.0704	99.94000	8.80E-04	2.17E-03	9.50E-03	2.26E-02	2.17E-03
CM-242	6102.000	4.000	1.000	3.000	4.3186	100.0000	1.42E-03	3.76E-03	1.33E-02	3.03E-02	3.76E-03
AM243	5270.000	772.000	769.000	3.000	1.7321	99.78000	1.02E+00	7.28E-02	5.37E-03	1.43E-02	3.71E-02
CM-247	4946.000	3.000	0.000	3.000	15.3366	79.30000	-7.99E-10	4.11E-03	5.98E-02	1.24E-01	4.10E-03
CM-248	5078.600	10.000	9.000	1.000	22.1555	91.00000	1.31E-02	4.91E-03	7.53E-02	1.54E-01	4.84E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229002_AM SAMPLE QTY: 1.260 G	
DETECTOR NUMBER :68551 AVERAGE %EFFICIENCY :31.0643 % YIELD : 89.600		COUNT DATE:21-JAN-2010 17:04:10 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.61325 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B065.CNF;1936 BKG DATE : 17-JAN-2010 EFF FILE : W065.CNF;305 CAL DATE : 11-JAN-2010

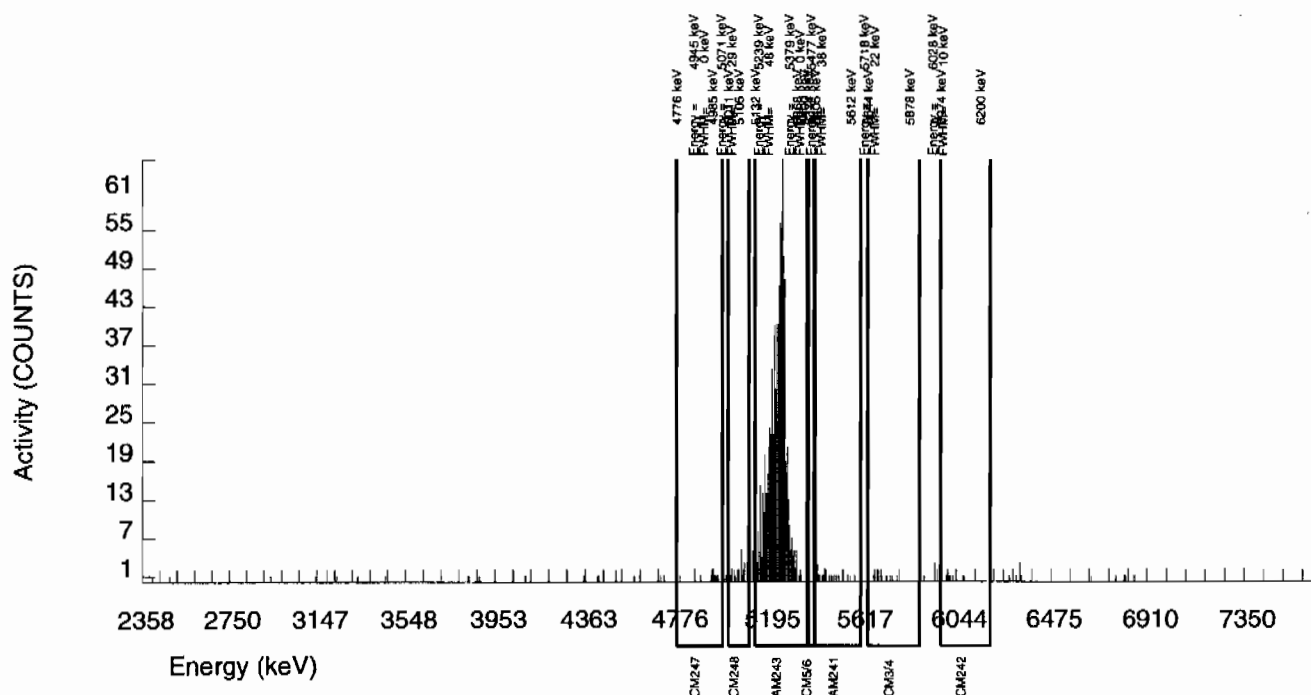
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	14.000	-2.000	16.000	5.2338	100.0000	-2.57E-03	7.05E-03	1.56E-02	3.48E-02	7.05E-03
CM-5/6	5386.000	3.000	-2.000	5.000	19.8463	86.09000	-2.98E-03	4.22E-03	6.89E-02	1.42E-01	4.22E-03
AM-241	5479.150	19.000	6.590	11.000	3.0704	99.94000	8.47E-03	6.89E-03	9.18E-03	2.18E-02	6.87E-03
CM-242	6102.000	9.000	7.000	2.000	4.3186	100.0000	9.63E-03	4.60E-03	1.29E-02	2.93E-02	4.56E-03
AM243	5270.000	812.000	810.000	2.000	1.4142	99.78000	1.04E+00	7.31E-02	4.24E-03	1.20E-02	3.67E-02
CM-247	4946.000	13.000	11.000	2.000	15.3366	79.30000	1.78E-02	6.37E-03	5.78E-02	1.20E-01	6.27E-03
CM-248	5078.600	26.000	25.000	1.000	22.1555	91.00000	3.53E-02	7.64E-03	7.27E-02	1.49E-01	7.33E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORTBATCH NUMBER: 941356  
SAMPLE DATE : 6-JAN-2010 00:00:00.SAMPLE ID : S0244229003\_AM  
SAMPLE QTY: 1.258 GDETECTOR NUMBER :46-089C1  
AVERAGE %EFFICIENCY :31.1641  
% YIELD : 90.305COUNT DATE:21-JAN-2010 17:04:10  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.63383 dpmLIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B066.CNF;1097  
BKG DATE : 17-JAN-2010  
EFF FILE : W066.CNF;306  
CAL DATE : 11-JAN-2010

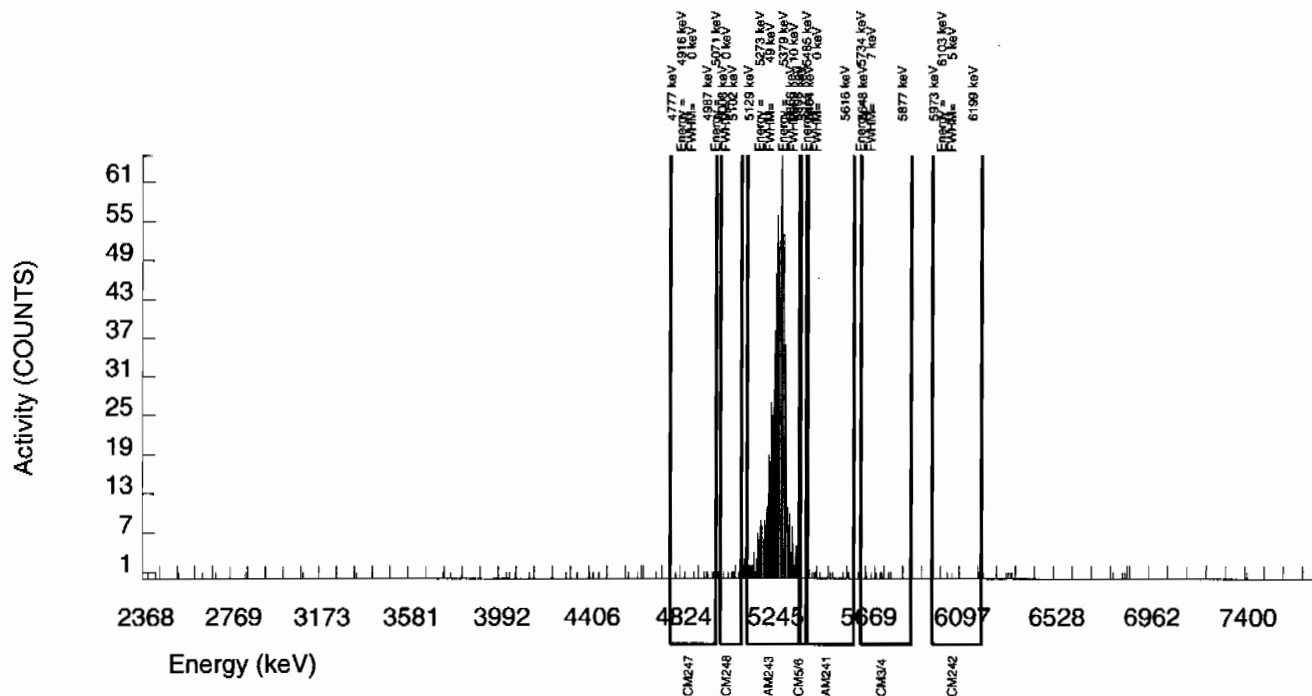
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	9.000	-5.000	14.000	5.2338	100.0000	-6.37E-03	6.11E-03	1.55E-02	3.44E-02	6.11E-03
CM-5/6	5386.000	6.000	6.000	0.000	19.8463	86.09000	8.87E-03	3.66E-03	6.82E-02	1.40E-01	3.62E-03
AM-241	5479.150	13.000	6.575	5.000	3.0704	99.94000	8.37E-03	5.21E-03	9.09E-03	2.16E-02	5.18E-03
CM-242	6102.000	5.000	2.000	3.000	4.3186	100.0000	2.72E-03	3.86E-03	1.28E-02	2.90E-02	3.85E-03
AM243	5270.000	825.000	819.000	6.000	2.4495	99.78000	1.04E+00	7.32E-02	7.27E-03	1.80E-02	3.68E-02
CM-247	4946.000	11.000	5.000	6.000	15.3366	79.30000	8.02E-03	6.63E-03	5.72E-02	1.19E-01	6.62E-03
CM-248	5078.600	8.000	4.000	4.000	22.1555	91.00000	5.59E-03	4.86E-03	7.21E-02	1.48E-01	4.84E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.			SAMPLE ID : S0244229004_AM SAMPLE QTY: 1.289 G		
DETECTOR NUMBER :46-089B4 AVERAGE %EFFICIENCY :32.5269 % YIELD : 74.267			COUNT DATE:21-JAN-2010 17:04:10 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2		
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.16606 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B067.CNF;1095 BKG DATE : 17-JAN-2010 EFF FILE : W067.CNF;287 CAL DATE : 11-JAN-2010		

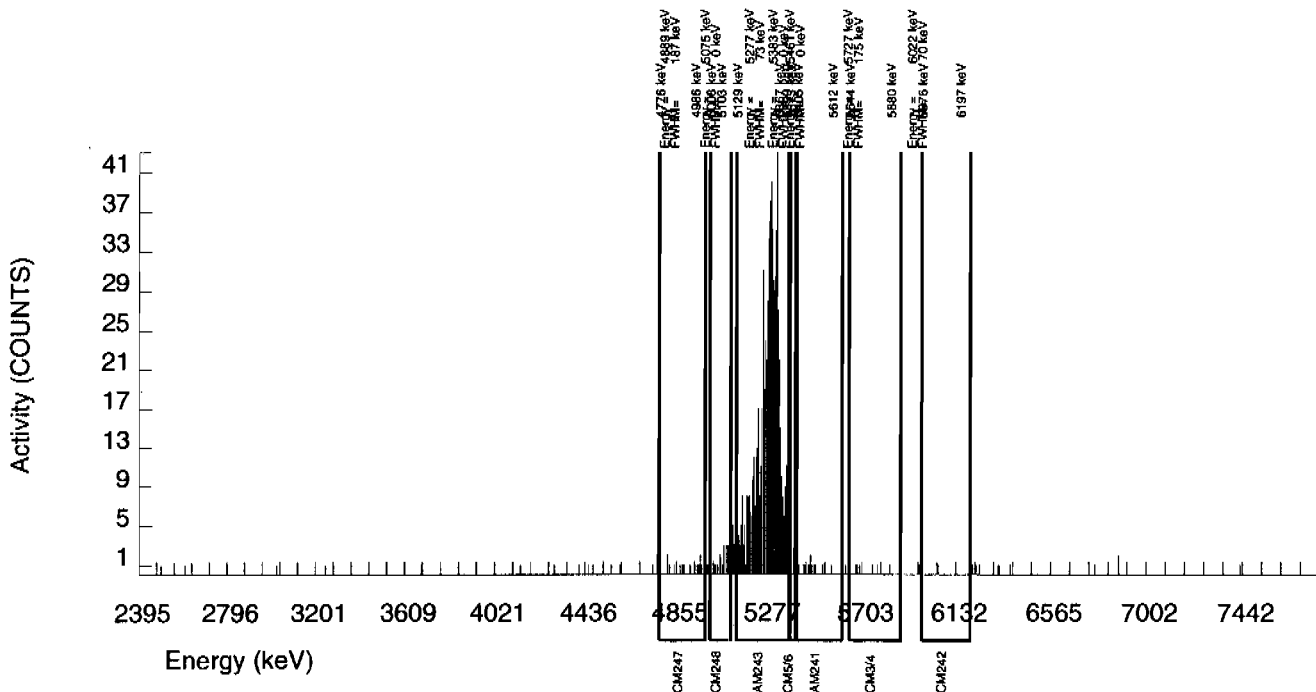
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	7.000	3.000	4.000	5.2338	100.0000	4.35E-03	4.81E-03	1.76E-02	3.91E-02	4.81E-03
CM-5/6	5386.000	13.000	12.000	1.000	19.8463	86.09000	2.02E-02	6.41E-03	7.76E-02	1.60E-01	6.29E-03
AM-241	5479.150	16.000	9.777	5.000	3.0704	99.94000	1.42E-02	6.50E-03	1.03E-02	2.46E-02	6.44E-03
CM-242	6102.000	2.000	1.000	1.000	4.3186	100.0000	1.55E-03	2.68E-03	1.45E-02	3.30E-02	2.68E-03
AM243	5270.000	704.000	703.000	1.000	1.0000	99.78000	1.02E+00	7.41E-02	3.37E-03	1.07E-02	3.85E-02
CM-247	4946.000	18.000	14.000	4.000	15.3366	79.30000	2.55E-02	8.70E-03	6.51E-02	1.35E-01	8.56E-03
CM-248	5078.600	24.000	22.000	2.000	22.1555	91.00000	3.50E-02	8.39E-03	8.19E-02	1.68E-01	8.11E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.			SAMPLE ID : S0244229005_AM SAMPLE QTY: 1.259 G		
DETECTOR NUMBER :78794 AVERAGE %EFFICIENCY :29.6665 % YIELD : 87.451			COUNT DATE:21-JAN-2010 17:04:10 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2		
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.55058 dpm		LIB FILE : ENV_ALPHA_AM.N BKG FILE : B068.CNF;1088 BKG DATE : 17-JAN-2010 EFF FILE : W068.CNF;278 CAL DATE : 11-JAN-2010	

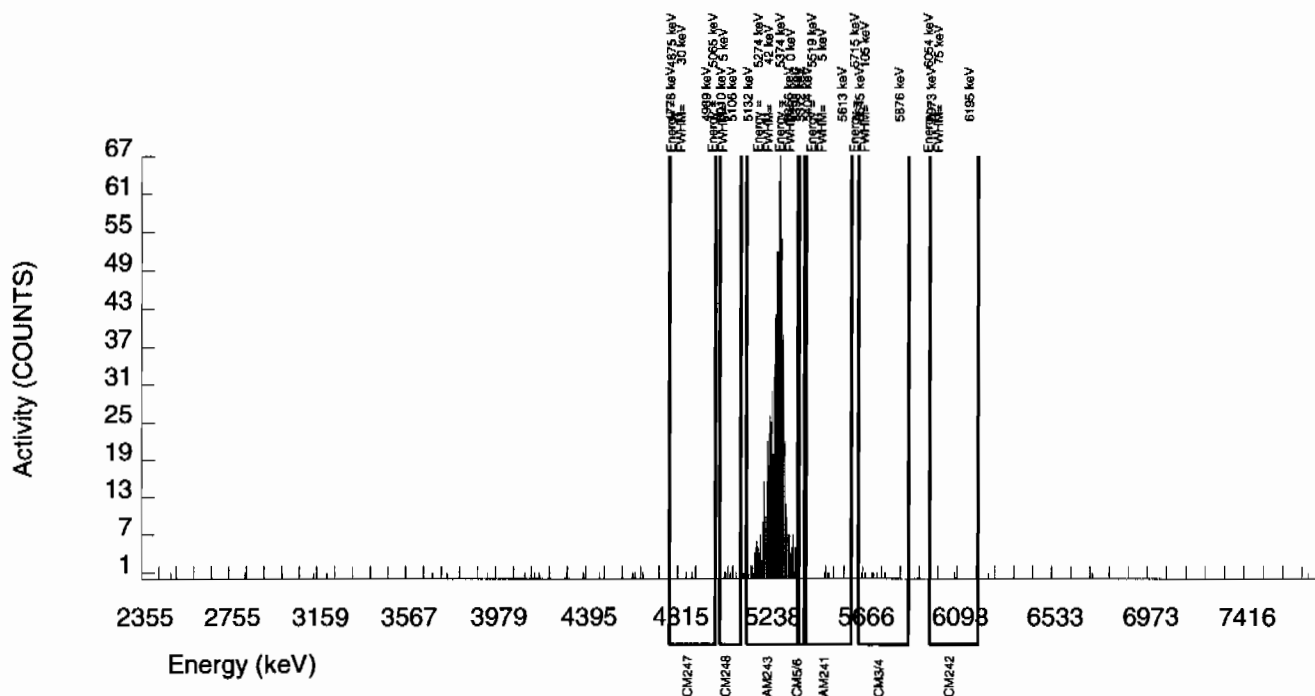
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	6.000	1.000	5.000	5.2338	100.0000	1.38E-03	4.58E-03	1.68E-02	3.73E-02	4.58E-03
CM-5/6	5386.000	5.000	5.000	0.000	19.8463	86.09000	8.01E-03	3.62E-03	7.40E-02	1.52E-01	3.58E-03
AM-241	5479.150	5.000	2.686	1.000	3.0704	99.94000	3.71E-03	3.00E-03	9.86E-03	2.35E-02	2.99E-03
CM-242	6102.000	2.000	1.000	1.000	4.3186	100.0000	1.48E-03	2.56E-03	1.39E-02	3.14E-02	2.56E-03
AM243	5270.000	756.000	755.000	1.000	1.0000	99.78000	1.04E+00	7.44E-02	3.22E-03	1.02E-02	3.80E-02
CM-247	4946.000	2.000	2.000	0.000	15.3366	79.30000	3.48E-03	2.47E-03	6.20E-02	1.29E-01	2.46E-03
CM-248	5078.600	8.000	8.000	0.000	22.1555	91.00000	1.21E-02	4.35E-03	7.81E-02	1.60E-01	4.29E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229006_AM SAMPLE QTY: 1.259 G	
DETECTOR NUMBER :78795 AVERAGE %EFFICIENCY :31.8131 % YIELD : 88.247		COUNT DATE:21-JAN-2010 17:04:10 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.57379 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B069.CNF;1090 BKG DATE : 17-JAN-2010 EFF FILE : W069.CNF;285 CAL DATE : 11-JAN-2010

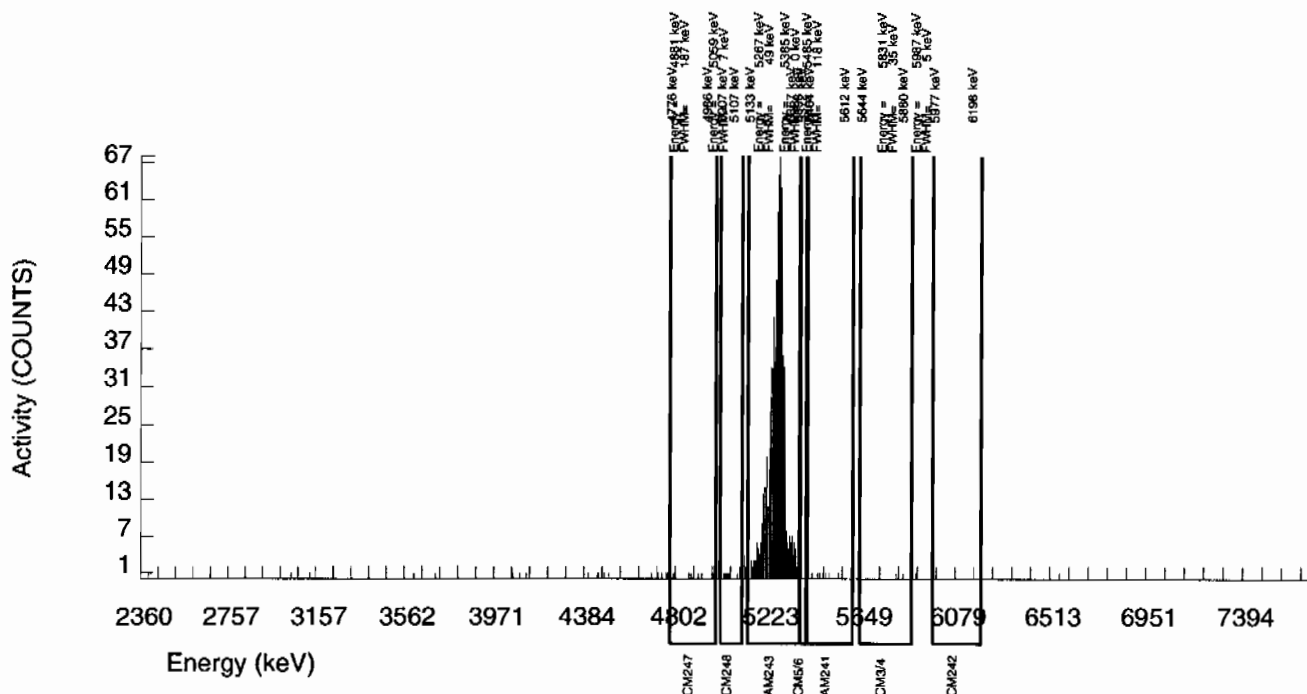
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	2.000	-1.000	3.000	5.2338	100.0000	-1.28E-03	2.86E-03	1.55E-02	3.45E-02	2.85E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	1.48E-03	6.83E-02	1.41E-01	1.48E-03
AM-241	5479.150	6.000	3.578	1.000	3.0704	99.94000	4.56E-03	3.02E-03	9.11E-03	2.17E-02	3.01E-03
CM-242	6102.000	3.000	3.000	0.000	4.3186	100.0000	4.09E-03	2.38E-03	1.28E-02	2.91E-02	2.36E-03
AM243	5270.000	819.000	817.000	2.000	1.4142	99.78000	1.04E+00	7.29E-02	4.20E-03	1.19E-02	3.66E-02
CM-247	4946.000	9.000	4.000	5.000	15.3366	79.30000	6.43E-03	6.03E-03	5.73E-02	1.19E-01	6.01E-03
CM-248	5078.600	12.000	10.000	2.000	22.1555	91.00000	1.40E-02	5.31E-03	7.22E-02	1.48E-01	5.24E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229007_AM SAMPLE QTY: 1.261 G	
DETECTOR NUMBER :46-089B2 AVERAGE %EFFICIENCY :34.9911 % YIELD : 86.124		COUNT DATE:21-JAN-2010 17:04:10 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.51188 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B070.CNF;1100 BKG DATE : 17-JAN-2010 EFF FILE : W070.CNF;290 CAL DATE : 11-JAN-2010

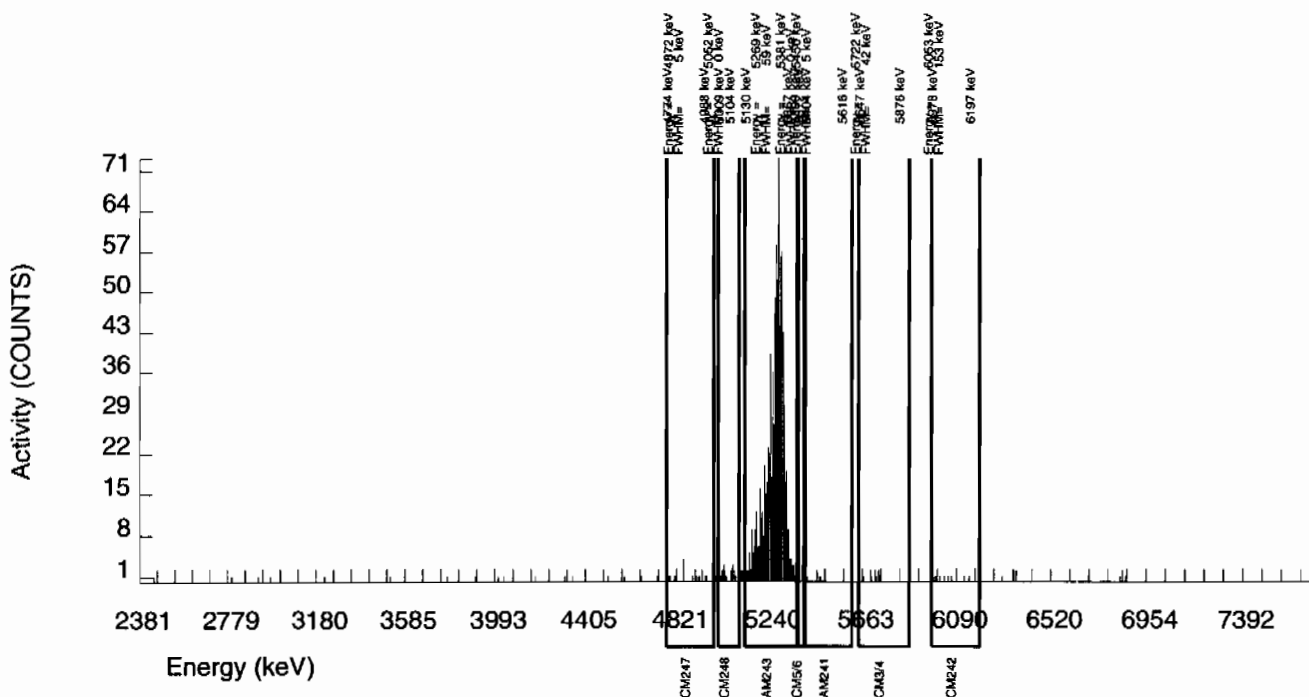
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	10.000	5.000	5.000	5.2338	100.0000	5.94E-03	4.61E-03	1.44E-02	3.21E-02	4.60E-03
CM-5/6	5386.000	13.000	13.000	0.000	19.8463	86.09000	1.79E-02	5.08E-03	6.36E-02	1.31E-01	4.96E-03
AM-241	5479.150	6.000	-1.526	6.000	3.0704	99.94000	-1.81E-03	3.84E-03	8.47E-03	2.02E-02	3.84E-03
CM-242	6102.000	9.000	7.000	2.000	4.3186	100.0000	8.88E-03	4.24E-03	1.19E-02	2.70E-02	4.21E-03
AM243	5270.000	882.000	877.000	5.000	2.2361	99.78000	1.04E+00	7.17E-02	6.18E-03	1.56E-02	3.54E-02
CM-247	4946.000	18.000	15.000	3.000	15.3366	79.30000	2.24E-02	6.98E-03	5.33E-02	1.11E-01	6.85E-03
CM-248	5078.600	24.000	22.000	2.000	22.1555	91.00000	2.87E-02	6.86E-03	6.71E-02	1.38E-01	6.64E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.			SAMPLE ID : S0244229008_AM SAMPLE QTY: 1.260 G		
DETECTOR NUMBER :64259 AVERAGE %EFFICIENCY :32.3636 % YIELD : 79.207			COUNT DATE:21-JAN-2010 17:04:12 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2		
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.31014 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B071.CNF;1093 BKG DATE : 17-JAN-2010 EFF FILE : W071.CNF;284 CAL DATE : 11-JAN-2010		

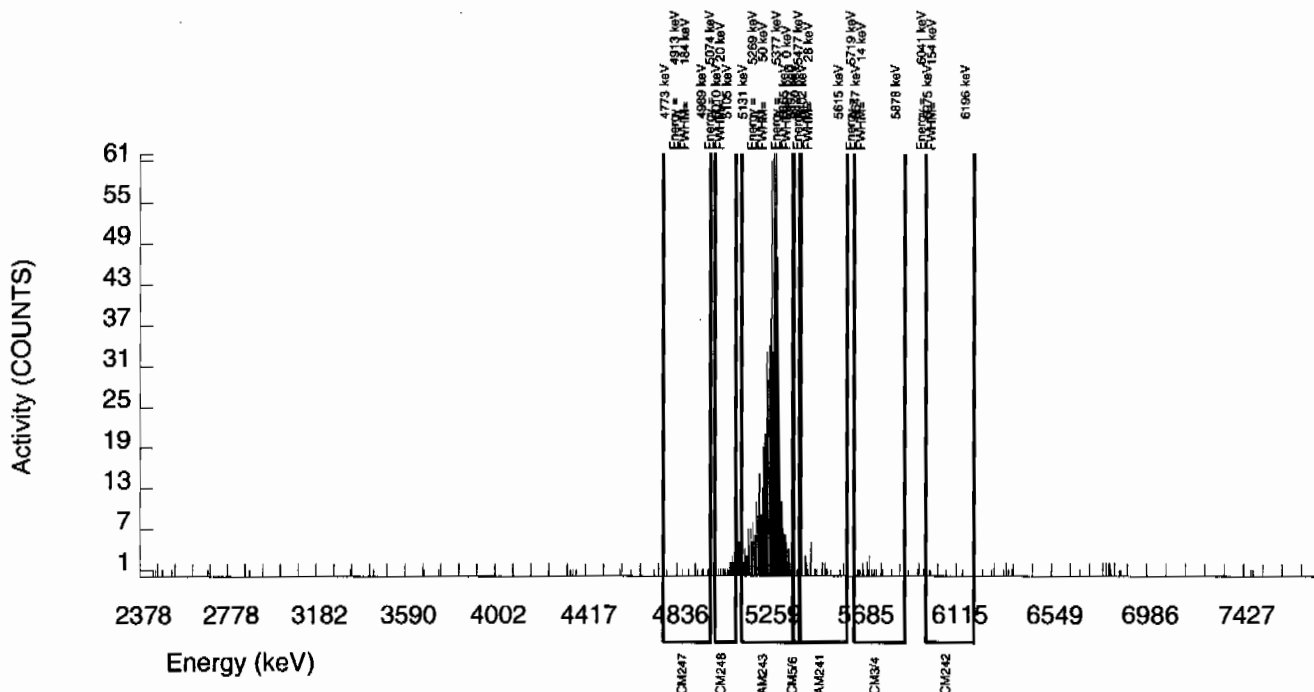
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	16.000	8.000	8.000	5.2338	100.0000	1.12E-02	6.88E-03	1.70E-02	3.77E-02	6.84E-03
CM-5/6	5386.000	6.000	4.000	2.000	19.8463	86.09000	6.48E-03	4.60E-03	7.48E-02	1.54E-01	4.58E-03
AM-241	5479.150	23.000	8.702	13.000	3.0704	99.94000	1.21E-02	8.25E-03	9.97E-03	2.37E-02	8.22E-03
CM-242	6102.000	5.000	1.000	4.000	4.3186	100.0000	1.49E-03	4.48E-03	1.40E-02	3.18E-02	4.48E-03
AM243	5270.000	753.000	746.000	7.000	2.6458	99.78000	1.04E+00	7.49E-02	8.60E-03	2.10E-02	3.85E-02
CM-247	4946.000	7.000	5.000	2.000	15.3366	79.30000	8.79E-03	5.30E-03	6.27E-02	1.30E-01	5.28E-03
CM-248	5078.600	18.000	18.000	0.000	22.1555	91.00000	2.76E-02	6.72E-03	7.90E-02	1.62E-01	6.50E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229009_AM SAMPLE QTY: 1.286 G	
DETECTOR NUMBER :79424 AVERAGE %EFFICIENCY :38.6663 % YIELD : 86.558		COUNT DATE:22-JAN-2010 12:49:07 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.52455 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B231.CNF;70 BKG DATE : 17-JAN-2010 EFF FILE : W231.CNF;24 CAL DATE : 28-DEC-2009

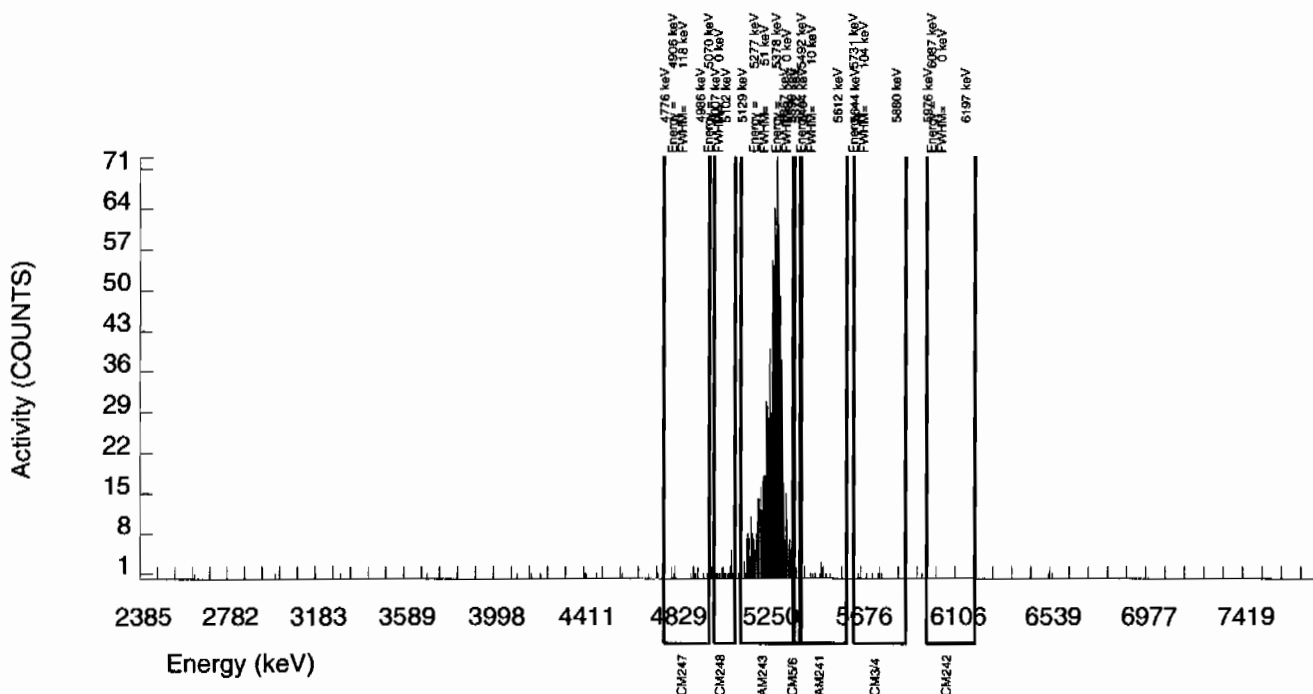
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	5.000	0.000	5.2338	100.0000	5.24E-03	2.36E-03	1.27E-02	2.83E-02	2.34E-03
CM-5/6	5386.000	10.000	10.000	0.000	19.8463	86.09000	1.22E-02	3.91E-03	5.61E-02	1.16E-01	3.84E-03
AM-241	5479.150	13.000	10.305	1.000	3.0704	99.94000	1.08E-02	3.73E-03	7.48E-03	1.78E-02	3.67E-03
CM-242	6102.000	0.000	0.000	0.000	4.3186	100.0000	0.00E+00	1.13E-03	1.05E-02	2.39E-02	1.12E-03
AM243	5270.000	976.000	974.000	2.000	1.4142	99.78000	1.02E+00	6.83E-02	3.45E-03	9.74E-03	3.28E-02
CM-247	4946.000	12.000	11.000	1.000	15.3366	79.30000	1.45E-02	4.83E-03	4.71E-02	9.78E-02	4.76E-03
CM-248	5078.600	24.000	24.000	0.000	22.1555	91.00000	2.76E-02	5.86E-03	5.93E-02	1.22E-01	5.63E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229010_AM SAMPLE QTY: 1.287 G	
DETECTOR NUMBER :78775 AVERAGE %EFFICIENCY :33.5654 % YIELD : 79.954		COUNT DATE:21-JAN-2010 17:04:12 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.33194 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B073.CNF;1093 BKG DATE : 17-JAN-2010 EFF FILE : W073.CNF;283 CAL DATE : 11-JAN-2010

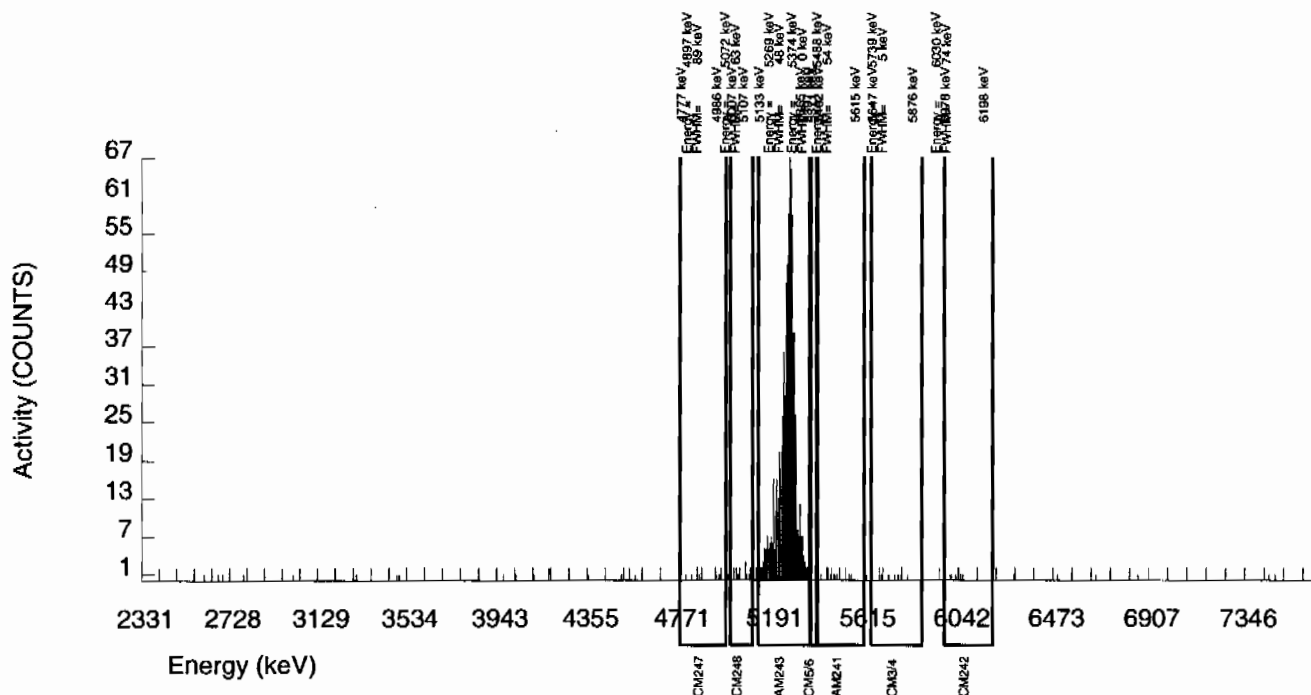
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	9.000	9.000	0.000	5.2338	100.0000	1.18E-02	3.98E-03	1.59E-02	3.53E-02	3.92E-03
CM-5/6	5386.000	3.000	3.000	0.000	19.8463	86.09000	4.54E-03	2.64E-03	6.99E-02	1.44E-01	2.62E-03
AM-241	5479.150	13.000	10.641	1.000	3.0704	99.94000	1.39E-02	4.72E-03	9.32E-03	2.22E-02	4.64E-03
CM-242	6102.000	6.000	6.000	0.000	4.3186	100.0000	8.38E-03	3.46E-03	1.31E-02	2.97E-02	3.42E-03
AM243	5270.000	782.000	781.000	1.000	1.0000	99.78000	1.02E+00	7.21E-02	3.04E-03	9.62E-03	3.66E-02
CM-247	4946.000	11.000	10.000	1.000	15.3366	79.30000	1.64E-02	5.78E-03	5.87E-02	1.22E-01	5.70E-03
CM-248	5078.600	14.000	14.000	0.000	22.1555	91.00000	2.01E-02	5.50E-03	7.39E-02	1.52E-01	5.36E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.			SAMPLE ID : S0244229011_AM SAMPLE QTY: 1.291 G		
DETECTOR NUMBER :78266 AVERAGE %EFFICIENCY :31.6797 % YIELD : 89.812			COUNT DATE:21-JAN-2010 17:04:12 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2		
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.61944 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B074.CNF;1115 BKG DATE : 17-JAN-2010 EFF FILE : W074.CNF;330 CAL DATE : 11-JAN-2010		

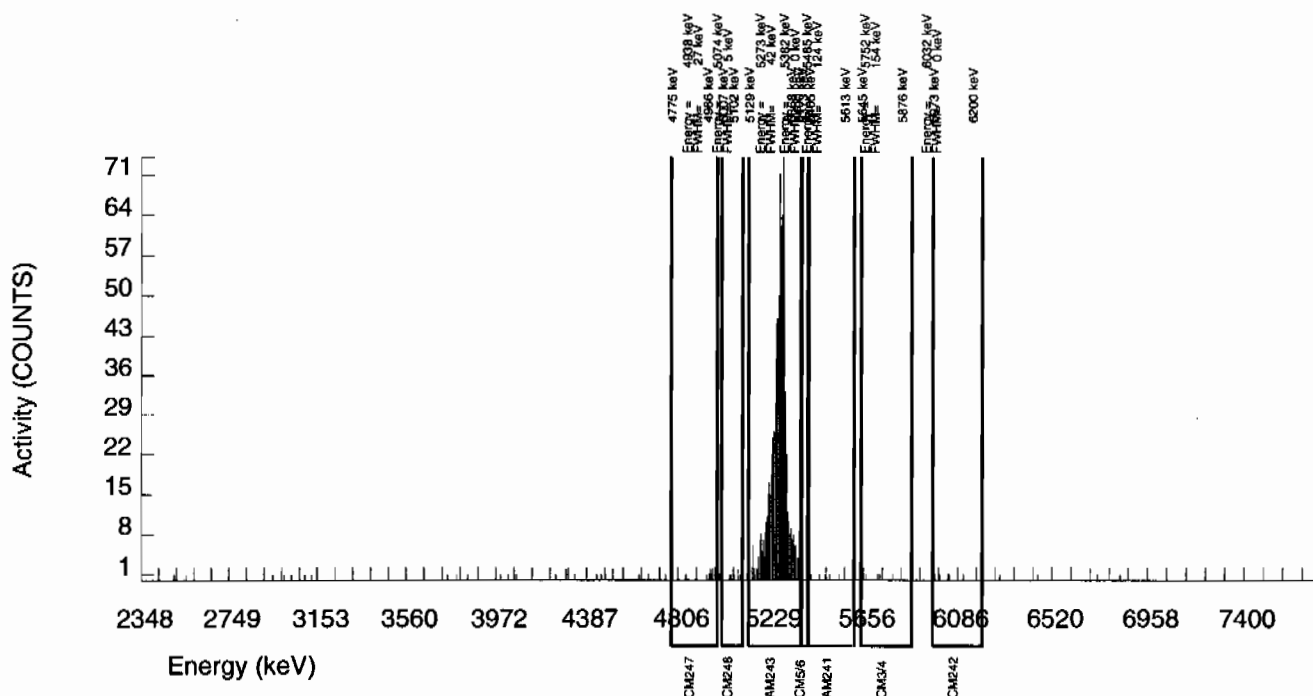
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	3.000	2.000	5.2338	100.0000	3.69E-03	3.26E-03	1.49E-02	3.32E-02	3.25E-03
CM-5/6	5386.000	3.000	3.000	0.000	19.8463	86.09000	4.27E-03	2.48E-03	6.58E-02	1.35E-01	2.47E-03
AM-241	5479.150	6.000	2.559	2.000	3.0704	99.94000	3.14E-03	3.15E-03	8.76E-03	2.09E-02	3.14E-03
CM-242	6102.000	6.000	6.000	0.000	4.3186	100.0000	7.88E-03	3.25E-03	1.23E-02	2.80E-02	3.22E-03
AM243	5270.000	828.000	828.000	0.000	0.0000	99.78000	1.02E+00	7.08E-02	0.00E+00	3.33E-03	3.54E-02
CM-247	4946.000	11.000	8.000	3.000	15.3366	79.30000	1.24E-02	5.83E-03	5.52E-02	1.15E-01	5.79E-03
CM-248	5078.600	6.000	6.000	0.000	22.1555	91.00000	8.09E-03	3.34E-03	6.95E-02	1.43E-01	3.30E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229012_AM SAMPLE QTY: 1.275 G	
DETECTOR NUMBER :80010 AVERAGE %EFFICIENCY :30.2754 % YIELD : 89.891		COUNT DATE:21-JAN-2010 17:04:12 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.62176 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B075.CNF;1096 BKG DATE : 17-JAN-2010 EFF FILE : W075.CNF;288 CAL DATE : 12-JAN-2010

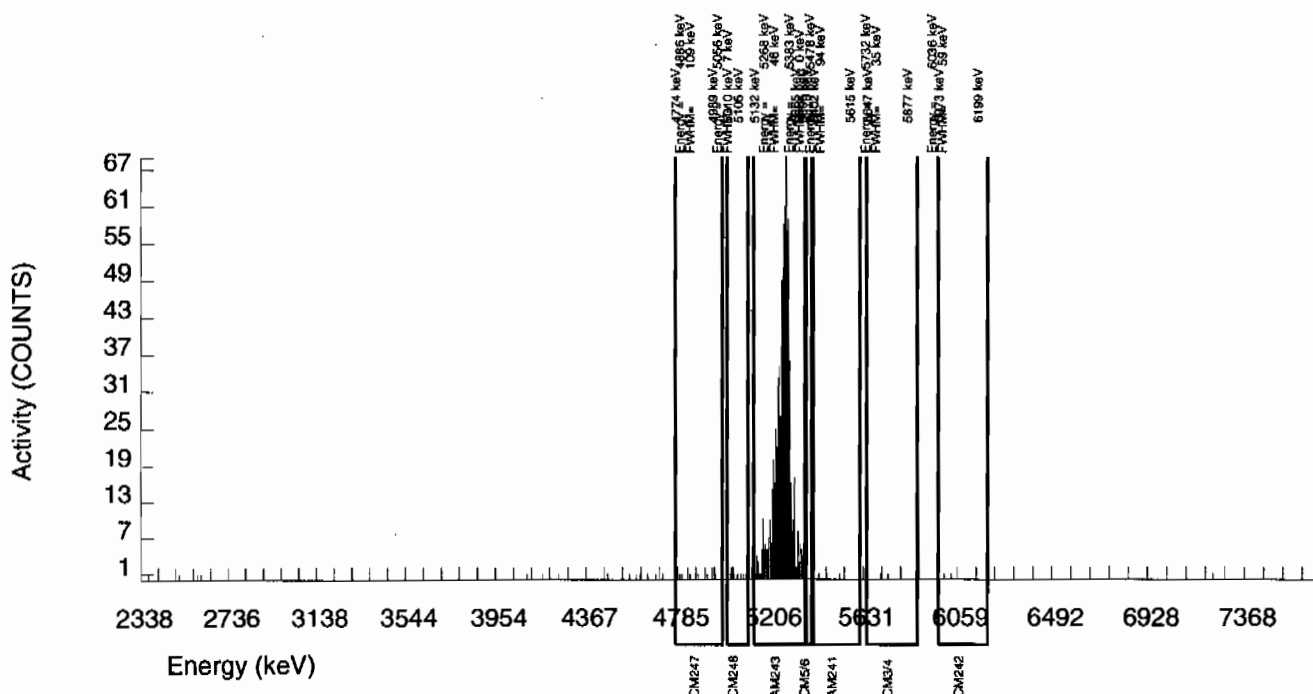
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	2.000	1.000	1.000	5.2338	100.0000	1.30E-03	2.25E-03	1.58E-02	3.51E-02	2.25E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.51E-03	1.51E-03	6.96E-02	1.43E-01	1.51E-03
AM-241	5479.150	3.000	1.622	0.000	3.0704	99.94000	2.11E-03	1.66E-03	9.28E-03	2.21E-02	1.65E-03
CM-242	6102.000	3.000	3.000	0.000	4.3186	100.0000	4.17E-03	2.42E-03	1.30E-02	2.96E-02	2.41E-03
AM243	5270.000	793.000	792.000	1.000	1.0000	99.78000	1.03E+00	7.26E-02	3.03E-03	9.58E-03	3.67E-02
CM-247	4946.000	12.000	7.000	5.000	15.3366	79.30000	1.15E-02	6.79E-03	5.84E-02	1.21E-01	6.75E-03
CM-248	5078.600	11.000	11.000	0.000	22.1555	91.00000	1.57E-02	4.83E-03	7.35E-02	1.51E-01	4.73E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORTBATCH NUMBER: 941356  
SAMPLE DATE : 6-JAN-2010 00:00:00.SAMPLE ID : S0244229013\_AM  
SAMPLE QTY: 1.283 GDETECTOR NUMBER :78779  
AVERAGE %EFFICIENCY :30.8747  
% YIELD : 76.015COUNT DATE:21-JAN-2010 17:04:12  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.21705 dpmLIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B076.CNF;1099  
BKG DATE : 17-JAN-2010  
EFF FILE : W076.CNF;293  
CAL DATE : 11-JAN-2010

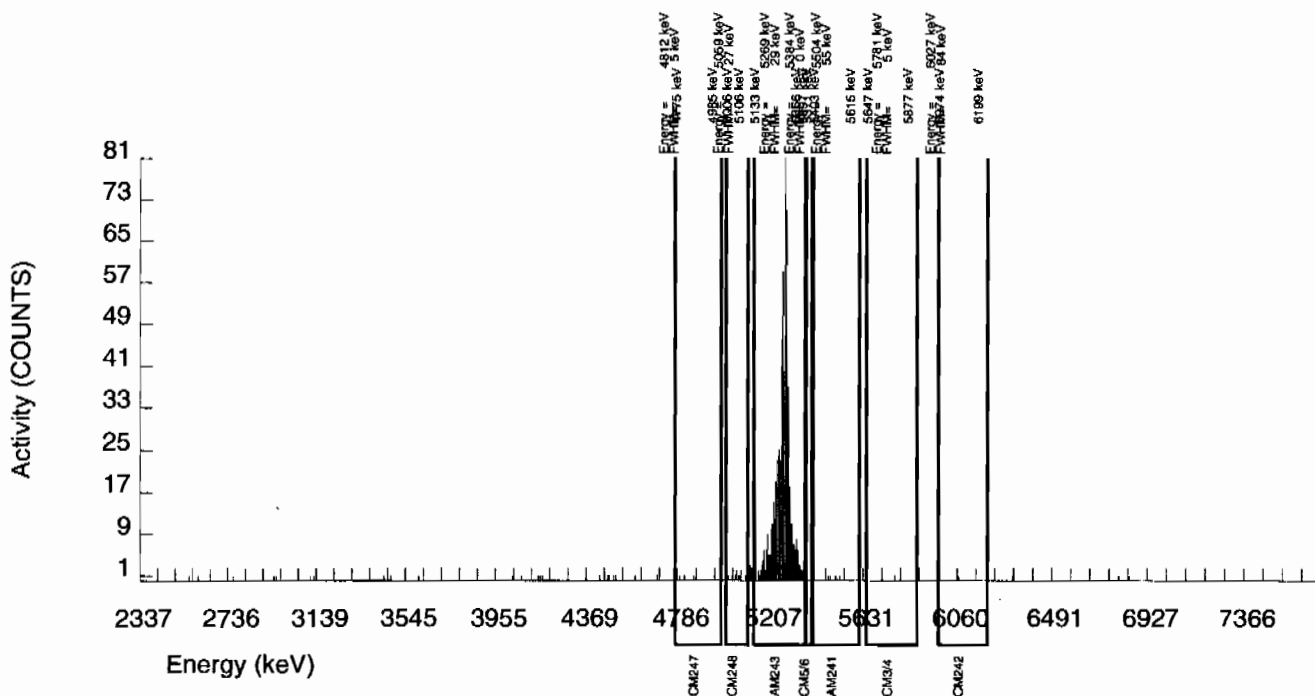
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	1.000	0.000	1.000	5.2338	100.0000	-1.79E-10	2.12E-03	1.82E-02	4.05E-02	2.12E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	1.74E-03	8.02E-02	1.65E-01	1.74E-03
AM-241	5479.150	5.000	3.811	0.000	3.0704	99.94000	5.71E-03	2.94E-03	1.07E-02	2.54E-02	2.92E-03
CM-242	6102.000	2.000	2.000	0.000	4.3186	100.0000	3.20E-03	2.27E-03	1.50E-02	3.41E-02	2.27E-03
AM243	5270.000	683.000	683.000	0.000	0.0000	99.78000	1.02E+00	7.49E-02	0.00E+00	4.06E-03	3.92E-02
CM-247	4946.000	5.000	3.000	2.000	15.3366	79.30000	5.66E-03	5.00E-03	6.73E-02	1.40E-01	4.99E-03
CM-248	5078.600	11.000	10.000	1.000	22.1555	91.00000	1.64E-02	5.79E-03	8.47E-02	1.74E-01	5.69E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356  
SAMPLE DATE : 6-JAN-2010 00:00:00.

SAMPLE ID : S0244229014\_AM  
SAMPLE QTY: 1.256 G

DETECTOR NUMBER :67576  
AVERAGE %EFFICIENCY :31.9454  
% YIELD : 84.977

COUNT DATE:21-JAN-2010 17:04:13  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.47843 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B077.CNF;1008  
BKG DATE : 17-JAN-2010  
EFF FILE : W077.CNF;261  
CAL DATE : 11-JAN-2010

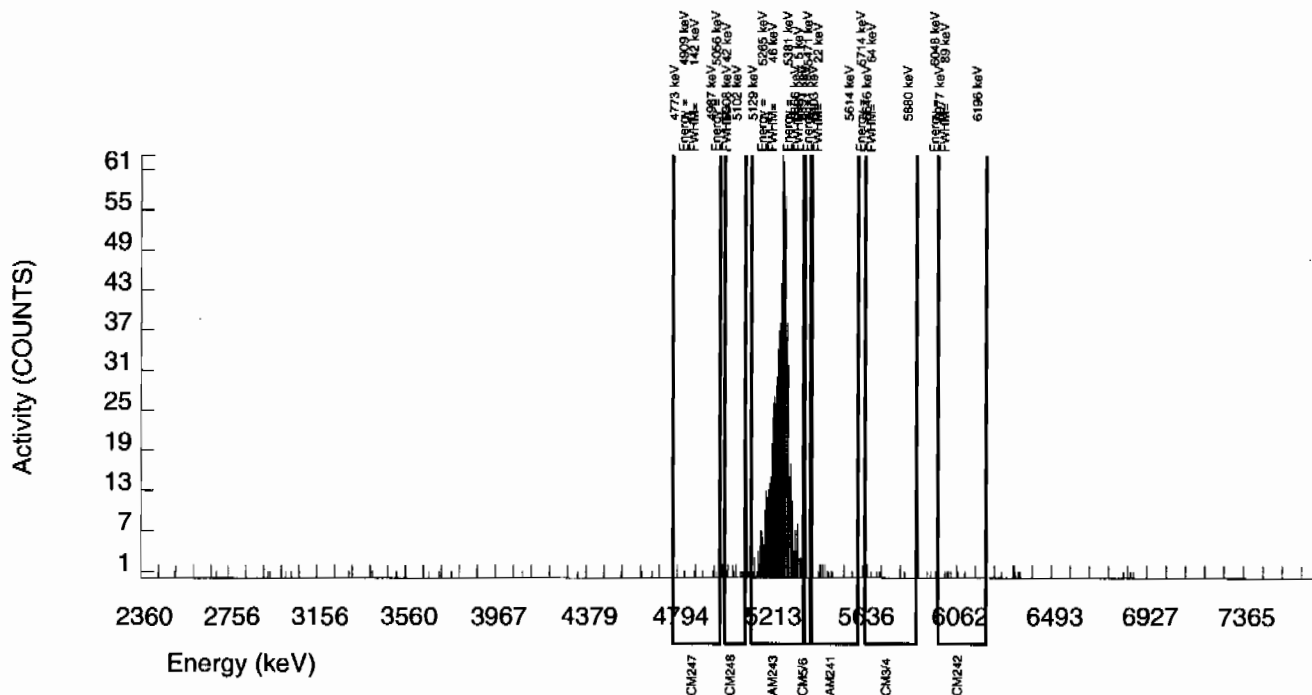
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	9.000	4.000	5.000	5.2338	100.0000	5.29E-03	4.96E-03	1.61E-02	3.58E-02	4.95E-03
CM-5/6	5386.000	1.000	-1.000	2.000	19.8463	86.09000	-1.53E-03	2.66E-03	7.09E-02	1.46E-01	2.66E-03
AM-241	5479.150	14.000	7.625	5.000	3.0704	99.94000	1.01E-02	5.58E-03	9.44E-03	2.25E-02	5.55E-03
CM-242	6102.000	6.000	5.000	1.000	4.3186	100.0000	7.07E-03	3.77E-03	1.33E-02	3.01E-02	3.74E-03
AM243	5270.000	793.000	790.000	3.000	1.7321	99.78000	1.05E+00	7.38E-02	5.34E-03	1.43E-02	3.74E-02
CM-247	4946.000	7.000	7.000	0.000	15.3366	79.30000	1.17E-02	4.46E-03	5.94E-02	1.23E-01	4.41E-03
CM-248	5078.600	10.000	10.000	0.000	22.1555	91.00000	1.45E-02	4.68E-03	7.48E-02	1.54E-01	4.59E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229015_AM SAMPLE QTY: 1.261 G	
DETECTOR NUMBER :79425 AVERAGE %EFFICIENCY :36.8787 % YIELD : 84.884		COUNT DATE:22-JAN-2010 12:49:08 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.47571 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B232.CNF;72 BKG DATE : 17-JAN-2010 EFF FILE : W232.CNF;24 CAL DATE : 28-DEC-2009

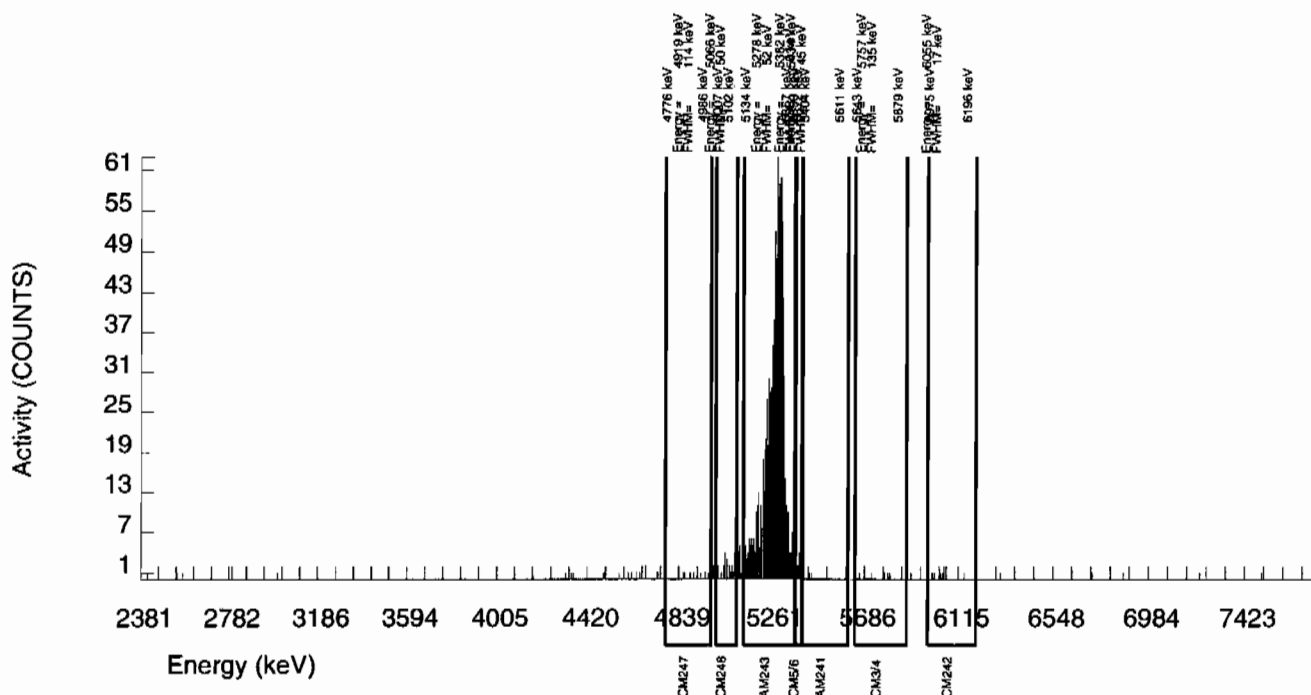
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	5.000	0.000	5.2338	100.0000	5.72E-03	2.58E-03	1.39E-02	3.09E-02	2.56E-03
CM-5/6	5386.000	23.000	23.000	0.000	19.8463	86.09000	3.05E-02	6.61E-03	6.12E-02	1.26E-01	6.36E-03
AM-241	5479.150	3.000	0.415	1.000	3.0704	99.94000	4.73E-04	1.78E-03	8.16E-03	1.94E-02	1.77E-03
CM-242	6102.000	9.000	8.000	1.000	4.3186	100.0000	9.81E-03	3.92E-03	1.15E-02	2.60E-02	3.88E-03
AM243	5270.000	912.000	911.000	1.000	1.0000	99.78000	1.04E+00	7.08E-02	2.66E-03	8.42E-03	3.46E-02
CM-247	4946.000	7.000	6.000	1.000	15.3366	79.30000	8.63E-03	4.10E-03	5.13E-02	1.07E-01	4.07E-03
CM-248	5078.600	26.000	26.000	0.000	22.1555	91.00000	3.26E-02	6.68E-03	6.46E-02	1.33E-01	6.39E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202014803_AM SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :78265 AVERAGE %EFFICIENCY :33.8353 % YIELD : 90.183		COUNT DATE:21-JAN-2010 17:04:14 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.63027 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B084.CNF;1013 BKG DATE : 17-JAN-2010 EFF FILE : W084.CNF;293 CAL DATE : 11-JAN-2010

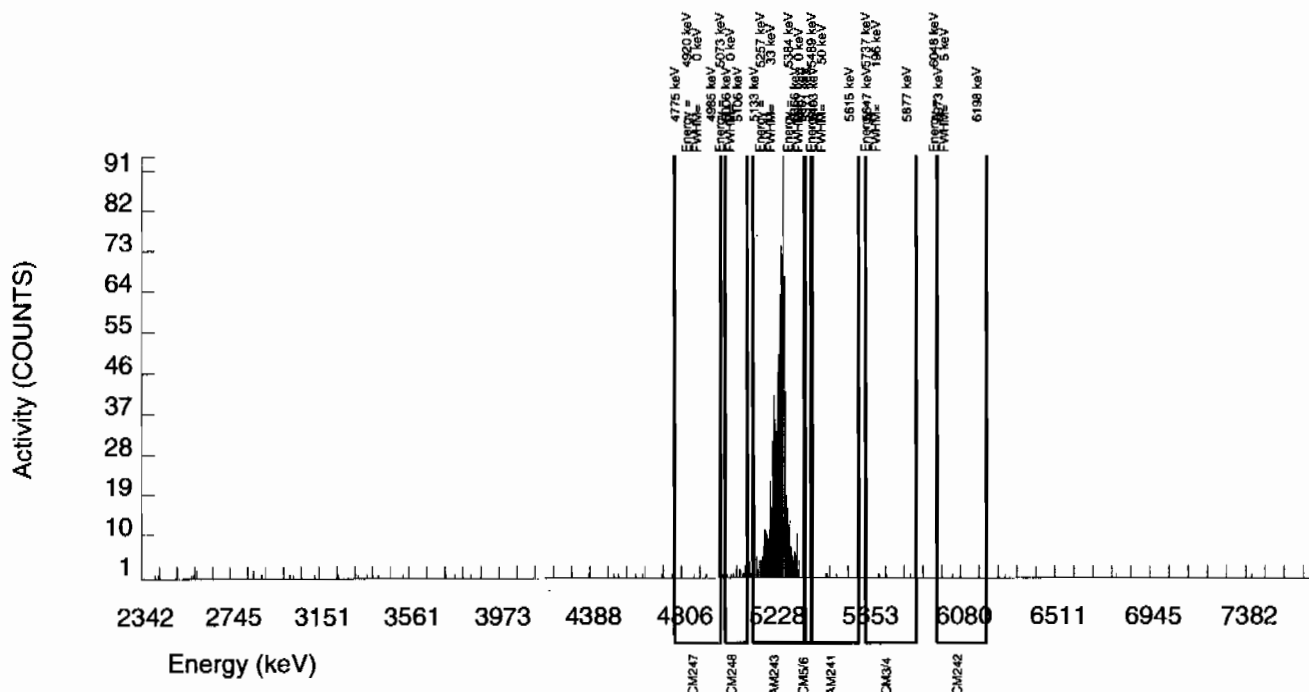
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	4.000	1.000	5.2338	100.0000	5.91E-03	3.63E-03	1.80E-02	3.99E-02	3.62E-03
CM-5/6	5386.000	0.000	0.000	0.000	19.8463	86.09000	0.00E+00	1.72E-03	7.92E-02	1.63E-01	1.71E-03
AM-241	5479.150	3.000	-0.545	2.000	3.0704	99.94000	-8.06E-04	2.75E-03	1.06E-02	2.51E-02	2.75E-03
CM-242	6102.000	1.000	1.000	0.000	4.3186	100.0000	1.50E-03	1.50E-03	1.48E-02	3.37E-02	1.50E-03
AM243	5270.000	889.000	888.000	1.000	1.0000	99.78000	1.31E+00	8.99E-02	3.44E-03	1.09E-02	4.41E-02
CM-247	4946.000	5.000	4.000	1.000	15.3366	79.30000	7.45E-03	4.58E-03	6.64E-02	1.38E-01	4.56E-03
CM-248	5078.600	19.000	16.000	3.000	22.1555	91.00000	2.60E-02	7.76E-03	8.36E-02	1.72E-01	7.61E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S1202014804_AM SAMPLE QTY: 1.270 G	
DETECTOR NUMBER :78776 AVERAGE %EFFICIENCY :31.6195 % YIELD : 85.636		COUNT DATE:21-JAN-2010 17:04:14 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.49763 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B085.CNF;1014 BKG DATE : 17-JAN-2010 EFF FILE : W085.CNF;300 CAL DATE : 11-JAN-2010

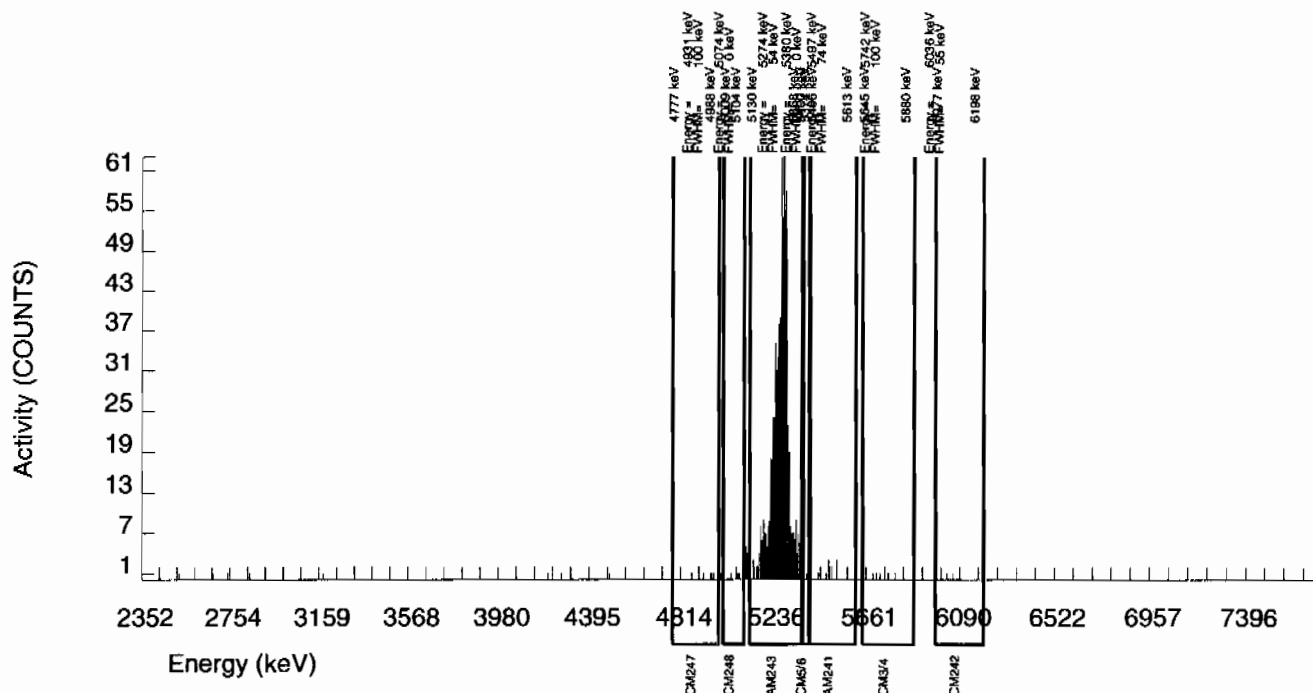
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	5.000	5.000	0.000	5.2338	100.0000	6.56E-03	2.96E-03	1.59E-02	3.54E-02	2.93E-03
CM-5/6	5386.000	4.000	4.000	0.000	19.8463	86.09000	6.09E-03	3.07E-03	7.02E-02	1.45E-01	3.04E-03
AM-241	5479.150	14.000	11.629	1.000	3.0704	99.94000	1.52E-02	4.93E-03	9.36E-03	2.23E-02	4.84E-03
CM-242	6102.000	3.000	3.000	0.000	4.3186	100.0000	4.21E-03	2.44E-03	1.32E-02	2.99E-02	2.43E-03
AM243	5270.000	788.000	788.000	0.000	0.0000	99.78000	1.03E+00	7.29E-02	0.00E+00	3.56E-03	3.69E-02
CM-247	4946.000	6.000	6.000	0.000	15.3366	79.30000	9.91E-03	4.09E-03	5.89E-02	1.22E-01	4.05E-03
CM-248	5078.600	9.000	9.000	0.000	22.1555	91.00000	1.30E-02	4.39E-03	7.42E-02	1.52E-01	4.32E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941356 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202014805_AM SAMPLE QTY: 0.108 G	
DETECTOR NUMBER :78198 AVERAGE %EFFICIENCY :29.7986 % YIELD : 92.598		COUNT DATE:21-JAN-2010 17:04:14 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.70070 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B086.CNF;1015 BKG DATE : 17-JAN-2010 EFF FILE : W086.CNF;281 CAL DATE : 11-JAN-2010

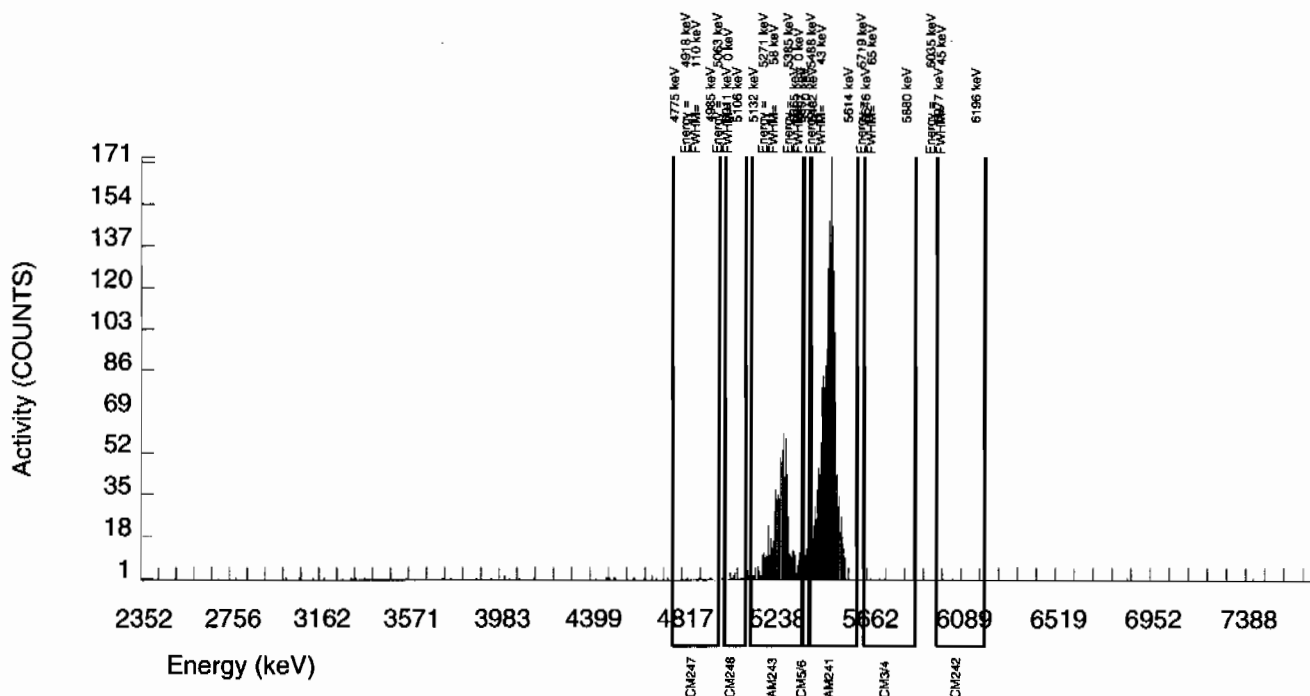
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	3.000	0.000	3.000	5.2338	100.0000	0.00E+00	3.71E-02	1.84E-01	4.09E-01	3.70E-02
CM-5/6	5386.000	68.000	68.000	0.000	19.8463	86.09000	1.19E+00	1.66E-01	8.11E-01	1.67E+00	1.45E-01
AM-241	5479.150	1978.000	1973.603	3.000	3.0704	99.94000	2.99E+01	2.13E+00	1.08E-01	2.57E-01	6.73E-01
CM-242	6102.000	2.000	2.000	0.000	4.3186	100.0000	3.08E-02	2.18E-02	1.52E-01	3.45E-01	2.17E-02
AM243	5270.000	804.000	803.000	1.000	1.0000	99.78000	1.22E+01	9.27E-01	3.52E-02	1.12E-01	4.30E-01
CM-247	4946.000	7.000	3.000	4.000	15.3366	79.30000	5.72E-02	6.33E-02	6.80E-01	1.41E+00	6.32E-02
CM-248	5078.600	20.000	20.000	0.000	22.1555	91.00000	3.32E-01	7.76E-02	8.56E-01	1.76E+00	7.43E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



## Radiochemistry Batch Checklist, Rev10

Batch#

941357

Product:

Pu

Date:

1/25/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.	✓		
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			N/A
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADcheckdistrev10, revised 1/13/2010

Primary Review Performed By:

Denise Green 1/25/10

Secondary Review Performed By:

JPLM-L 1/25/10

2/2

## Plutonium Que Sheet

13-JAN-10

Batch #: 941357

Analyst: JXD2

First Client Due Date: 02-FEB-10

Internal Due Date: 23-JAN-10

Tracer Isotope(s): Pu-242/Pu-238

Tracer Code: 242-1

Expiration Date: 07-01-10

Vol: 0.1

LCS Isotope(s): Pu-239/Pu-238

LCS Code: 244-1

Expiration Date: 4/30/20

Vol: 0.108 g

Spike Isotope(s): Pu-239/Pu-238

Spike Code: NA

Expiration Date: NA

Vol: NA

Prep Date: 01-18-10

Initials: JXB

Pipet ID: 2871058

Balance ID: 50410272

Witness: NDA 1/19/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Wt	Aliquot	Pu Det #
244229001-1	RE12-10-7734	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	1	1	1.283		67
244229002-1	RE12-10-7701	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	2	2	1.260		68
244229003-1	RE12-10-7702	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	3	3	1.258		69
244229004-1	RE12-10-7700	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	4	4	1.289		70
244229005-1	RE12-10-7699	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	5	5	1.259		71
244229006-1	RE12-10-7727	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	6	6	1.259		72
244229007-1	RE12-10-7710	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	7	7	1.261		73
244229008-1	RE12-10-7715	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	8	8	1.260		74
244229009-1	RE12-10-7707	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	9	9	1.286		75
244229010-1	RE12-10-7719	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	10	10	1.287		76
244229011-1	RE12-10-7717	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	11	11	1.291		77
244229012-1	RE12-10-7708	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	12	12	1.275		78
244229013-1	RE12-10-7706	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	13	13	1.283		79
244229014-1	RE12-10-7714	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	14	14	1.256		80
244229015-1	RE12-10-7705	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	15	15	1.261		81
244319001-1	RE16-10-418	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	16	16	1.255		82
244319002-1	RE16-10-419	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	17	17	1.282		83
244319004-1	RE16-10-422	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	18	18	1.257		84
244319005-1	RE16-10-423	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	19	19	1.253		85
244319006-1	RE16-10-441	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	20	20	1.284		86
1202014806-1	MB for batch 941357	MB		.05 pCi/g	SOIL	QC ACCOUNT		21	21	1		47
1202014807-1	RE12-10-7715(244229008DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	06-JAN-10	22	22	1.270		48
1202014808-1	LCS for batch 941357	LCS		.05 pCi/g	SOIL	QC ACCOUNT		23	23	0.108		46

Solid Sample Dissolution by: LEACH or DIGESTION  
Circle OneChoose SOP Used: GL-RAD-A-011 GL-RAD-A-036,  
GL-RAD-A-045, GL-RAD-A-043

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: DS

1/05/10

Page: 1 of 1

# Blank Correction Report

**Batch ID 941357**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014807	DUP	Plutonium-238	1.27 g	0.00331	0.00398	0.0182	.008188976	pCi/g	YES
		Plutonium-239/240	1.27 g	0.0508	0.00835	0.0209	-.00116535	pCi/g	NO
1202014808	LCS	Plutonium-238	0.108 g	6.29	0.462	0.208	.096296296	pCi/g	NO
		Plutonium-239/240	0.108 g	36.2	2.20	0.238	-.01370370	pCi/g	NO
1202014806	MB	Plutonium-238	1.00 g	0.0104	0.00615	0.0245	.0104	pCi/g	YES
		Plutonium-239/240	1.00 g	-0.00148	0.00332	0.0281	-.00148	pCi/g	NO
244229001	RE12-10-7734	Plutonium-238	1.28 g	0.00232	0.00403	0.0192	.008125	pCi/g	YES
		Plutonium-239/240	1.28 g	-0.00232	0.00285	0.022	-.00115625	pCi/g	NO
244229002	RE12-10-7701	Plutonium-238	1.26 g	0.00768	0.00316	0.0211	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.0179	0.00487	0.0242	-.00117460	pCi/g	NO
244229003	RE12-10-7702	Plutonium-238	1.26 g	0.00	0.00165	0.0192	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	-0.00116	0.00308	0.022	-.00117460	pCi/g	NO
244229004	RE12-10-7700	Plutonium-238	1.29 g	-0.00112	0.00372	0.0185	.008062016	pCi/g	YES
		Plutonium-239/240	1.29 g	-0.00112	0.00251	0.0212	-.00114729	pCi/g	NO
244229005	RE12-10-7699	Plutonium-238	1.26 g	-0.00114	0.00591	0.0188	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00569	0.00342	0.0215	-.00117460	pCi/g	NO
244229006	RE12-10-7727	Plutonium-238	1.26 g	-0.001	0.00142	0.0166	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.0141	0.00408	0.019	-.00117460	pCi/g	NO
244229007	RE12-10-7710	Plutonium-238	1.26 g	0.00	0.00166	0.0194	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00821	0.00313	0.0222	-.00117460	pCi/g	NO
244229008	RE12-10-7715	Plutonium-238	1.26 g	-0.00192	0.00384	0.0159	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.0682	0.00874	0.0181	-.00117460	pCi/g	NO
244229009	RE12-10-7707	Plutonium-238	1.29 g	0.00	0.00195	0.0161	.008062016	pCi/g	YES
		Plutonium-239/240	1.29 g	0.0478	0.00735	0.0184	-.00114729	pCi/g	NO
244229010	RE12-10-7719	Plutonium-238	1.29 g	0.00127	0.00659	0.021	.008062016	pCi/g	YES
		Plutonium-239/240	1.29 g	0.0343	0.00751	0.024	-.00114729	pCi/g	NO
244229011	RE12-10-7717	Plutonium-238	1.29 g	0.00216	0.00529	0.0178	.008062016	pCi/g	YES
		Plutonium-239/240	1.29 g	0.0183	0.00526	0.0204	-.00114729	pCi/g	NO
244229012	RE12-10-7708	Plutonium-238	1.28 g	-0.00358	0.00315	0.0197	.008125	pCi/g	YES
		Plutonium-239/240	1.28 g	0.00	0.00413	0.0225	-.00115625	pCi/g	NO
244229013	RE12-10-7706	Plutonium-238	1.28 g	0.00	0.00123	0.0202	.008125	pCi/g	YES
		Plutonium-239/240	1.28 g	1.46E-10	0.00245	0.0232	-.00115625	pCi/g	NO
244229014	RE12-10-7714	Plutonium-238	1.26 g	1.49E-10	0.00249	0.0206	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00125	0.00125	0.0236	-.00117460	pCi/g	NO
244229015	RE12-10-7705	Plutonium-238	1.26 g	-0.00119	0.00266	0.0196	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.00356	0.00207	0.0225	-.00117460	pCi/g	NO
244519001	RE16-10-418	Plutonium-238	1.26 g	0.00125	0.00217	0.0207	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.0188	0.00554	0.0237	-.00117460	pCi/g	NO
244519002	RE16-10-419	Plutonium-238	1.28 g	0.00968	0.00518	0.0178	.008125	pCi/g	YES

941357  
11/25/10

# Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
244519002	RE16-10-419	Plutonium-239/240	1.28 g	0.0086	0.00375	0.0203	-.00115625	pCi/g	NO
244519004	RE16-10-422	Plutonium-238	1.26 g	-0.0022	0.00515	0.0181	.008253968	pCi/g	YES
		Plutonium-239/240	1.26 g	0.0395	0.00738	0.0208	-.00117460	pCi/g	NO
244519005	RE16-10-423	Plutonium-238	1.25 g	-0.00112	0.00159	0.0185	.00832	pCi/g	YES
		Plutonium-239/240	1.25 g	0.00672	0.00276	0.0212	-.001184	pCi/g	NO
244519006	RE16-10-441	Plutonium-238	1.28 g	0.00	0.00306	0.0206	.008125	pCi/g	YES
		Plutonium-239/240	1.28 g	0.0225	0.0057	0.0236	-.00115625	pCi/g	NO

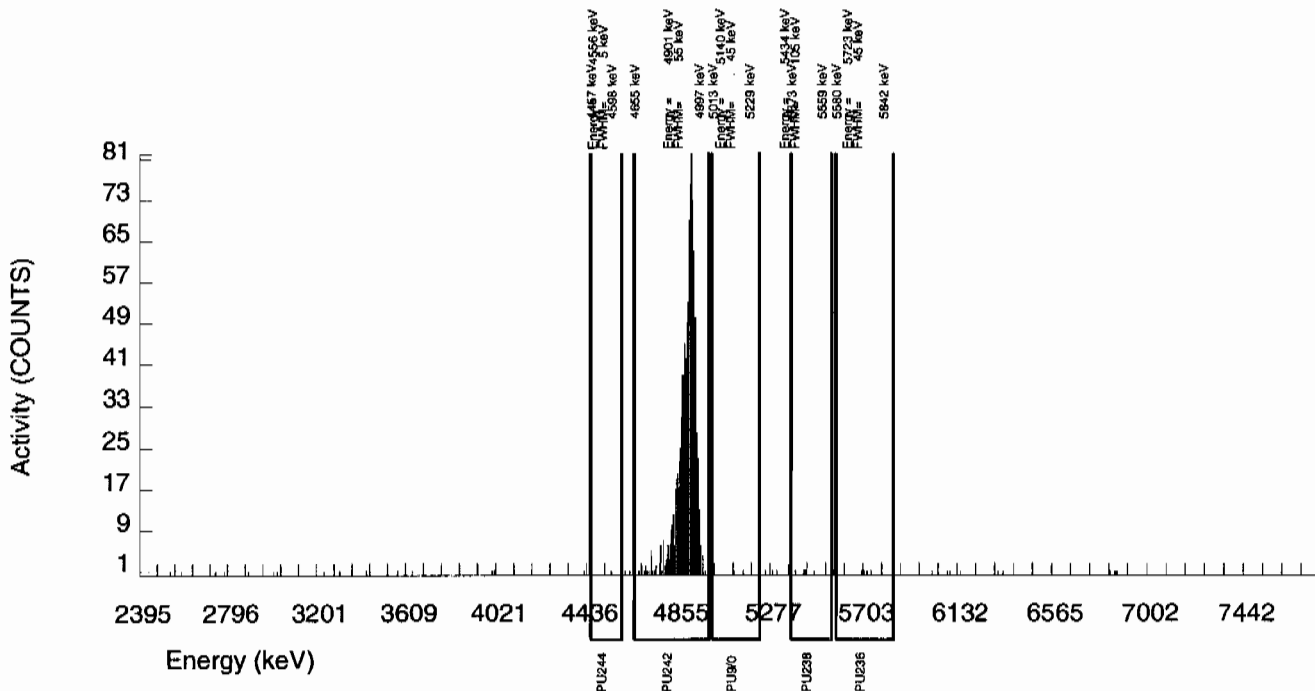
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229001_PU SAMPLE QTY: 1.283 G	
DETECTOR NUMBER :46-089B4 AVERAGE %EFFICIENCY :32.5269 % YIELD : 92.991		COUNT DATE:20-JAN-2010 16:41:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.14816 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B067.CNF;1095 BKG DATE : 17-JAN-2010 EFF FILE : W067.CNF;287 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2.000	-2.000	4.000	3.4797	99.90000	-2.32E-03	2.85E-03	9.41E-03	2.20E-02	2.85E-03
PU-236	5749.000	5.000	0.000	5.000	2.1286	100.0000	0.00E+00	3.71E-03	5.75E-03	1.46E-02	3.71E-03
PU-238	5499.000	7.000	2.000	5.000	2.9680	99.90000	2.32E-03	4.03E-03	8.02E-03	1.92E-02	4.03E-03
PU242	4890.000	1028.000	1024.000	4.000	2.0000	100.0000	1.19E+00	7.08E-02	5.40E-03	1.39E-02	3.73E-02
PU-244	4589.000	1.000	-3.000	4.000	5.2050	99.90000	-3.49E-03	2.60E-03	1.41E-02	3.13E-02	2.60E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



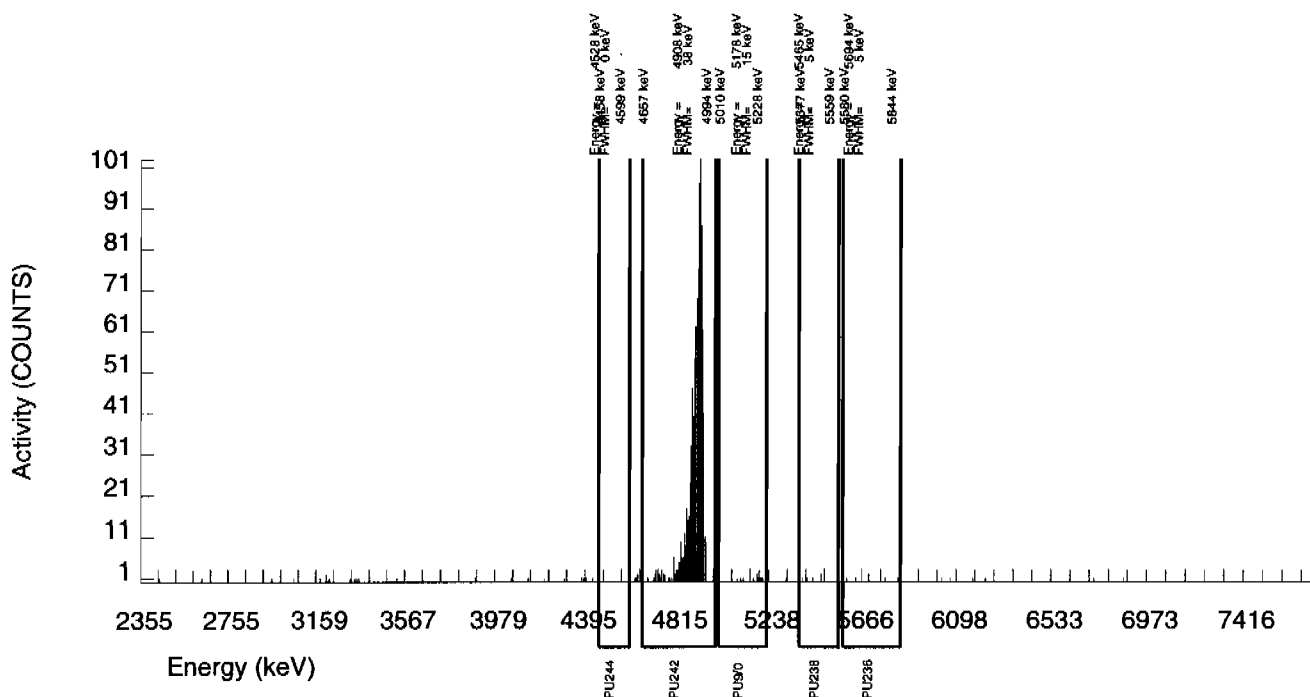
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229002_PU SAMPLE QTY: 1.260 G	
DETECTOR NUMBER :78794 AVERAGE %EFFICIENCY :29.6665 % YIELD : 94.291		COUNT DATE:20-JAN-2010 16:41:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.19216 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B068.CNF;1088 BKG DATE : 17-JAN-2010 EFF FILE : W068.CNF;278 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	14.000	14.000	0.000	3.4797	99.90000	1.79E-02	4.87E-03	1.04E-02	2.42E-02	4.79E-03
PU-236	5749.000	7.000	0.000	7.000	2.1286	100.0000	0.00E+00	4.83E-03	6.33E-03	1.61E-02	4.83E-03
PU-238	5499.000	6.000	6.000	0.000	2.9680	99.90000	7.68E-03	3.16E-03	8.83E-03	2.11E-02	3.13E-03
PU242	4890.000	948.000	947.000	1.000	1.0000	100.0000	1.21E+00	7.36E-02	2.97E-03	9.41E-03	3.94E-02
PU-244	4589.000	0.000	0.000	0.000	5.2050	99.90000	0.00E+00	1.28E-03	1.55E-02	3.44E-02	1.28E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





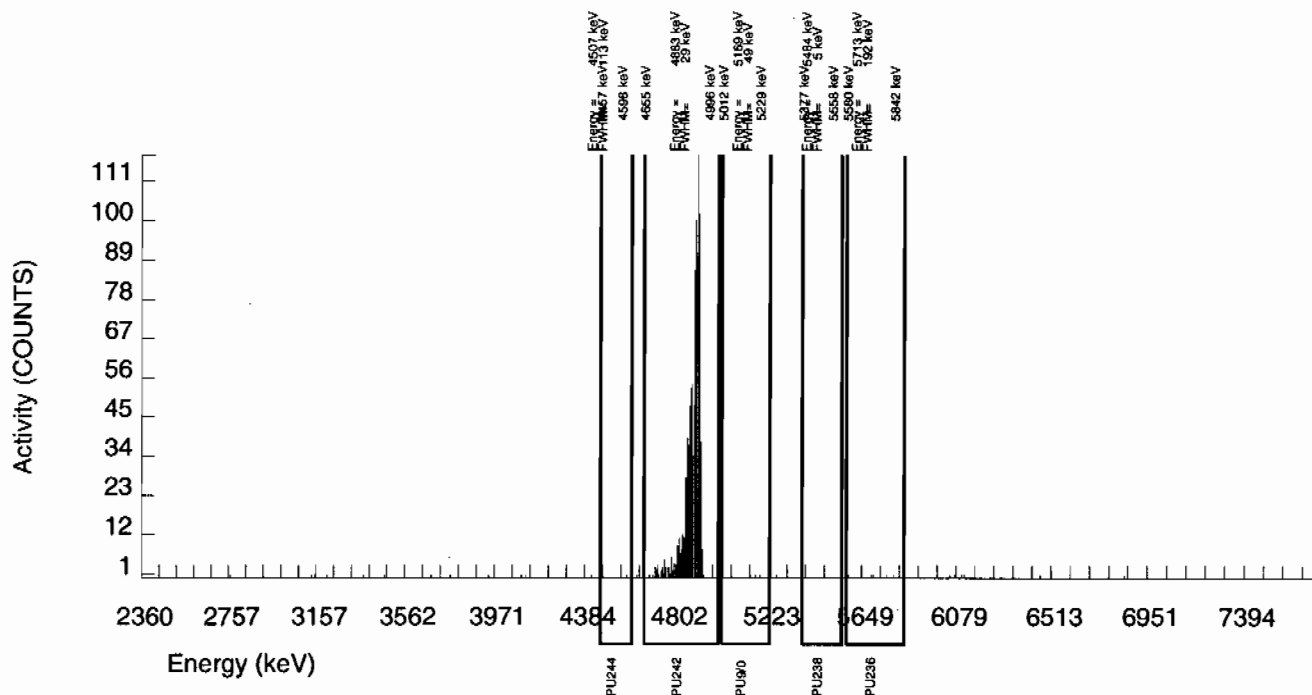
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229003_PU SAMPLE QTY: 1.258 G	
DETECTOR NUMBER :78795 AVERAGE %EFFICIENCY :31.8131 % YIELD : 96.842		COUNT DATE:20-JAN-2010 16:41:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.27852 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B069.CNF;1090 BKG DATE : 17-JAN-2010 EFF FILE : W069.CNF;285 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	3.000	-1.000	4.000	3.4797	99.90000	-1.16E-03	3.08E-03	9.42E-03	2.20E-02	3.08E-03
PU-236	5749.000	5.000	2.000	3.000	2.1286	100.0000	2.35E-03	3.32E-03	5.76E-03	1.47E-02	3.32E-03
PU-238	5499.000	1.000	0.000	1.000	2.9680	99.90000	0.00E+00	1.65E-03	8.03E-03	1.92E-02	1.65E-03
PU242	4890.000	1050.000	1043.000	7.000	2.6458	100.0000	1.21E+00	7.19E-02	7.15E-03	1.75E-02	3.78E-02
PU-244	4589.000	3.000	0.000	3.000	5.2050	99.90000	0.00E+00	2.85E-03	1.41E-02	3.13E-02	2.85E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



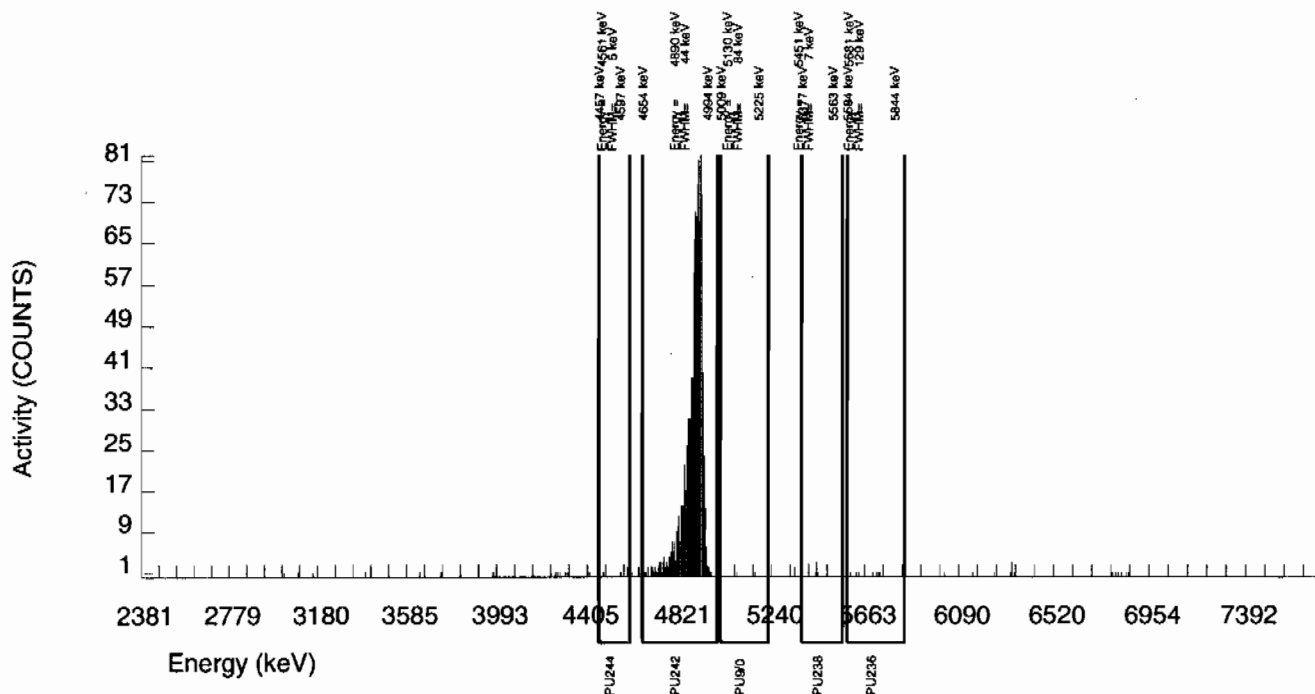
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229004_PU SAMPLE QTY: 1.289 G	
DETECTOR NUMBER :46-089B2 AVERAGE %EFFICIENCY :34.9911 % YIELD : 89.144		COUNT DATE:20-JAN-2010 16:41:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.01791 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B070.CNF;1100 BKG DATE : 17-JAN-2010 EFF FILE : W070.CNF;290 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2.000	-1.000	3.000	3.4797	99.90000	-1.12E-03	2.51E-03	9.08E-03	2.12E-02	2.51E-03
PU-236	5749.000	8.000	3.000	5.000	2.1286	100.0000	3.39E-03	4.08E-03	5.55E-03	1.41E-02	4.08E-03
PU-238	5499.000	5.000	-1.000	6.000	2.9680	99.90000	-1.12E-03	3.72E-03	7.74E-03	1.85E-02	3.72E-03
PU242	4890.000	1060.000	1056.000	4.000	2.0000	100.0000	1.18E+00	6.98E-02	5.21E-03	1.35E-02	3.65E-02
PU-244	4589.000	5.000	5.000	0.000	5.2050	99.90000	5.61E-03	2.52E-03	1.36E-02	3.02E-02	2.51E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



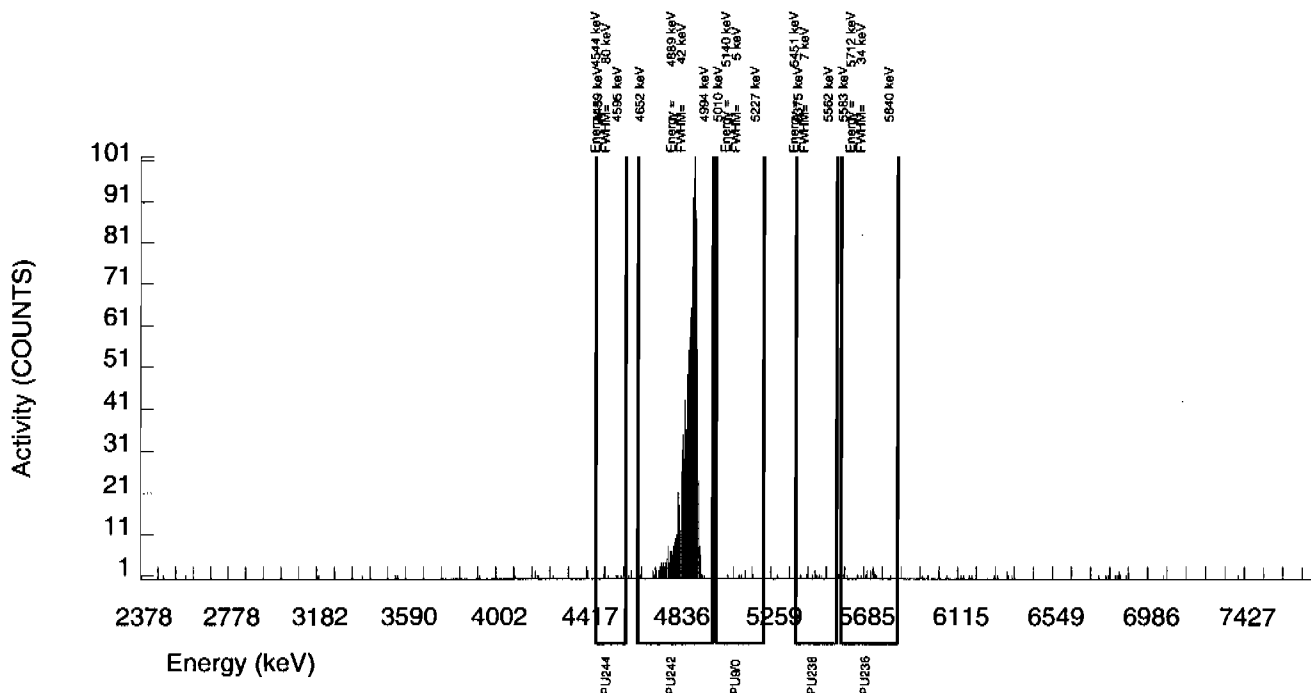
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229005_PU SAMPLE QTY: 1.259 G	
DETECTOR NUMBER :64259 AVERAGE %EFFICIENCY :32.3636 % YIELD : 97.294		COUNT DATE:20-JAN-2010 16:41:38 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.29382 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B071.CNF;1093 BKG DATE : 17-JAN-2010 EFF FILE : W071.CNF;284 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	7.000	5.000	2.000	3.4797	99.90000	5.69E-03	3.42E-03	9.21E-03	2.15E-02	3.41E-03
PU-236	5749.000	17.000	8.000	9.000	2.1286	100.0000	9.18E-03	5.87E-03	5.63E-03	1.43E-02	5.85E-03
PU-238	5499.000	13.000	-1.000	14.000	2.9680	99.90000	-1.14E-03	5.91E-03	7.85E-03	1.88E-02	5.91E-03
PU242	4890.000	1068.000	1066.000	2.000	1.4142	100.0000	1.21E+00	7.12E-02	3.74E-03	1.06E-02	3.72E-02
PU-244	4589.000	5.000	4.000	1.000	5.2050	99.90000	4.55E-03	2.80E-03	1.38E-02	3.06E-02	2.79E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



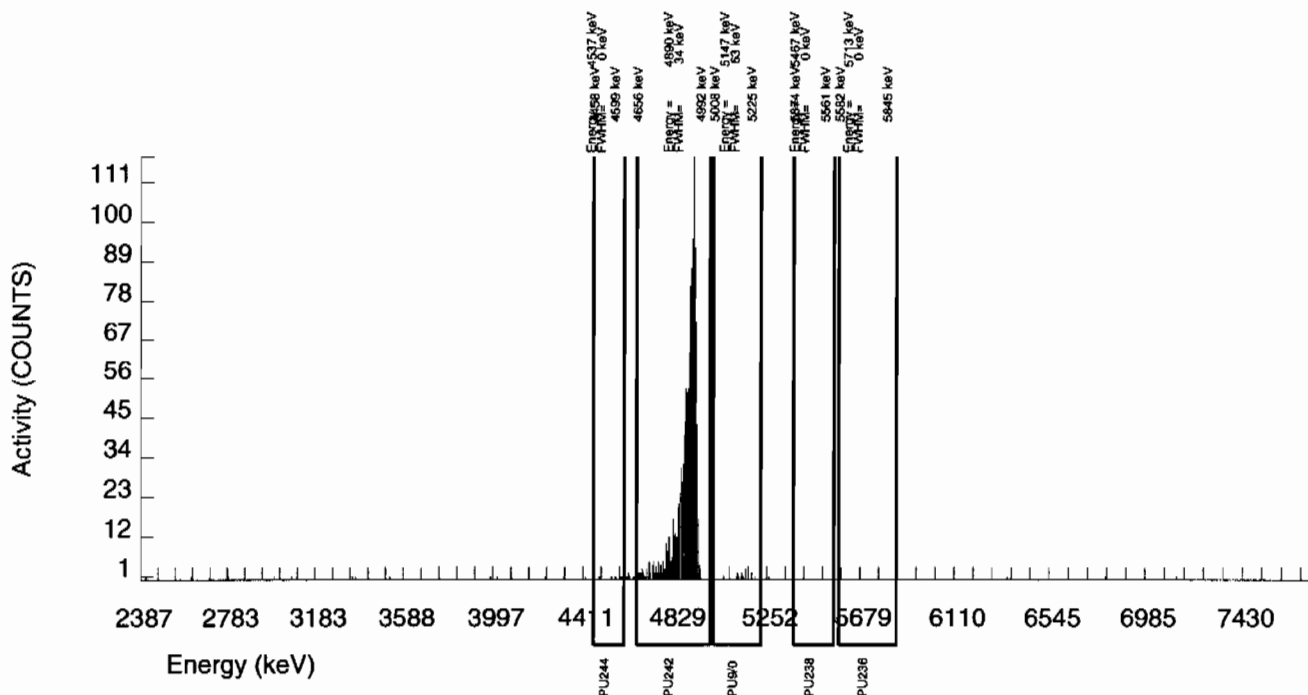
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229006_PU SAMPLE QTY: 1.259 G	
DETECTOR NUMBER :79430 AVERAGE %EFFICIENCY :39.7183 % YIELD : 89.838		COUNT DATE:22-JAN-2010 13:18:04 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.04142 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B237.CNF;72 BKG DATE : 21-JAN-2010 EFF FILE : W237.CNF;24 CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	15.000	14.000	1.000	3.4797	99.90000	1.41E-02	4.08E-03	8.13E-03	1.90E-02	4.01E-03
PU-236	5749.000	0.000	-1.000	1.000	2.1286	100.0000	-1.01E-03	1.43E-03	4.97E-03	1.26E-02	1.43E-03
PU-238	5499.000	0.000	-1.000	1.000	2.9680	99.90000	-1.00E-03	1.42E-03	6.93E-03	1.66E-02	1.42E-03
PU242	4890.000	1209.000	1208.000	1.000	1.0000	100.0000	1.21E+00	7.09E-02	2.33E-03	7.38E-03	3.49E-02
PU-244	4589.000	8.000	8.000	0.000	5.2050	99.90000	8.03E-03	2.87E-03	1.22E-02	2.70E-02	2.84E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



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ALPHA SPECTROSCOPY REPORT

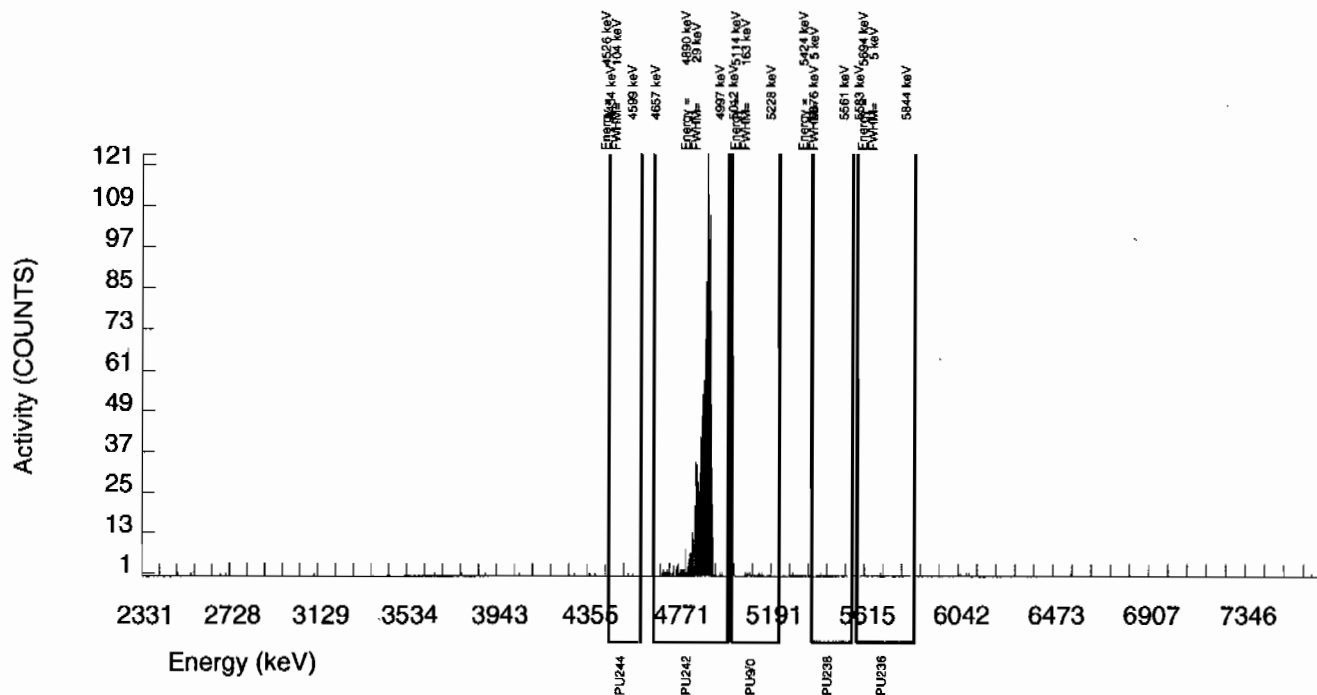
BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229007_PU SAMPLE QTY: 1.261 G	
DETECTOR NUMBER :78775 AVERAGE %EFFICIENCY :33.5654 % YIELD : 90.818		COUNT DATE:20-JAN-2010 16:41:38 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.07460 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B073.CNF;1093 BKG DATE : 17-JAN-2010 EFF FILE : W073.CNF;283 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	7.000	7.000	0.000	3.4797	99.90000	8.21E-03	3.13E-03	9.50E-03	2.22E-02	3.10E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.18E-03	1.19E-03	5.80E-03	1.48E-02	1.18E-03
PU-238	5499.000	1.000	0.000	1.000	2.9680	99.90000	0.00E+00	1.66E-03	8.10E-03	1.94E-02	1.66E-03
PU242	4890.000	1033.000	1032.000	1.000	1.0000	100.0000	1.21E+00	7.17E-02	2.73E-03	8.63E-03	3.77E-02
PU-244	4589.000	3.000	3.000	0.000	5.2050	99.90000	3.52E-03	2.04E-03	1.42E-02	3.16E-02	2.03E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



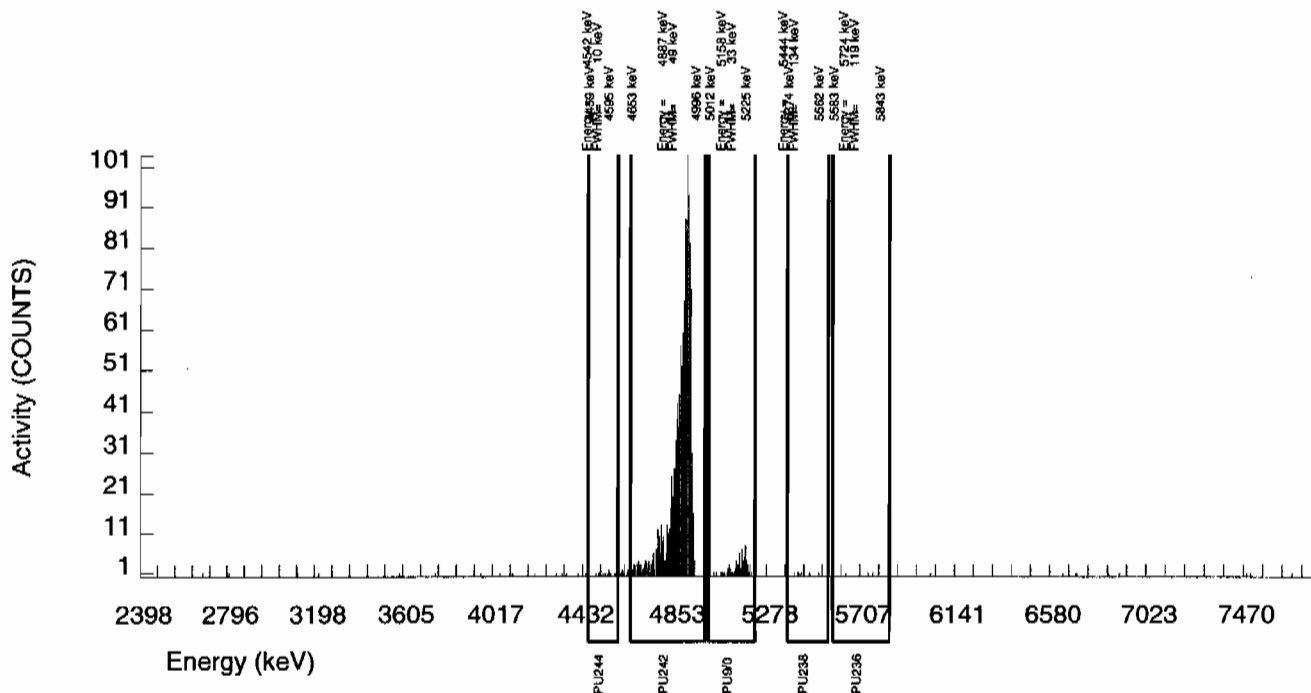
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229008_PU SAMPLE QTY: 1.260 G	
DETECTOR NUMBER :SAMPLE AVERAGE %EFFICIENCY :38.2668 % YIELD : 97.414		COUNT DATE:22-JAN-2010 13:18:11 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.29790 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B253.CNF;74 BKG DATE : 21-JAN-2010 EFF FILE : W253.CNF;24 CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	71.000	71.000	0.000	3.4797	99.90000	6.82E-02	8.74E-03	7.77E-03	1.81E-02	8.09E-03
PU-236	5749.000	3.000	3.000	0.000	2.1286	100.0000	2.91E-03	1.69E-03	4.75E-03	1.21E-02	1.68E-03
PU-238	5499.000	7.000	-2.000	9.000	2.9680	99.90000	-1.92E-03	3.84E-03	6.63E-03	1.59E-02	3.84E-03
PU242	4890.000	1265.000	1262.000	3.000	1.7321	100.0000	1.21E+00	6.80E-02	3.86E-03	1.03E-02	3.42E-02
PU-244	4589.000	13.000	13.000	0.000	5.2050	99.90000	1.25E-02	3.51E-03	1.16E-02	2.59E-02	3.46E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



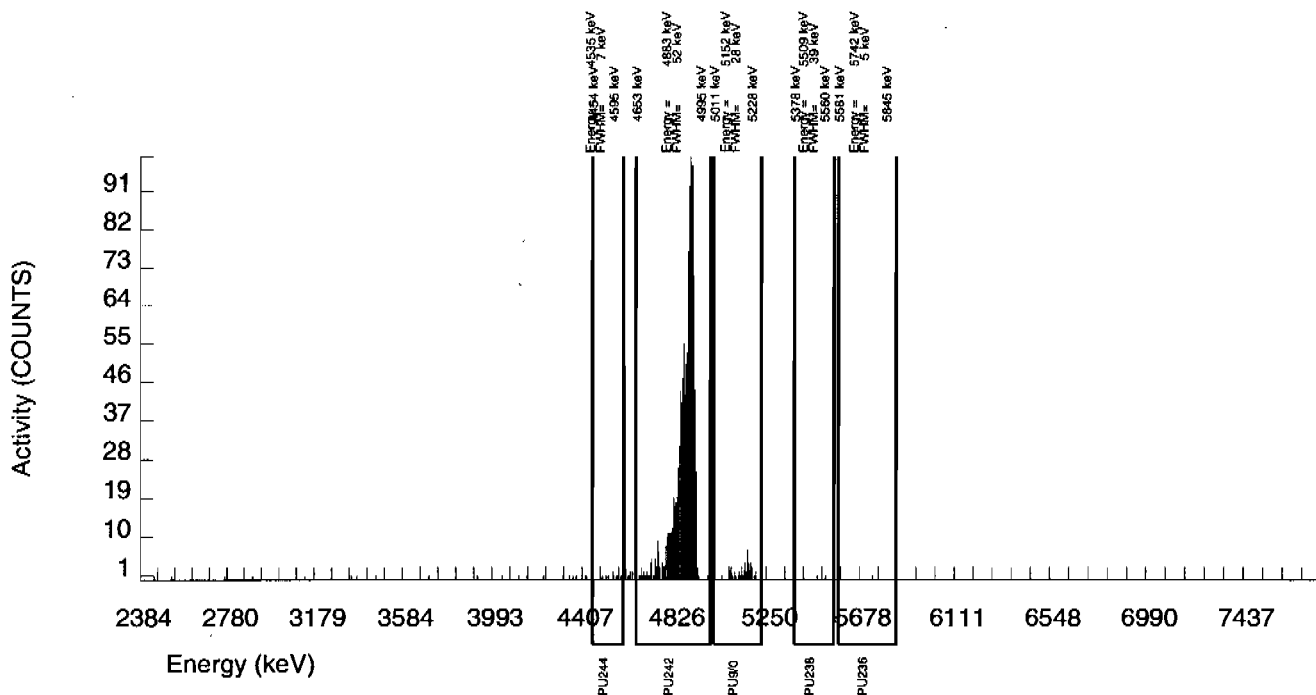
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229009_PU SAMPLE QTY: 1.286 G	
DETECTOR NUMBER :79449 AVERAGE %EFFICIENCY :37.8660 % YIELD : 94.935		COUNT DATE:22-JAN-2010 13:18:30 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.21396 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B256.CNF;74 BKG DATE : 21-JAN-2010 EFF FILE : W256.CNF;24 CAL DATE : 28-DEC-2009

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	50.000	49.000	1.000	3.4797	99.90000	4.78E-02	7.35E-03	7.90E-03	1.84E-02	6.97E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	9.85E-04	9.87E-04	4.83E-03	1.23E-02	9.85E-04
PU-238	5499.000	2.000	0.000	2.000	2.9680	99.90000	0.00E+00	1.95E-03	6.73E-03	1.61E-02	1.95E-03
PU242	4890.000	1217.000	1217.000	0.000	0.0000	100.0000	1.19E+00	6.72E-02	0.00E+00	2.64E-03	3.40E-02
PU-244	4589.000	11.000	11.000	0.000	5.2050	99.90000	1.07E-02	3.28E-03	1.18E-02	2.63E-02	3.23E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



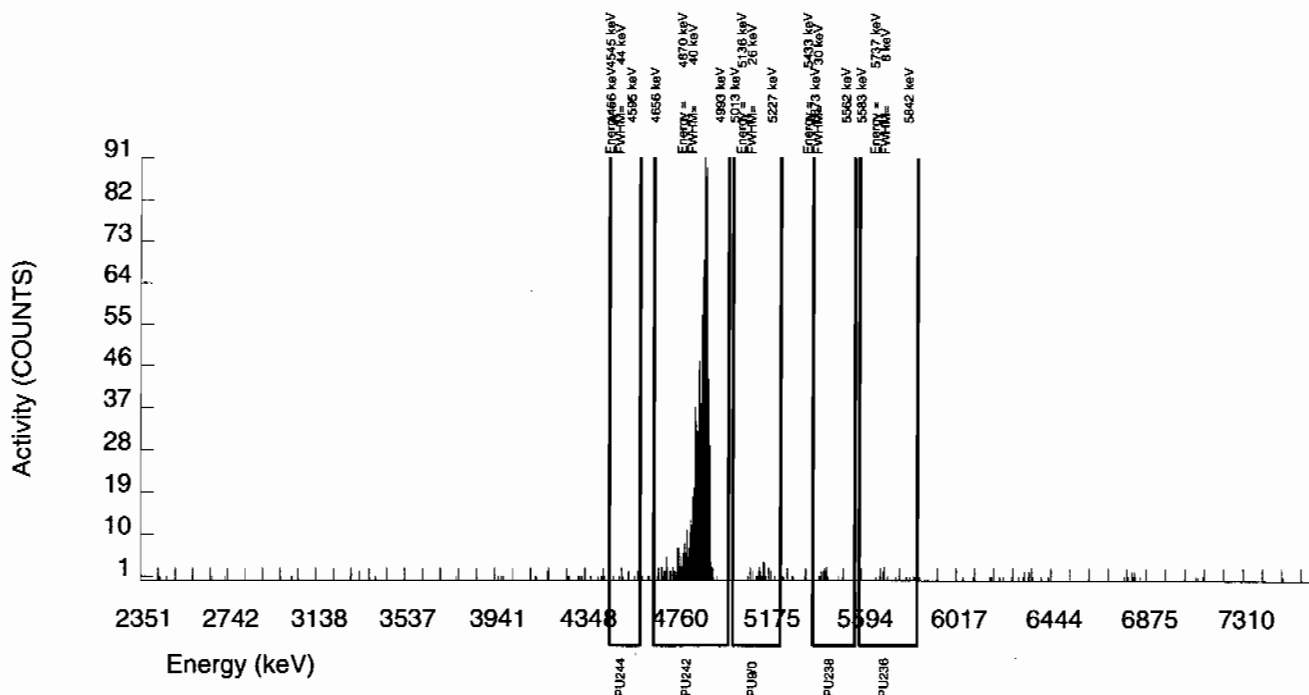
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229010_PU SAMPLE QTY: 1.287 G	
DETECTOR NUMBER :33454 AVERAGE %EFFICIENCY :31.1998 % YIELD : 88.521		COUNT DATE:23-JAN-2010 12:08:53 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.99682 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B029.CNF;1106 BKG DATE : 17-JAN-2010 EFF FILE : W029.CNF;318 CAL DATE : 4-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	30.000	27.000	3.000	3.4797	99.90000	3.43E-02	7.51E-03	1.03E-02	2.40E-02	7.29E-03
PU-236	5749.000	13.000	-5.000	18.000	2.1286	100.0000	-6.41E-03	7.14E-03	6.28E-03	1.60E-02	7.14E-03
PU-238	5499.000	14.000	1.000	13.000	2.9680	99.90000	1.27E-03	6.59E-03	8.76E-03	2.10E-02	6.59E-03
PU242	4890.000	939.000	935.000	4.000	2.0000	100.0000	1.18E+00	7.44E-02	5.90E-03	1.52E-02	3.89E-02
PU-244	4589.000	8.000	8.000	0.000	5.2050	99.90000	1.01E-02	3.63E-03	1.54E-02	3.42E-02	3.59E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





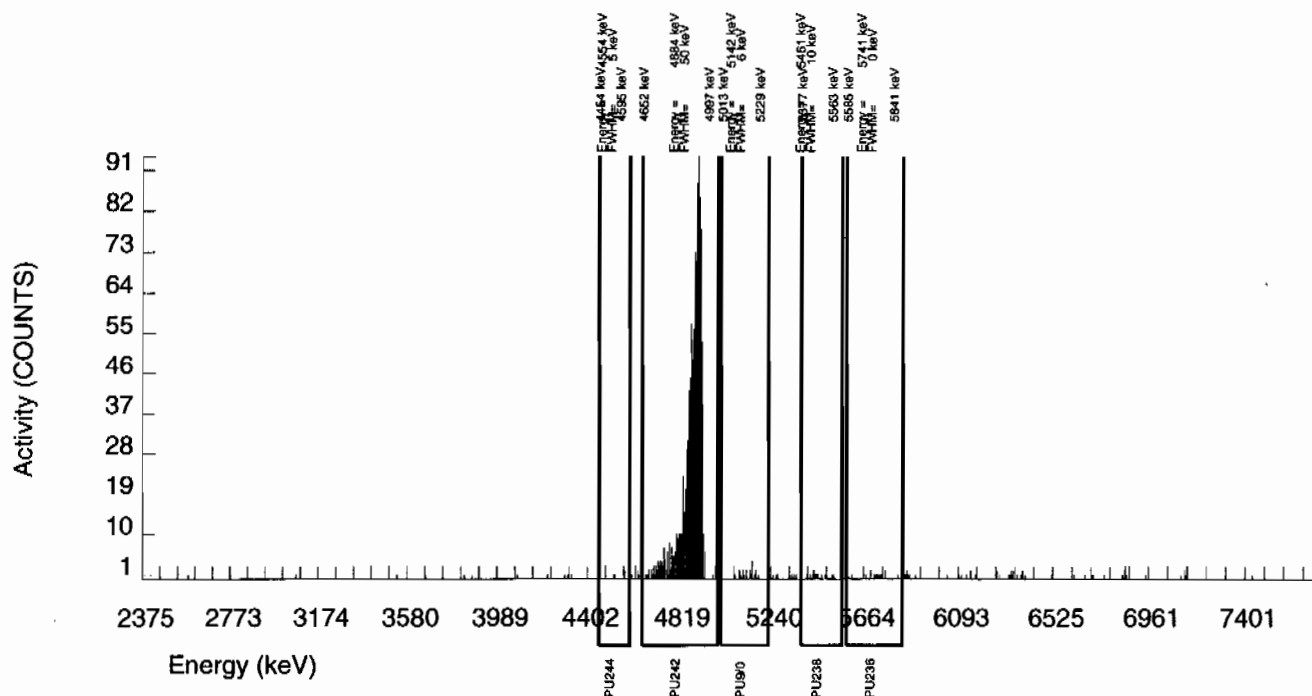
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229011_PU SAMPLE QTY: 1.291 G	
DETECTOR NUMBER :33447 AVERAGE %EFFICIENCY :32.1103 % YIELD : 100.821		COUNT DATE:23-JAN-2010 12:08:53 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.41323 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B030.CNF;1103 BKG DATE : 17-JAN-2010 EFF FILE : W030.CNF;303 CAL DATE : 4-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	20.000	17.000	3.000	3.4797	99.90000	1.83E-02	5.26E-03	8.73E-03	2.04E-02	5.17E-03
PU-236	5749.000	19.000	1.000	18.000	2.1286	100.0000	1.09E-03	6.63E-03	5.34E-03	1.36E-02	6.63E-03
PU-238	5499.000	13.000	2.000	11.000	2.9680	99.90000	2.16E-03	5.29E-03	7.45E-03	1.78E-02	5.29E-03
PU242	4890.000	1104.000	1096.000	8.000	2.8284	100.0000	1.18E+00	7.12E-02	7.09E-03	1.71E-02	3.59E-02
PU-244	4589.000	4.000	4.000	0.000	5.2050	99.90000	4.32E-03	2.17E-03	1.31E-02	2.91E-02	2.16E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

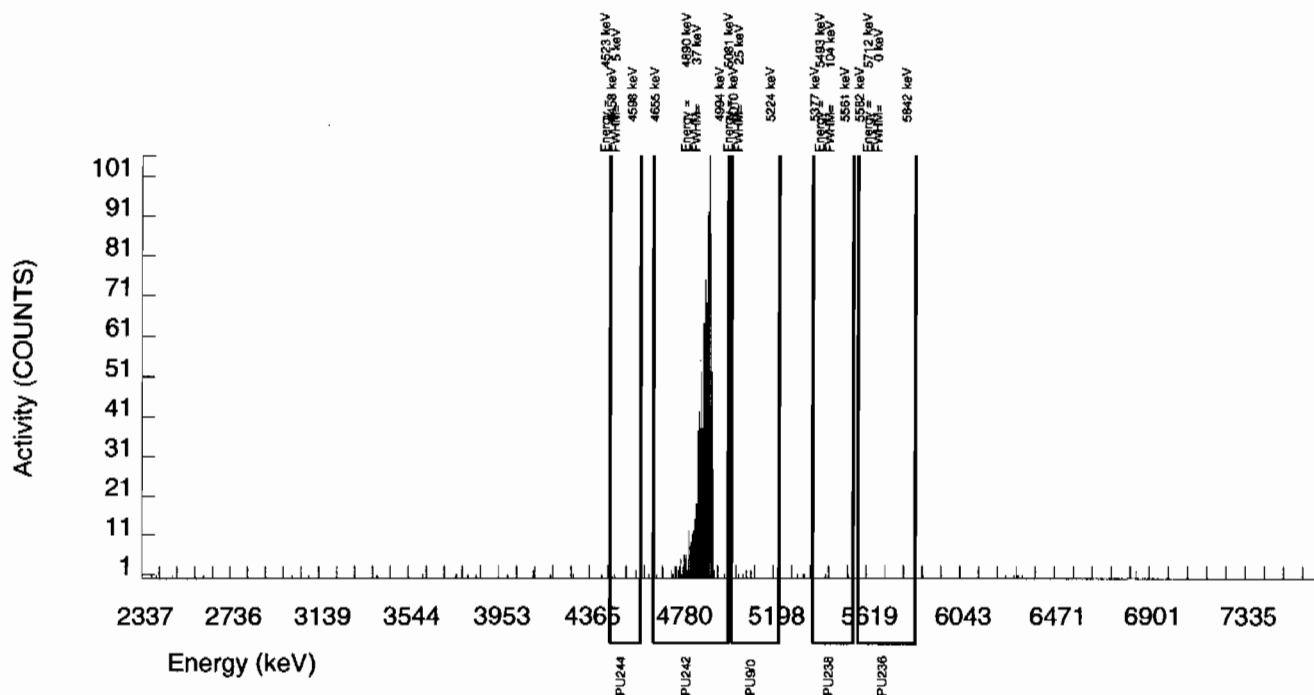
BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229012_PU SAMPLE QTY: 1.275 G	
DETECTOR NUMBER :78199 AVERAGE %EFFICIENCY :31.4743 % YIELD : 94.318		COUNT DATE:21-JAN-2010 17:04:14 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.19308 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B087.CNF;1022 BKG DATE : 17-JAN-2010 EFF FILE : W087.CNF;274 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	6.000	0.000	6.000	3.4797	99.90000	0.00E+00	4.13E-03	9.64E-03	2.25E-02	4.13E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	1.20E-03	5.89E-03	1.50E-02	1.20E-03
PU-238	5499.000	2.000	-3.000	5.000	2.9680	99.90000	-3.58E-03	3.15E-03	8.23E-03	1.97E-02	3.15E-03
PU242	4890.000	1014.000	1005.000	9.000	3.0000	100.0000	1.20E+00	7.18E-02	8.31E-03	1.98E-02	3.81E-02
PU-244	4589.000	8.000	8.000	0.000	5.2050	99.90000	9.53E-03	3.40E-03	1.44E-02	3.21E-02	3.37E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



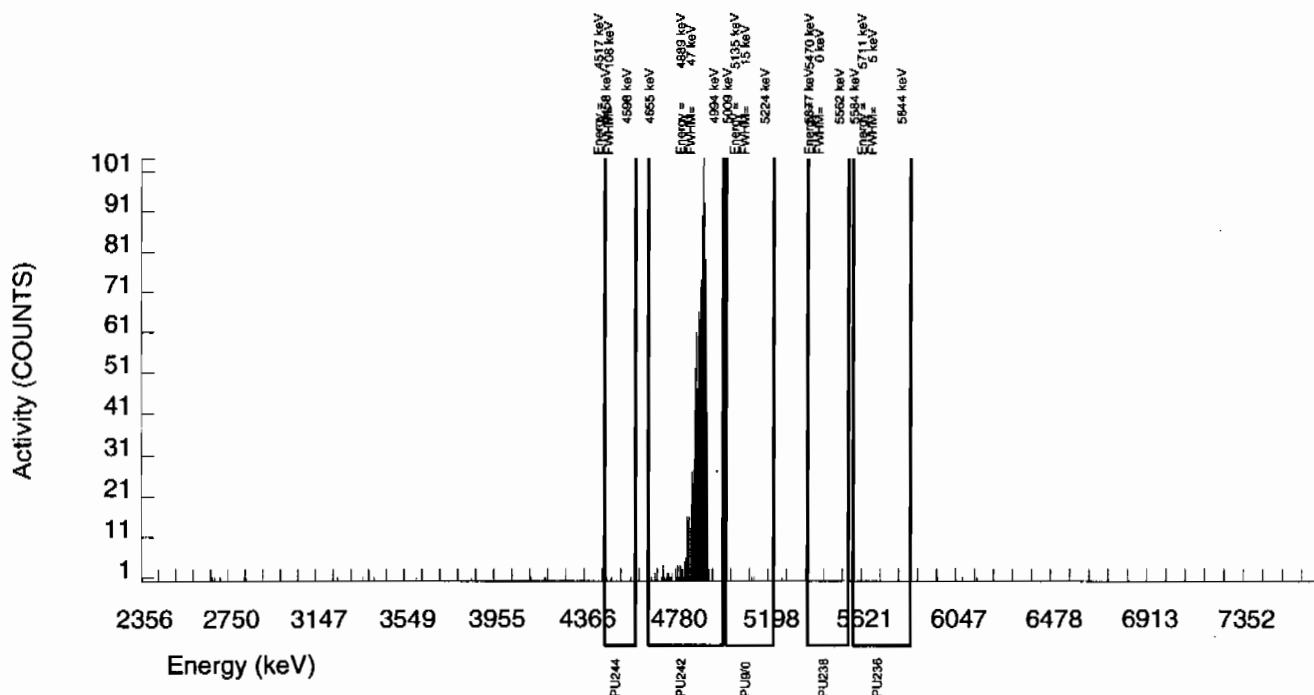
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.			SAMPLE ID : S0244229013_PU SAMPLE QTY: 1.283 G		
DETECTOR NUMBER :79466 AVERAGE %EFFICIENCY :32.2835 % YIELD : 88.843			COUNT DATE:20-JAN-2010 16:41:39 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2		
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.00773 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B079.CNF;1010 BKG DATE : 17-JAN-2010 EFF FILE : W079.CNF;266 CAL DATE : 11-JAN-2010		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2.000	0.000	2.000	3.4797	99.90000	1.46E-10	2.45E-03	9.92E-03	2.32E-02	2.45E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.24E-03	1.24E-03	6.06E-03	1.54E-02	1.24E-03
PU-238	5499.000	0.000	0.000	0.000	2.9680	99.90000	0.00E+00	1.23E-03	8.46E-03	2.02E-02	1.23E-03
PU242	4890.000	973.000	971.000	2.000	1.4142	100.0000	1.19E+00	7.18E-02	4.03E-03	1.14E-02	3.82E-02
PU-244	4589.000	3.000	2.000	1.000	5.2050	99.90000	2.45E-03	2.45E-03	1.48E-02	3.30E-02	2.45E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



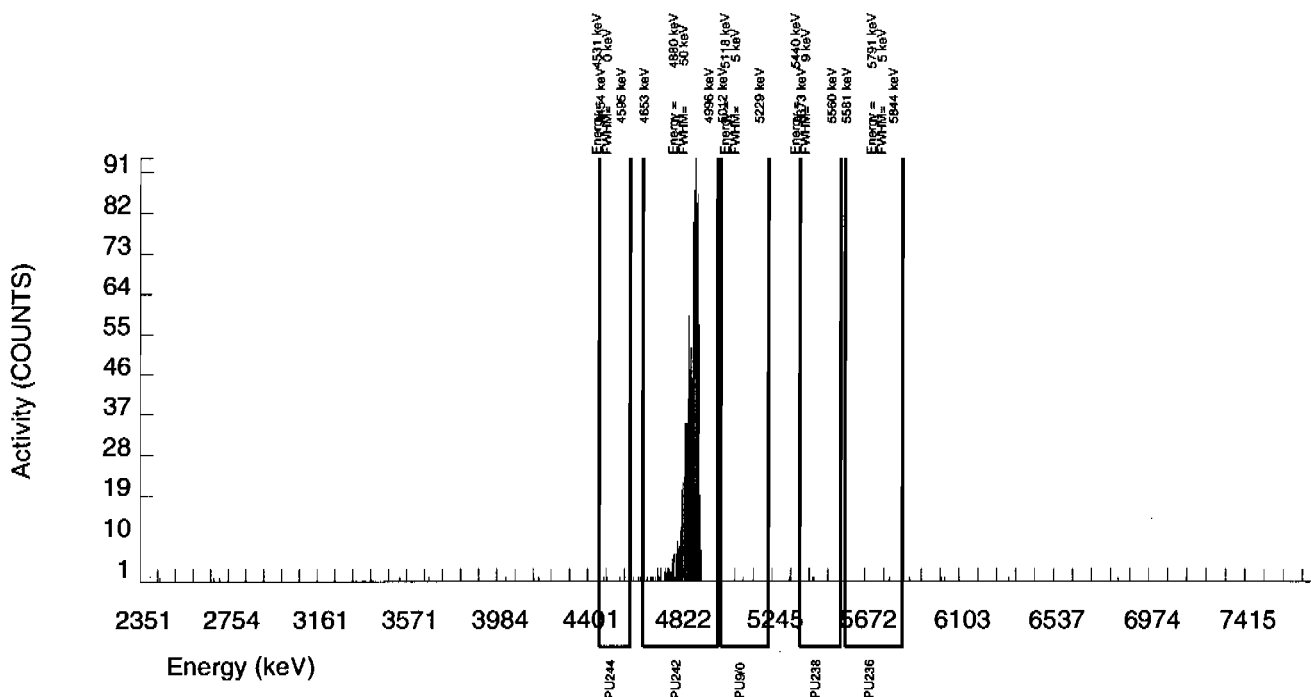
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.			SAMPLE ID : S0244229014_PU SAMPLE QTY: 1.256 G		
DETECTOR NUMBER :78197 AVERAGE %EFFICIENCY :33.5773 % YIELD : 85.772			COUNT DATE:20-JAN-2010 16:41:39 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2		
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.90374 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B080.CNF;1011 BKG DATE : 17-JAN-2010 EFF FILE : W080.CNF;274 CAL DATE : 11-JAN-2010		

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	1.000	1.000	0.000	3.4797	99.90000	1.25E-03	1.25E-03	1.01E-02	2.36E-02	1.25E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.26E-03	1.26E-03	6.17E-03	1.57E-02	1.26E-03
PU-238	5499.000	2.000	0.000	2.000	2.9680	99.90000	1.49E-10	2.49E-03	8.61E-03	2.06E-02	2.49E-03
PU242	4890.000	975.000	975.000	0.000	0.0000	100.0000	1.21E+00	7.31E-02	0.00E+00	3.37E-03	3.89E-02
PU-244	4589.000	4.000	3.000	1.000	5.2050	99.90000	3.74E-03	2.79E-03	1.51E-02	3.36E-02	2.79E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



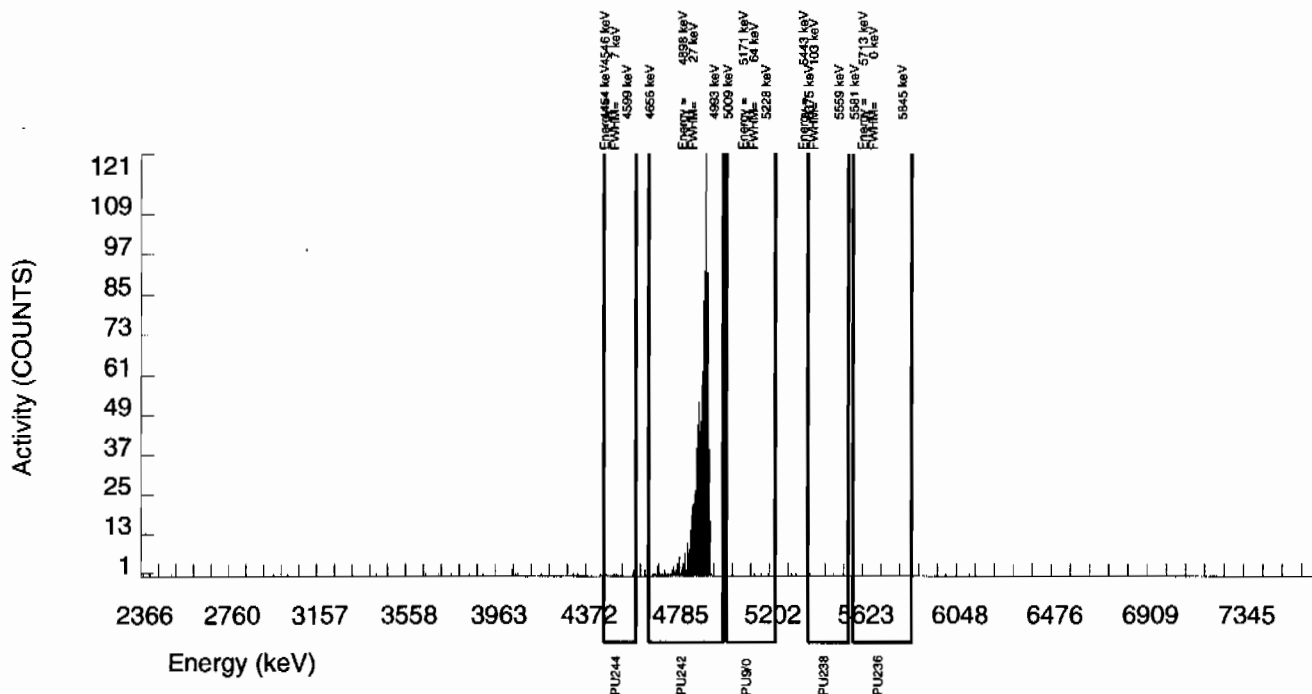
GEL Laboratories LLC  
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SAMPLE QTY: 1.261 GDETECTOR NUMBER :79996  
AVERAGE %EFFICIENCY :31.8577  
% YIELD : 94.481COUNT DATE:20-JAN-2010 16:41:39  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :JXD2MS/MSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01LCS/LCSD  
ID : 0244-B  
ISOTOPE : PU-9/0  
PCI/G : 4.178E+01TRACER  
ID : 1374-A  
ISOTOPE : PU242  
NOMINAL : 3.38543 dpm  
RESULTS : 3.19860 dpmLIB FILE : ENV\_ALPHA\_PU.N  
BKG FILE : B081.CNF;1018  
BKG DATE : 17-JAN-2010  
EFF FILE : W081.CNF;272  
CAL DATE : 12-JAN-2010

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	3.000	3.000	0.000	3.4797	99.90000	3.56E-03	2.07E-03	9.62E-03	2.25E-02	2.06E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	1.20E-03	5.88E-03	1.50E-02	1.20E-03
PU-238	5499.000	2.000	-1.000	3.000	2.9680	99.90000	-1.19E-03	2.66E-03	8.20E-03	1.96E-02	2.66E-03
PU242	4890.000	1021.000	1019.000	2.000	1.4142	100.0000	1.21E+00	7.20E-02	3.90E-03	1.10E-02	3.80E-02
PU-244	4589.000	6.000	5.000	1.000	5.2050	99.90000	5.94E-03	3.16E-03	1.44E-02	3.20E-02	3.14E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

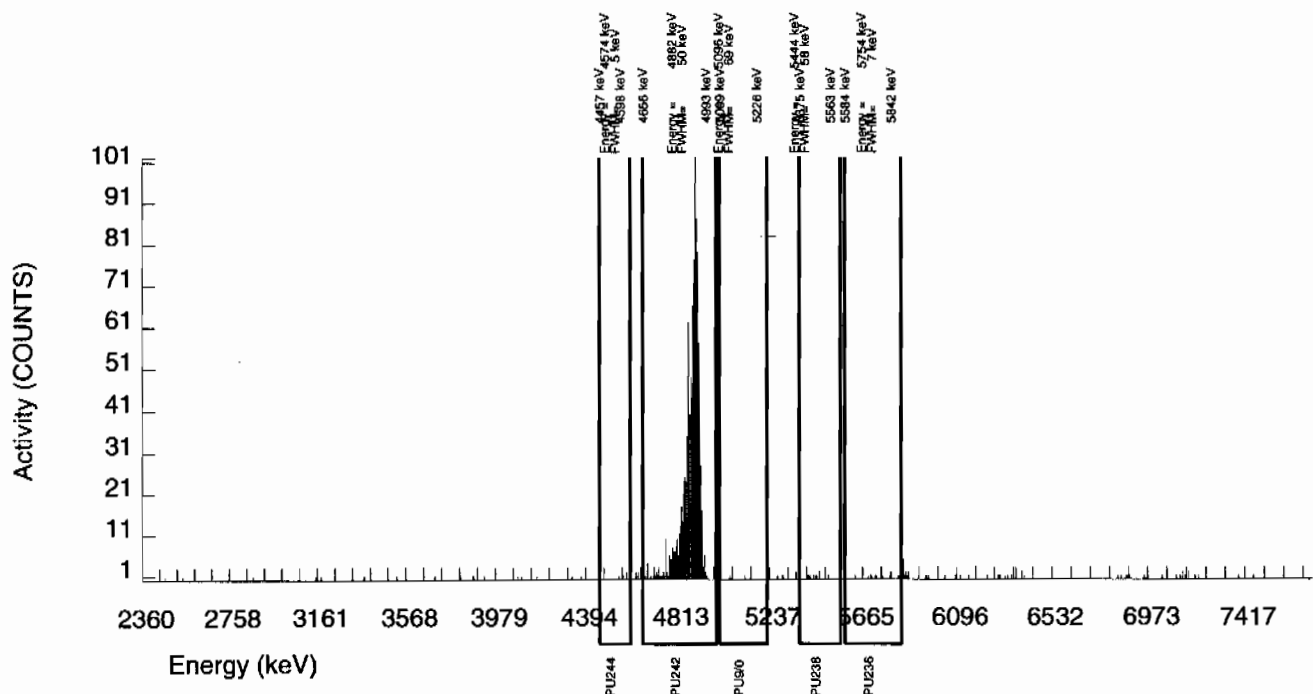
BATCH NUMBER: 941357 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202014806_PU SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :46-089B1 AVERAGE %EFFICIENCY :34.5024 % YIELD : 88.009		COUNT DATE:20-JAN-2010 12:59:59 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.97950 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B047.CNF;1103 BKG DATE : 17-JAN-2010 EFF FILE : W047.CNF;301 CAL DATE : 4-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2.000	-1.000	3.000	3.4797	99.90000	-1.48E-03	3.32E-03	1.20E-02	2.81E-02	3.32E-03
PU-236	5749.000	14.000	4.000	10.000	2.1286	100.0000	5.95E-03	7.29E-03	7.35E-03	1.87E-02	7.28E-03
PU-238	5499.000	12.000	7.000	5.000	2.9680	99.90000	1.04E-02	6.15E-03	1.03E-02	2.45E-02	6.12E-03
PU242	4890.000	1030.000	1028.000	2.000	1.4142	100.0000	1.52E+00	9.07E-02	4.88E-03	1.38E-02	4.77E-02
PU-244	4589.000	4.000	3.000	1.000	5.2050	99.90000	4.45E-03	3.33E-03	1.80E-02	4.00E-02	3.32E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



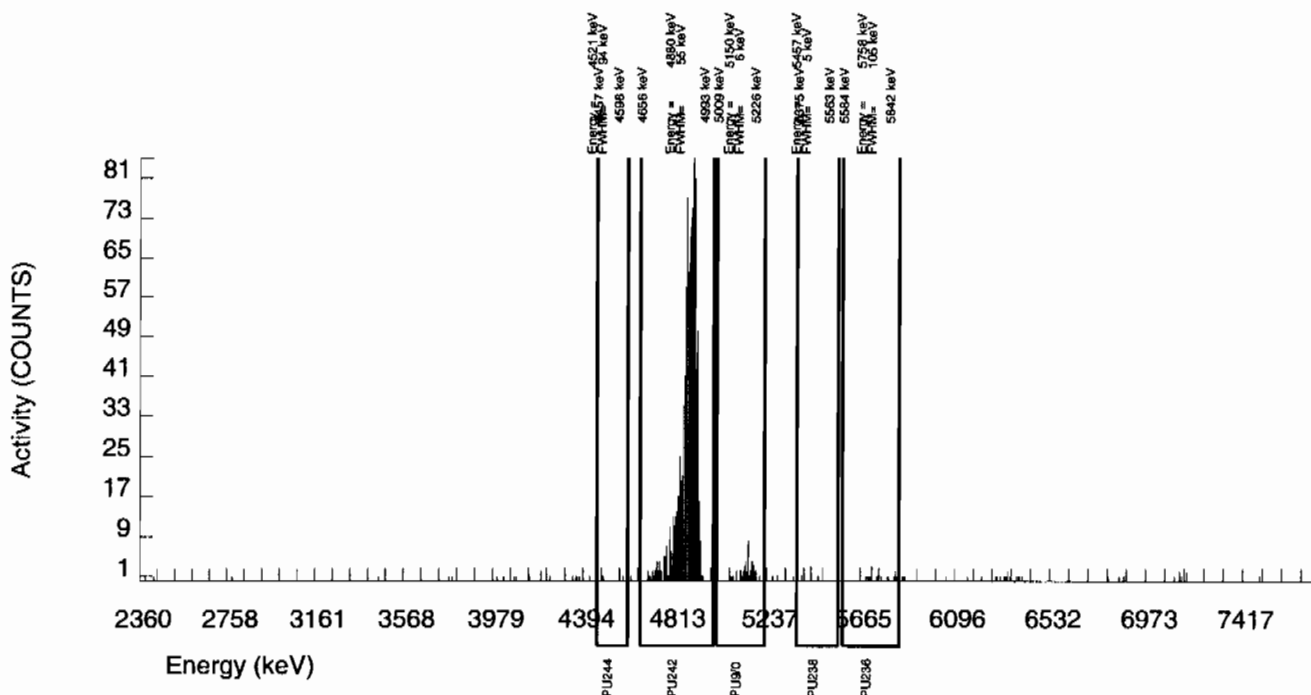
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S1202014807_PU SAMPLE QTY: 1.270 G	
DETECTOR NUMBER :46-089B1 AVERAGE %EFFICIENCY :34.5024 % YIELD : 93.232		COUNT DATE:23-JAN-2010 12:08:57 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.15630 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B047.CNF;1103 BKG DATE : 17-JAN-2010 EFF FILE : W047.CNF;301 CAL DATE : 4-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	49.000	46.000	3.000	3.4797	99.90000	5.08E-02	8.35E-03	8.93E-03	2.09E-02	7.96E-03
PU-236	5749.000	17.000	7.000	10.000	2.1286	100.0000	7.81E-03	5.81E-03	5.46E-03	1.39E-02	5.80E-03
PU-238	5499.000	8.000	3.000	5.000	2.9680	99.90000	3.31E-03	3.98E-03	7.62E-03	1.82E-02	3.98E-03
PU242	4890.000	1091.000	1089.000	2.000	1.4142	100.0000	1.20E+00	7.03E-02	3.63E-03	1.02E-02	3.65E-02
PU-244	4589.000	3.000	2.000	1.000	5.2050	99.90000	2.21E-03	2.21E-03	1.34E-02	2.97E-02	2.21E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



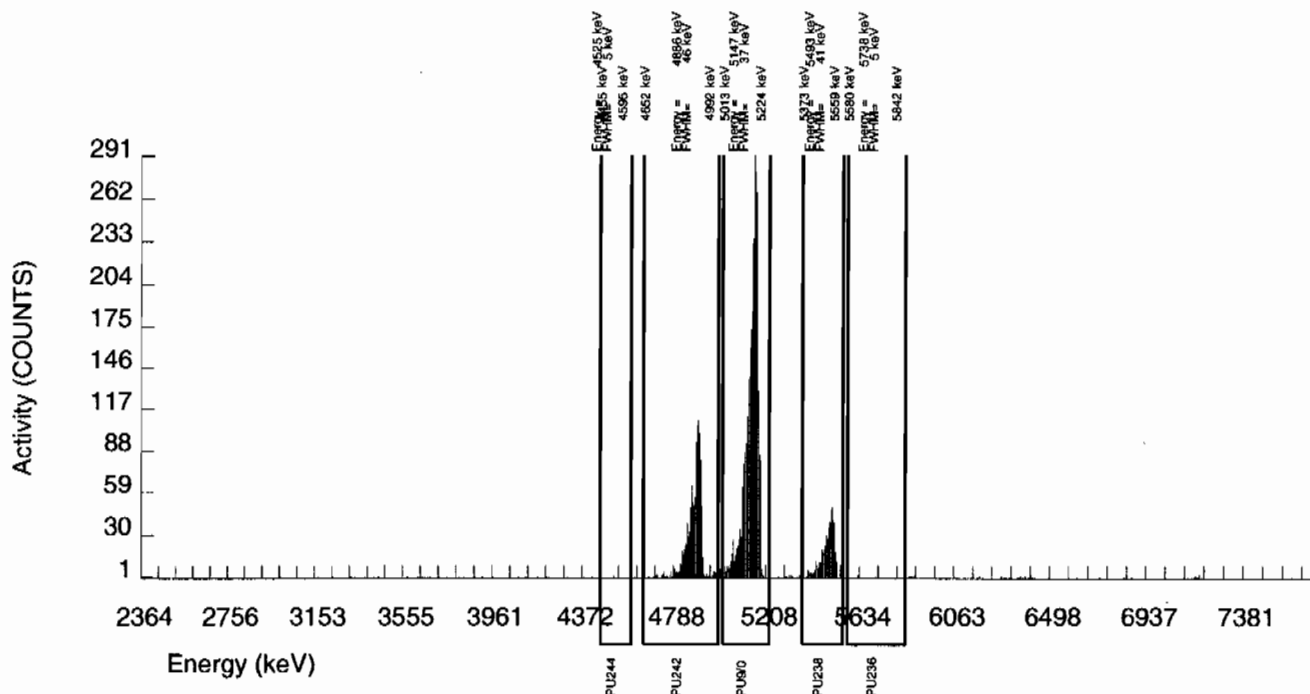
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941357 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202014808_PU SAMPLE QTY: 0.108 G	
DETECTOR NUMBER :76544 AVERAGE %EFFICIENCY :33.8926 % YIELD : 97.785		COUNT DATE:20-JAN-2010 12:59:59 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.31045 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B046.CNF;1108 BKG DATE : 17-JAN-2010 EFF FILE : W046.CNF;287 CAL DATE : 4-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	2870.000	2870.000	0.000	3.4797	99.90000	3.62E+01	2.20E+00	1.02E-01	2.38E-01	6.75E-01
PU-236	5749.000	6.000	-3.000	9.000	2.1286	100.0000	-3.78E-02	4.88E-02	6.23E-02	1.59E-01	4.88E-02
PU-238	5499.000	502.000	499.000	3.000	2.9680	99.90000	6.29E+00	4.62E-01	8.70E-02	2.08E-01	2.83E-01
PU242	4890.000	1125.000	1122.000	3.000	1.7321	100.0000	1.41E+01	9.22E-01	5.07E-02	1.36E-01	4.23E-01
PU-244	4589.000	4.000	4.000	0.000	5.2050	99.90000	5.04E-02	2.54E-02	1.53E-01	3.39E-01	2.52E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





## Radiochemistry Batch Checklist, Rev10

Batch: 941358 Product: U Date: 1/25/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.	✓		DER 782883
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.	✓		DER 782883
Allquot Correction completed if required.			N/A
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADcheckdistrev10, revised 1/13/2010

Primary Review Performed By: Deirdre Green 1/25/10Secondary Review Performed By: Jay L M - 1/25/10

# Uranium Que Sheet

18-JAN-10

Batch #: 941358 Analyst: JXD2 First Client Due Date: 02-FEB-10 Internal Due Date: 23-JAN-10  
 Tracer Isotope: U-232U-236 Tracer Code: 1283-H Expiration Date: 12-09-10 Vol: 0.1 \*0.2  
 LCS Isotope: U-238 LCS Code: Expiration Date: Vol: /  
 Spike Isotope: U-238 Spike Code: Expiration Date: Vol: /  
 Prep Date: 01-10-10 Initials: JXD Pipet ID: 297058 Balance ID: 50410272

Witness: NDA 1/19/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Alliquot	U Det #
244229001-1	RE12-10-7734	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	1	1	0.524	1
244229002-1	RE12-10-7701	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	2	2	0.502	2
244229003-1	RE12-10-7702	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	3	3	0.504	3
244229004-1	RE12-10-7700	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	4	4	0.514	4
244229005-1	RE12-10-7699	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	5	5	0.507	5
244229006-1	RE12-10-7727	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	6	6	0.526	6
244229007-1	RE12-10-7710	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	7	7	0.516	7
244229008-1	RE12-10-7715	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	8	8	0.500	8
244229009-1	RE12-10-7707	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	9	9	0.551	9
244229010-1	RE12-10-7719	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	10	10	0.503	10
244229011-1	RE12-10-7717	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	11	11	0.534	11
244229012-1	RE12-10-7708	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	12	12	0.543	12
244229013-1	RE12-10-7706	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	13	13	0.540	113
244229014-1	RE12-10-7714	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	14	14	0.524	114
244229015-1	RE12-10-7705	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	15	15	0.522	115
244519001-1	RE16-10-418	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	16	16	0.517	113 117
244519002-1	RE16-10-419	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	17	17	0.525	118
244519004-1	RE16-10-422	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	18	18	0.531	121
244519005-1	RE16-10-423	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	19	19	0.520	122
244519006-1	RE16-10-441	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	20	20	0.546	123
1202014809-1	MB for batch 941358	MB		.1 pCi/g	SOIL	QC ACCOUNT		21	21	1	124
1202014810-1	RE12-10-7715(244229008DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	06-JAN-10	22	22	0.504	127
1202014811-1	LCS for batch 941358	LCS		.1 pCi/g	SOIL	QC ACCOUNT		23	23	0.114	128

\*SOPM 0244-A 10/31/20

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION

Circle One

Data Reviewed By: DS 1/25/10

GEL Laboratories LLC, Radiochemistry Division

Page 1 of 1

# Blank Correction Report

**Batch ID 941358**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014810	DUP	Uranium-233/234	0.504 g	3.00	0.256	0.172	.017083333	pCi/g	NO
		Uranium-235/236	0.504 g	0.172	0.0367	0.107	0	pCi/g	NO
		Uranium-238	0.504 g	3.42	0.287	0.100	.010575397	pCi/g	NO
1202014811	LCS	Uranium-233/234	0.114 g	5.77	0.548	0.561	.075526316	pCi/g	NO
		Uranium-235/236	0.114 g	0.291	0.0894	0.348	0	pCi/g	NO
		Uranium-238	0.114 g	5.28	0.509	0.325	.046754386	pCi/g	NO
1202014809	MB	Uranium-233/234	1.00 g	0.00861	0.00532	0.0551	.00861	pCi/g	YES
		Uranium-235/236	1.00 g	0.00	0.00311	0.0342	0	pCi/g	NO
		Uranium-238	1.00 g	0.00533	0.0031	0.032	.00533	pCi/g	YES
244229001	RE12-10-7734	Uranium-233/234	0.524 g	0.794	0.0715	0.0827	.016431298	pCi/g	NO
		Uranium-235/236	0.524 g	0.0396	0.0135	0.0513	0	pCi/g	NO
		Uranium-238	0.524 g	0.744	0.068	0.048	.010171756	pCi/g	NO
244229002	RE12-10-7701	Uranium-233/234	0.502 g	1.98	0.161	0.103	.017151394	pCi/g	NO
		Uranium-235/236	0.502 g	0.107	0.0222	0.0639	0	pCi/g	NO
		Uranium-238	0.502 g	2.32	0.184	0.0597	.010617530	pCi/g	NO
244229003	RE12-10-7702	Uranium-233/234	0.504 g	0.843	0.0793	0.103	.017083333	pCi/g	NO
		Uranium-235/236	0.504 g	0.0493	0.0146	0.0639	0	pCi/g	NO
		Uranium-238	0.504 g	0.877	0.0818	0.0597	.010575397	pCi/g	NO
244229004	RE12-10-7700	Uranium-233/234	0.514 g	0.441	0.0486	0.0958	.016750973	pCi/g	NO
		Uranium-235/236	0.514 g	0.0458	0.0146	0.0595	0	pCi/g	NO
		Uranium-238	0.514 g	0.352	0.0423	0.0556	.010369650	pCi/g	NO
244229005	RE12-10-7699	Uranium-233/234	0.507 g	1.54	0.127	0.0955	.016982249	pCi/g	NO
		Uranium-235/236	0.507 g	0.103	0.021	0.0593	0	pCi/g	NO
		Uranium-238	0.507 g	1.55	0.128	0.0554	.010512821	pCi/g	NO
244229006	RE12-10-7727	Uranium-233/234	0.526 g	4.55	0.340	0.0976	.016368821	pCi/g	NO
		Uranium-235/236	0.526 g	0.241	0.035	0.0606	0	pCi/g	NO
		Uranium-238	0.526 g	4.87	0.362	0.0566	.010133080	pCi/g	NO
244229007	RE12-10-7710	Uranium-233/234	0.516 g	0.862	0.081	0.102	.016686047	pCi/g	NO
		Uranium-235/236	0.516 g	0.0487	0.0166	0.0631	0	pCi/g	NO
		Uranium-238	0.516 g	0.742	0.0721	0.059	.010329457	pCi/g	NO
244229008	RE12-10-7715	Uranium-233/234	0.500 g	2.86	0.236	0.142	.01722	pCi/g	NO
		Uranium-235/236	0.500 g	0.220	0.0395	0.0879	0	pCi/g	NO
		Uranium-238	0.500 g	3.68	0.295	0.0821	.01066	pCi/g	NO
244229009	RE12-10-7707	Uranium-233/234	0.551 g	2.65	0.205	0.0938	.015626134	pCi/g	NO
		Uranium-235/236	0.551 g	0.161	0.0275	0.0582	0	pCi/g	NO
		Uranium-238	0.551 g	3.64	0.275	0.0544	.009673321	pCi/g	NO
244229010	RE12-10-7719	Uranium-233/234	0.503 g	1.91	0.156	0.104	.017117296	pCi/g	NO
		Uranium-235/236	0.503 g	0.0915	0.0214	0.0647	0	pCi/g	NO
		Uranium-238	0.503 g	2.44	0.193	0.0605	.010596421	pCi/g	NO
244229011	RE12-10-7717	Uranium-233/234	0.534 g	1.14	0.101	0.0986	.016123596	pCi/g	NO
		Uranium-235/236	0.534 g	0.0708	0.0183	0.0612	0	pCi/g	NO

1/25/10

## Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
244229011	RE12-10-7717	Uranium-238	0.534 g	1.60	0.133	0.0572	.009981273	pCi/g	NO
244229012	RE12-10-7708	Uranium-233/234	0.543 g	0.391	0.0432	0.085	.015856354	pCi/g	NO
		Uranium-235/236	0.543 g	0.00678	0.0068	0.0528	0	pCi/g	NO
		Uranium-238	0.543 g	0.326	0.0381	0.0493	.009815838	pCi/g	NO
244229013	RE12-10-7706	Uranium-233/234	0.540 g	0.502	0.0554	0.110	.015944444	pCi/g	NO
		Uranium-235/236	0.540 g	0.0572	0.0164	0.0685	0	pCi/g	NO
		Uranium-238	0.540 g	0.570	0.0607	0.064	.009870370	pCi/g	NO
244229014	RE12-10-7714	Uranium-233/234	0.524 g	0.588	0.0629	0.126	.016431298	pCi/g	NO
		Uranium-235/236	0.524 g	0.0551	0.017	0.0779	0	pCi/g	NO
		Uranium-238	0.524 g	0.616	0.065	0.0728	.010171756	pCi/g	NO
244229015	RE12-10-7705	Uranium-233/234	0.522 g	0.593	0.0631	0.116	.016494253	pCi/g	NO
		Uranium-235/236	0.522 g	0.0277	0.0115	0.0718	0	pCi/g	NO
		Uranium-238	0.522 g	0.743	0.0745	0.0671	.010210728	pCi/g	NO
244519001	RE16-10-418	Uranium-233/234	0.517 g	0.944	0.0961	0.144	.016653772	pCi/g	NO
		Uranium-235/236	0.517 g	0.0919	0.0239	0.0894	0	pCi/g	NO
		Uranium-238	0.517 g	0.892	0.0915	0.0835	.010309478	pCi/g	NO
244519002	RE16-10-419	Uranium-233/234	0.525 g	0.972	0.0959	0.136	.0164	pCi/g	NO
		Uranium-235/236	0.525 g	0.0597	0.0185	0.0845	0	pCi/g	NO
		Uranium-238	0.525 g	0.848	0.0869	0.079	.010152381	pCi/g	NO
244519004	RE16-10-422	Uranium-233/234	0.531 g	1.13	0.106	0.124	.016214689	pCi/g	NO
		Uranium-235/236	0.531 g	0.0892	0.022	0.0771	0	pCi/g	NO
		Uranium-238	0.531 g	1.37	0.123	0.072	.010037685	pCi/g	NO
244519005	RE16-10-423	Uranium-233/234	0.520 g	0.972	0.0935	0.125	.016557692	pCi/g	NO
		Uranium-235/236	0.520 g	0.0947	0.0228	0.0776	0	pCi/g	NO
		Uranium-238	0.520 g	1.14	0.106	0.0725	.01025	pCi/g	NO
244519006	RE16-10-441	Uranium-233/234	0.546 g	0.807	0.0805	0.120	.015769231	pCi/g	NO
		Uranium-235/236	0.546 g	0.0527	0.0163	0.0746	0	pCi/g	NO
		Uranium-238	0.546 g	0.872	0.0853	0.0697	.009761905	pCi/g	NO

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORTBATCH NUMBER: 941358  
SAMPLE DATE : 6-JAN-2010 00:00:00.SAMPLE ID : S0244229001\_UU  
SAMPLE QTY: 0.524 GDETECTOR NUMBER :79451  
AVERAGE %EFFICIENCY :32.5060  
% YIELD : 99.112COUNT DATE:21-JAN-2010 20:09:01  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50890 dpm  
RESULTS : 4.46886 dpmLIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B001.CNF;1115  
BKG DATE : 17-JAN-2010  
EFF FILE : W001.CNF;380  
CAL DATE : 4-JAN-2010

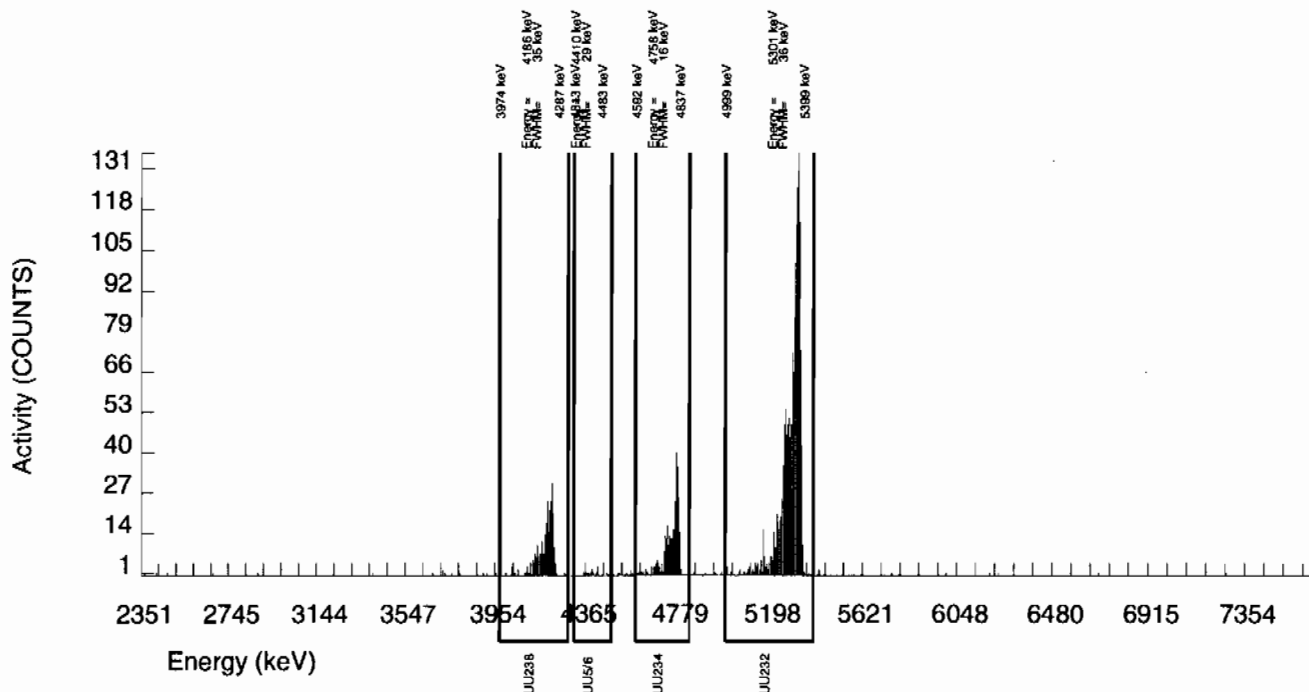
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	299.000	297.532	0.000	6.0782	100.0000	7.94E-01	7.15E-02	3.77E-02	8.27E-02	4.60E-02
U232	5302.100	1456.000	1452.000	4.000	2.0000	100.0000	3.88E+00	2.86E-01	1.24E-02	3.21E-02	1.02E-01
U-235	4391.000	14.000	12.000	2.000	2.7628	80.90000	3.96E-02	1.35E-02	2.12E-02	5.13E-02	1.32E-02
U-238	4184.730	279.000	279.000	0.000	3.2810	100.0000	7.44E-01	6.80E-02	2.04E-02	4.80E-02	4.46E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358  
SAMPLE DATE : 6-JAN-2010 00:00:00.

SAMPLE ID : S0244229002\_UU  
SAMPLE QTY: 0.502 G

DETECTOR NUMBER :79452  
AVERAGE %EFFICIENCY :29.6879  
% YIELD : 90.956

COUNT DATE:21-JAN-2010 20:09:01  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2

MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00

TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50890 dpm  
RESULTS : 4.10114 dpm

LIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B002.CNF;1105  
BKG DATE : 17-JAN-2010  
EFF FILE : W002.CNF;326  
CAL DATE : 4-JAN-2010

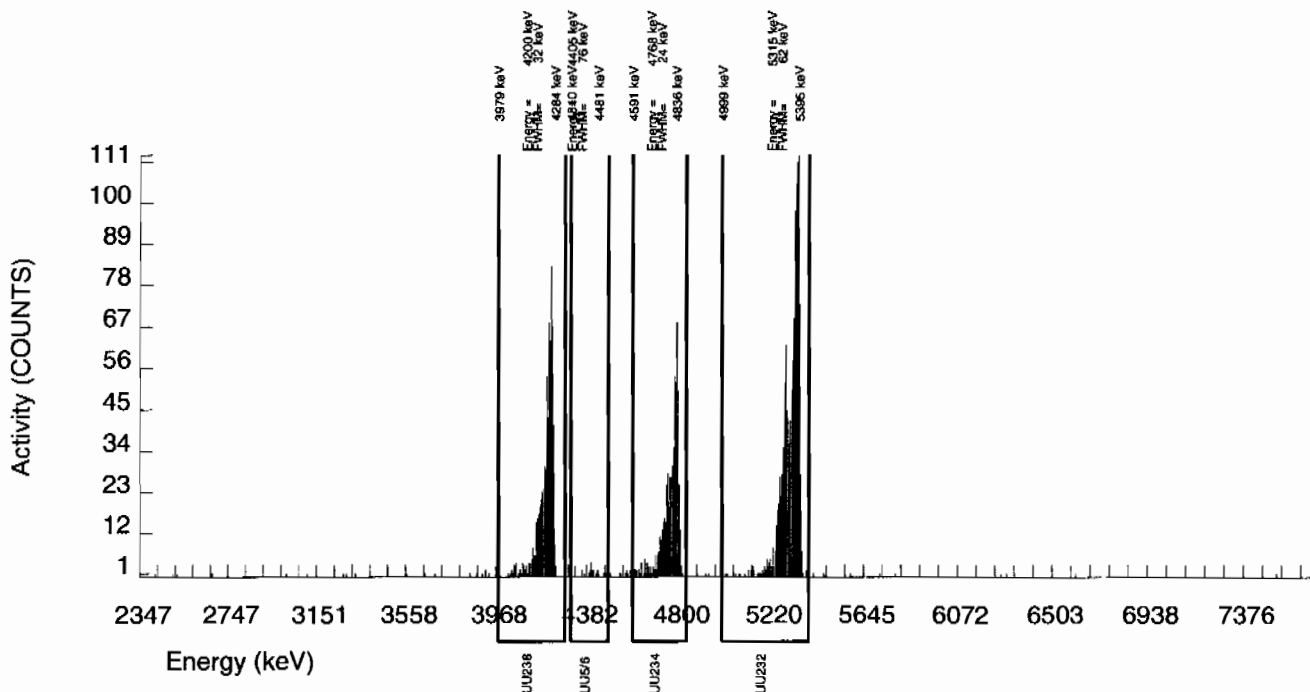
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	598.000	595.769	1.000	6.0782	100.0000	1.98E+00	1.61E-01	4.70E-02	1.03E-01	8.12E-02
U232	5302.100	1220.000	1217.000	3.000	1.7321	100.0000	4.05E+00	3.06E-01	1.34E-02	3.58E-02	1.16E-01
U-235	4391.000	26.000	26.000	0.000	2.7628	80.90000	1.07E-01	2.22E-02	2.64E-02	6.39E-02	2.09E-02
U-238	4184.730	698.000	698.000	0.000	3.2810	100.0000	2.32E+00	1.84E-01	2.54E-02	5.97E-02	8.78E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229003_UU SAMPLE QTY: 0.504 G	
DETECTOR NUMBER :79453 AVERAGE %EFFICIENCY :31.1793 % YIELD : 86.250		COUNT DATE:21-JAN-2010 20:09:01 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 3.88893 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B003.CNF;1100 BKG DATE : 17-JAN-2010 EFF FILE : W003.CNF;339 CAL DATE : 4-JAN-2010

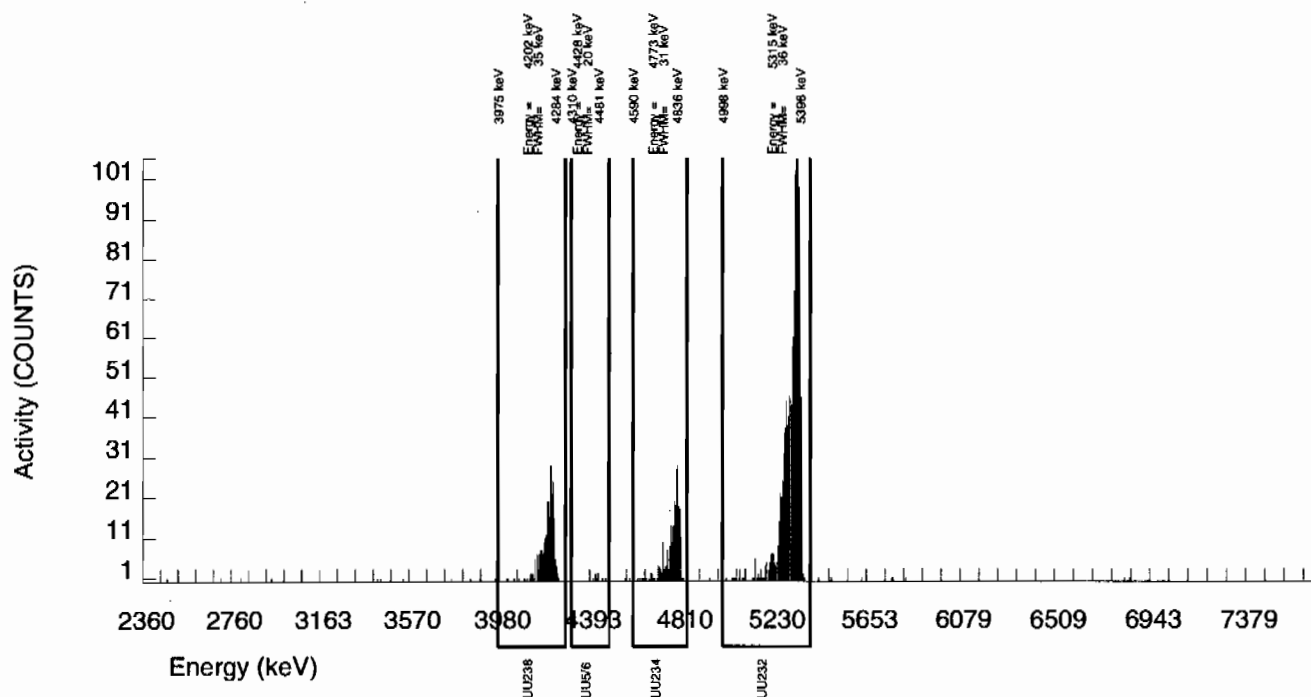
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	255.000	253.774	0.000	6.0782	100.0000	8.43E-01	7.93E-02	4.70E-02	1.03E-01	5.29E-02
U232	5302.100	1217.000	1212.000	5.000	2.2361	100.0000	4.03E+00	3.05E-01	1.73E-02	4.36E-02	1.16E-01
U-235	4391.000	12.000	12.000	0.000	2.7628	80.90000	4.93E-02	1.46E-02	2.64E-02	6.39E-02	1.42E-02
U-238	4184.730	264.000	264.000	0.000	3.2810	100.0000	8.77E-01	8.18E-02	2.54E-02	5.97E-02	5.40E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORTBATCH NUMBER: 941358  
SAMPLE DATE : 6-JAN-2010 00:00:00.SAMPLE ID : S0244229004\_UU  
SAMPLE QTY: 0.514 GDETECTOR NUMBER :68548  
AVERAGE %EFFICIENCY :30.7853  
% YIELD : 92.111COUNT DATE:21-JAN-2010 20:09:01  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50890 dpm  
RESULTS : 4.15318 dpmLIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B004.CNF;1109  
BKG DATE : 17-JAN-2010  
EFF FILE : W004.CNF;328  
CAL DATE : 4-JAN-2010

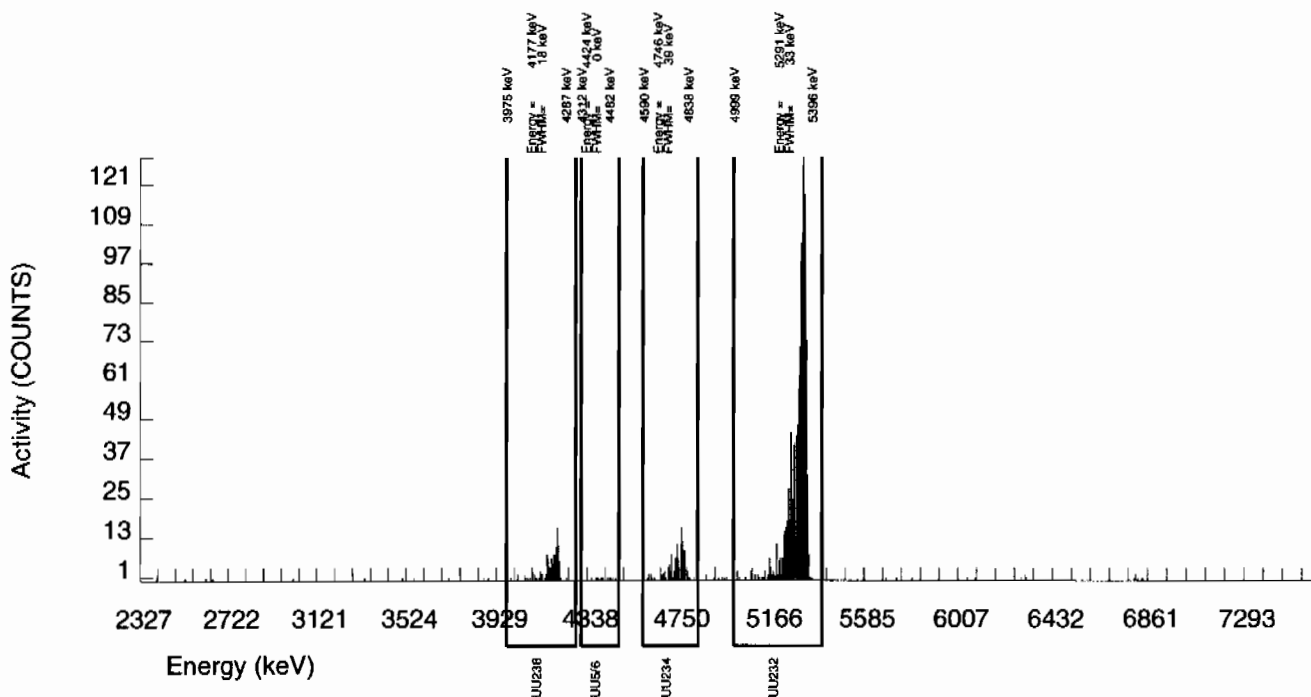
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	147.000	142.708	3.000	6.0782	100.0000	4.41E-01	4.86E-02	4.37E-02	9.58E-02	3.77E-02
U232	5302.100	1284.000	1278.000	6.000	2.4495	100.0000	3.95E+00	2.97E-01	1.76E-02	4.36E-02	1.11E-01
U-235	4391.000	13.000	12.000	1.000	2.7628	80.90000	4.58E-02	1.46E-02	2.46E-02	5.95E-02	1.43E-02
U-238	4184.730	119.000	114.000	5.000	3.2810	100.0000	3.52E-01	4.23E-02	2.36E-02	5.56E-02	3.44E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229005_UU SAMPLE QTY: 0.507 G	
DETECTOR NUMBER :79454 AVERAGE %EFFICIENCY :32.0695 % YIELD : 89.944		COUNT DATE:21-JAN-2010 20:09:01 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 4.05551 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B005.CNF;1095 BKG DATE : 17-JAN-2010 EFF FILE : W005.CNF;335 CAL DATE : 4-JAN-2010

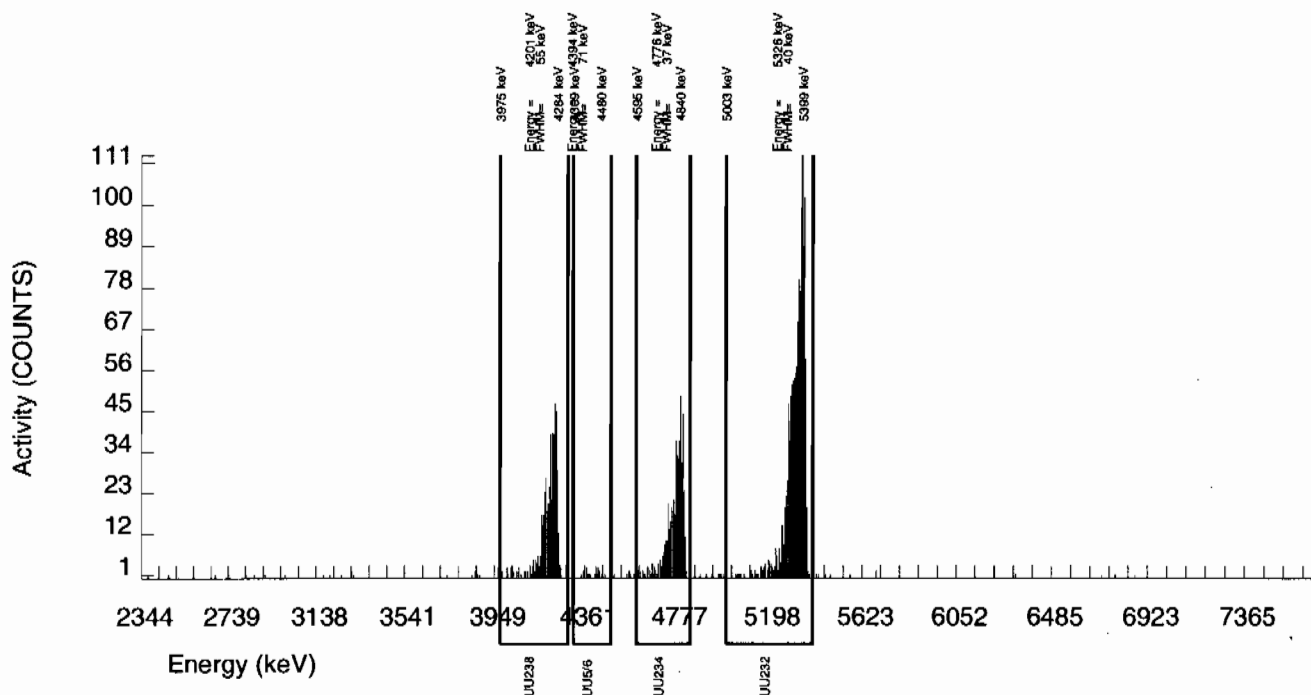
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	503.000	499.685	2.000	6.0782	100.0000	1.54E+00	1.27E-01	4.36E-02	9.55E-02	6.91E-02
U232	5302.100	1301.000	1300.000	1.000	1.0000	100.0000	4.01E+00	3.00E-01	7.17E-03	2.27E-02	1.11E-01
U-235	4391.000	27.000	27.000	0.000	2.7628	80.90000	1.03E-01	2.10E-02	2.45E-02	5.93E-02	1.98E-02
U-238	4184.730	503.000	503.000	0.000	3.2810	100.0000	1.55E+00	1.28E-01	2.35E-02	5.54E-02	6.91E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229006_UU SAMPLE QTY: 0.526 G	
DETECTOR NUMBER :79455 AVERAGE %EFFICIENCY :30.5320 % YIELD : 89.023		COUNT DATE:21-JAN-2010 20:09:01 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 4.01398 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B006.CNF;1108 BKG DATE : 17-JAN-2010 EFF FILE : W006.CNF;359 CAL DATE : 4-JAN-2010

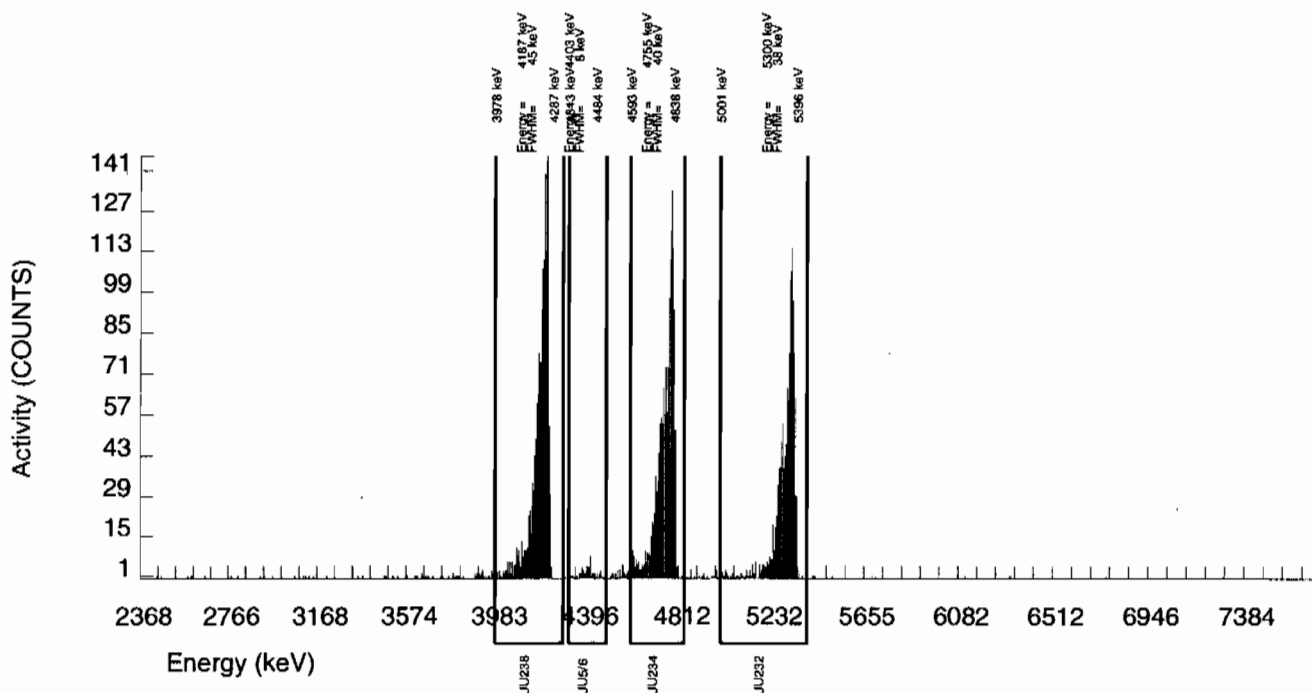
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	1446.000	1443.761	1.000	6.0782	100.0000	4.55E+00	3.40E-01	4.46E-02	9.76E-02	1.20E-01
U232	5302.100	1226.000	1225.000	1.000	1.0000	100.0000	3.86E+00	2.91E-01	7.33E-03	2.32E-02	1.10E-01
U-235	4391.000	62.000	62.000	0.000	2.7628	80.90000	2.41E-01	3.50E-02	2.50E-02	6.06E-02	3.07E-02
U-238	4184.730	1546.000	1546.000	0.000	3.2810	100.0000	4.87E+00	3.62E-01	2.40E-02	5.66E-02	1.24E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229007_UU SAMPLE QTY: 0.516 G	
DETECTOR NUMBER :67607 AVERAGE %EFFICIENCY :29.6523 % YIELD : 89.719		COUNT DATE:21-JAN-2010 20:09:02 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 4.04533 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B007.CNF;1103 BKG DATE : 17-JAN-2010 EFF FILE : W007.CNF;310 CAL DATE : 4-JAN-2010

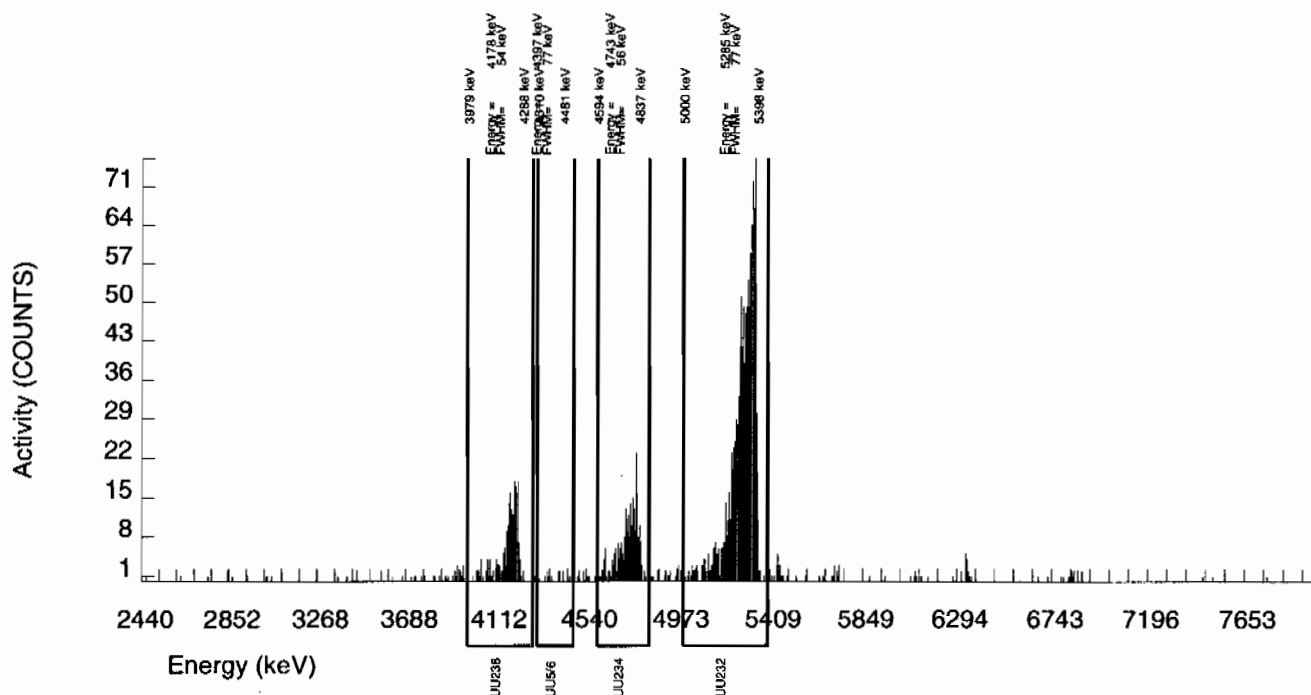
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	267.000	262.787	3.000	6.0782	100.0000	8.62E-01	8.10E-02	4.64E-02	1.02E-01	5.38E-02
U232	5302.100	1218.000	1199.000	19.000	4.3589	100.0000	3.94E+00	2.99E-01	3.33E-02	7.54E-02	1.15E-01
U-235	4391.000	14.000	12.000	2.000	2.7628	80.90000	4.87E-02	1.66E-02	2.61E-02	6.31E-02	1.62E-02
U-238	4184.730	229.000	226.000	3.000	3.2810	100.0000	7.42E-01	7.21E-02	2.50E-02	5.90E-02	5.00E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229008_UU SAMPLE QTY: 0.500 G	
DETECTOR NUMBER :78788 AVERAGE %EFFICIENCY :31.9627 % YIELD : 61.714		COUNT DATE:21-JAN-2010 20:09:02 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 2.78261 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B008.CNF;1105 BKG DATE : 17-JAN-2010 EFF FILE : W008.CNF;341 CAL DATE : 4-JAN-2010

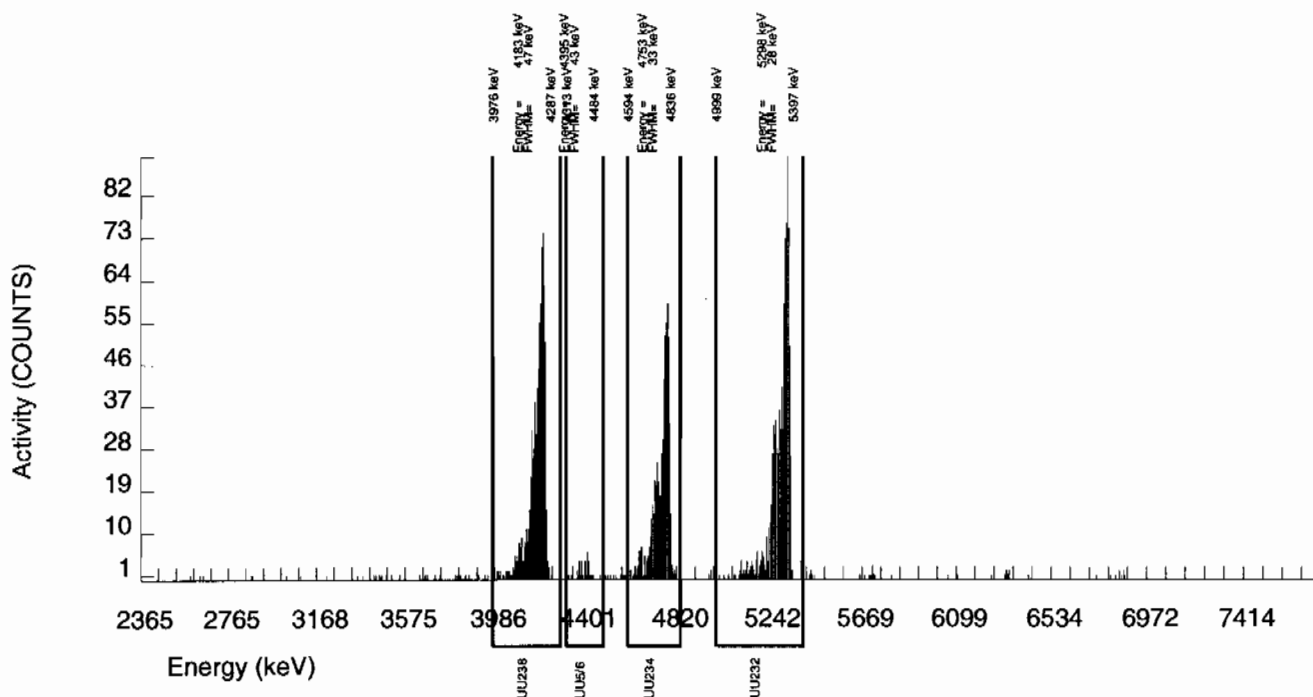
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	627.000	626.101	0.000	6.0782	100.0000	2.86E+00	2.36E-01	6.46E-02	1.42E-01	1.14E-01
U232	5302.100	893.000	889.000	4.000	2.0000	100.0000	4.06E+00	3.23E-01	2.13E-02	5.49E-02	1.37E-01
U-235	4391.000	40.000	39.000	1.000	2.7628	80.90000	2.20E-01	3.95E-02	3.63E-02	8.79E-02	3.61E-02
U-238	4184.730	807.000	805.000	2.000	3.2810	100.0000	3.68E+00	2.95E-01	3.49E-02	8.21E-02	1.30E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229009_UU SAMPLE QTY: 0.551 G	
DETECTOR NUMBER :72528 AVERAGE %EFFICIENCY :34.0896 % YIELD : 79.212		COUNT DATE:21-JAN-2010 20:09:02 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 3.57160 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B009.CNF;1096 BKG DATE : 17-JAN-2010 EFF FILE : W009.CNF;305 CAL DATE : 4-JAN-2010

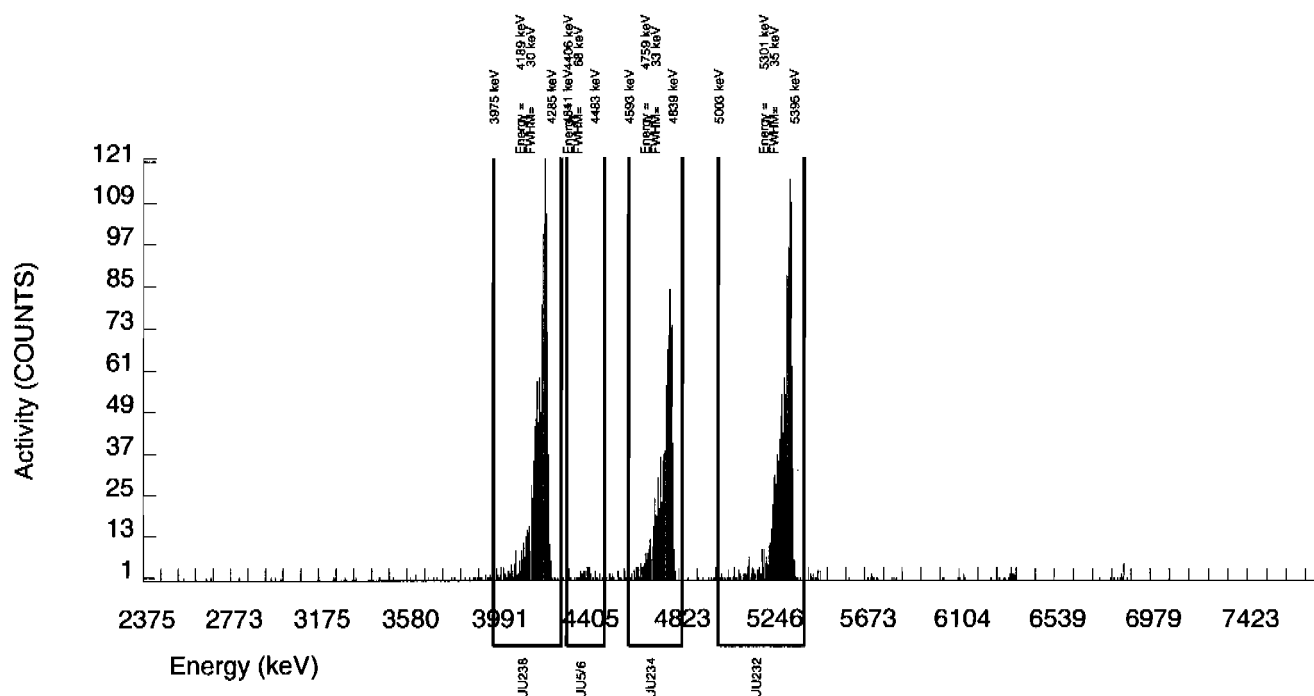
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	878.000	873.769	3.000	6.0782	100.0000	2.65E+00	2.05E-01	4.28E-02	9.38E-02	8.98E-02
U232	5302.100	1224.000	1217.000	7.000	2.6458	100.0000	3.69E+00	2.79E-01	1.86E-02	4.55E-02	1.06E-01
U-235	4391.000	44.000	43.000	1.000	2.7628	80.90000	1.61E-01	2.75E-02	2.41E-02	5.82E-02	2.51E-02
U-238	4184.730	1203.000	1202.000	1.000	3.2810	100.0000	3.64E+00	2.75E-01	2.31E-02	5.44E-02	1.05E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229010_UU SAMPLE QTY: 0.503 G	
DETECTOR NUMBER :72529 AVERAGE %EFFICIENCY :31.4316 % YIELD : 84.711		COUNT DATE:21-JAN-2010 20:09:02 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 3.81952 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B010.CNF;1114 BKG DATE : 17-JAN-2010 EFF FILE : W010.CNF;333 CAL DATE : 4-JAN-2010

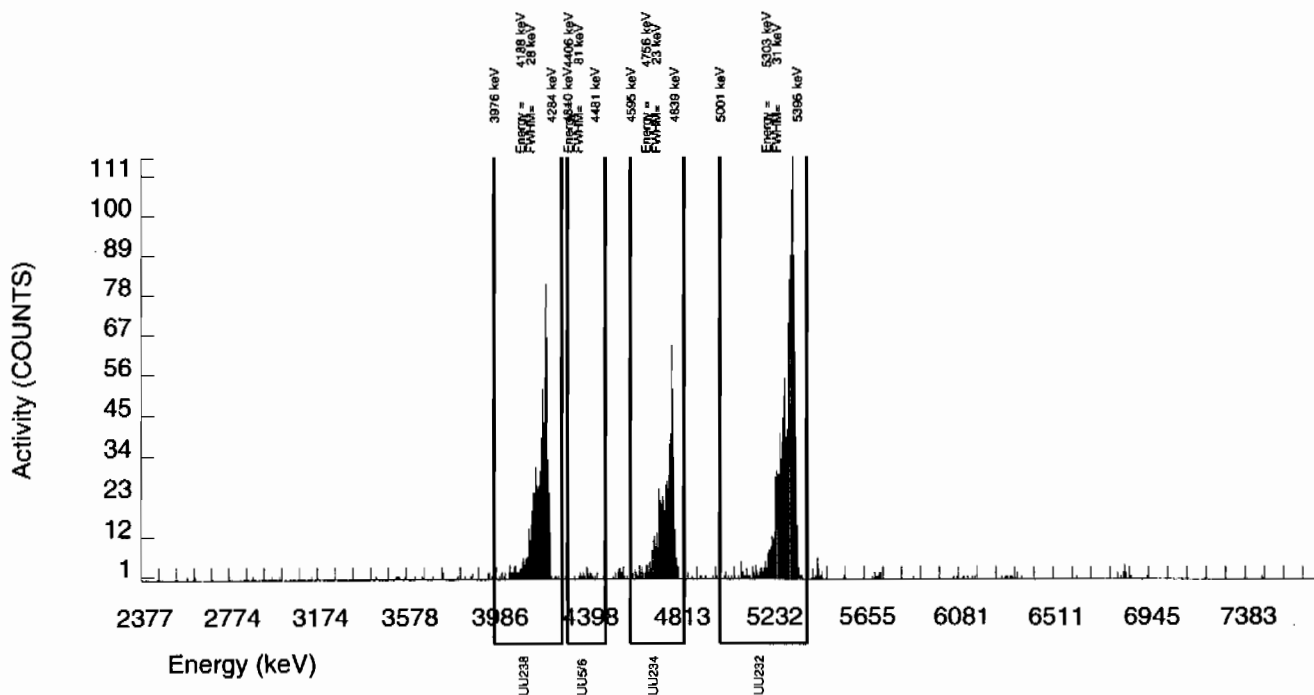
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	572.000	567.786	3.000	6.0782	100.0000	1.91E+00	1.56E-01	4.76E-02	1.04E-01	8.06E-02
U232	5302.100	1204.000	1200.000	4.000	2.0000	100.0000	4.04E+00	3.06E-01	1.56E-02	4.04E-02	1.17E-01
U-235	4391.000	23.000	22.000	1.000	2.7628	80.90000	9.15E-02	2.13E-02	2.67E-02	6.47E-02	2.04E-02
U-238	4184.730	725.000	724.000	1.000	3.2810	100.0000	2.44E+00	1.93E-01	2.57E-02	6.05E-02	9.06E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229011_UU SAMPLE QTY: 0.534 G	
DETECTOR NUMBER :72531 AVERAGE %EFFICIENCY :29.5906 % YIELD : 89.606		COUNT DATE:21-JAN-2010 20:09:02 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 4.04025 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B011.CNF;1106 BKG DATE : 17-JAN-2010 EFF FILE : W011.CNF;311 CAL DATE : 4-JAN-2010

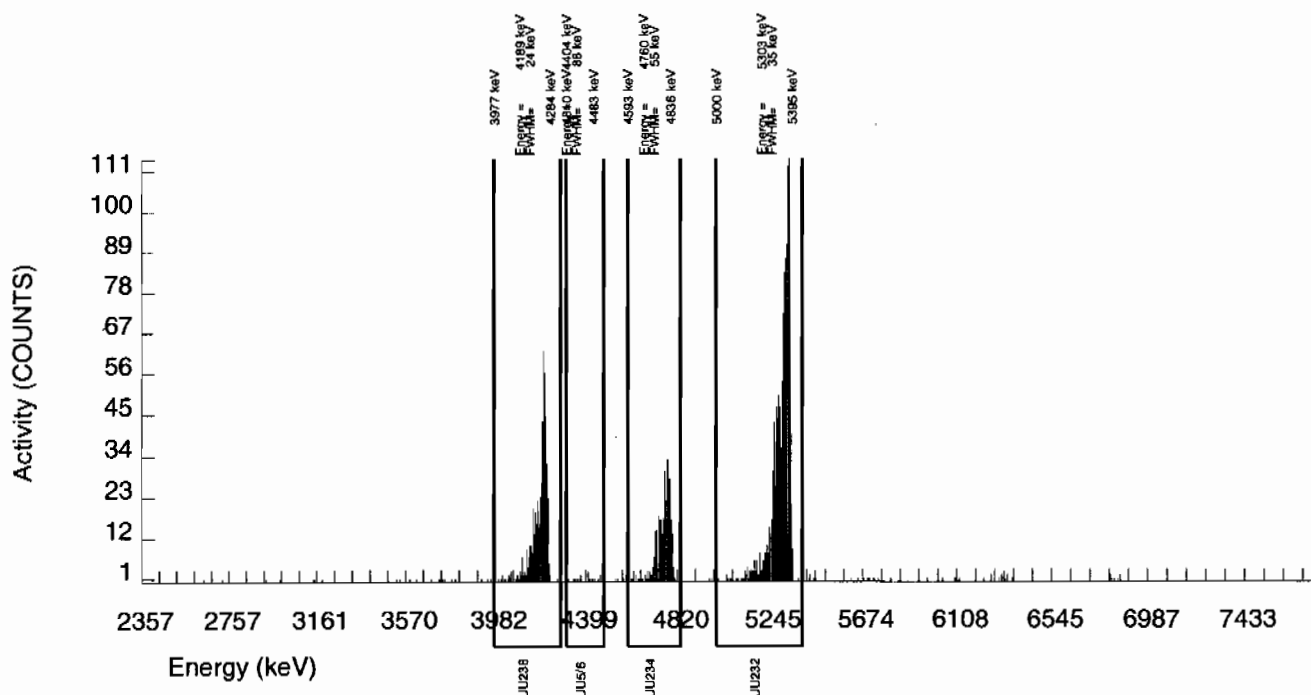
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	363.000	359.791	2.000	6.0782	100.0000	1.14E+00	1.01E-01	4.50E-02	9.86E-02	6.07E-02
U232	5302.100	1211.000	1195.000	16.000	4.0000	100.0000	3.80E+00	2.89E-01	2.96E-02	6.78E-02	1.11E-01
U-235	4391.000	19.000	18.000	1.000	2.7628	80.90000	7.08E-02	1.83E-02	2.53E-02	6.12E-02	1.76E-02
U-238	4184.730	510.000	502.000	8.000	3.2810	100.0000	1.60E+00	1.33E-01	2.43E-02	5.72E-02	7.24E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229012_UU SAMPLE QTY: 0.543 G	
DETECTOR NUMBER :67594 AVERAGE %EFFICIENCY :29.8562 % YIELD : 101.294		COUNT DATE:21-JAN-2010 20:09:02 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 4.56725 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B012.CNF;1108 BKG DATE : 17-JAN-2010 EFF FILE : W012.CNF;312 CAL DATE : 4-JAN-2010

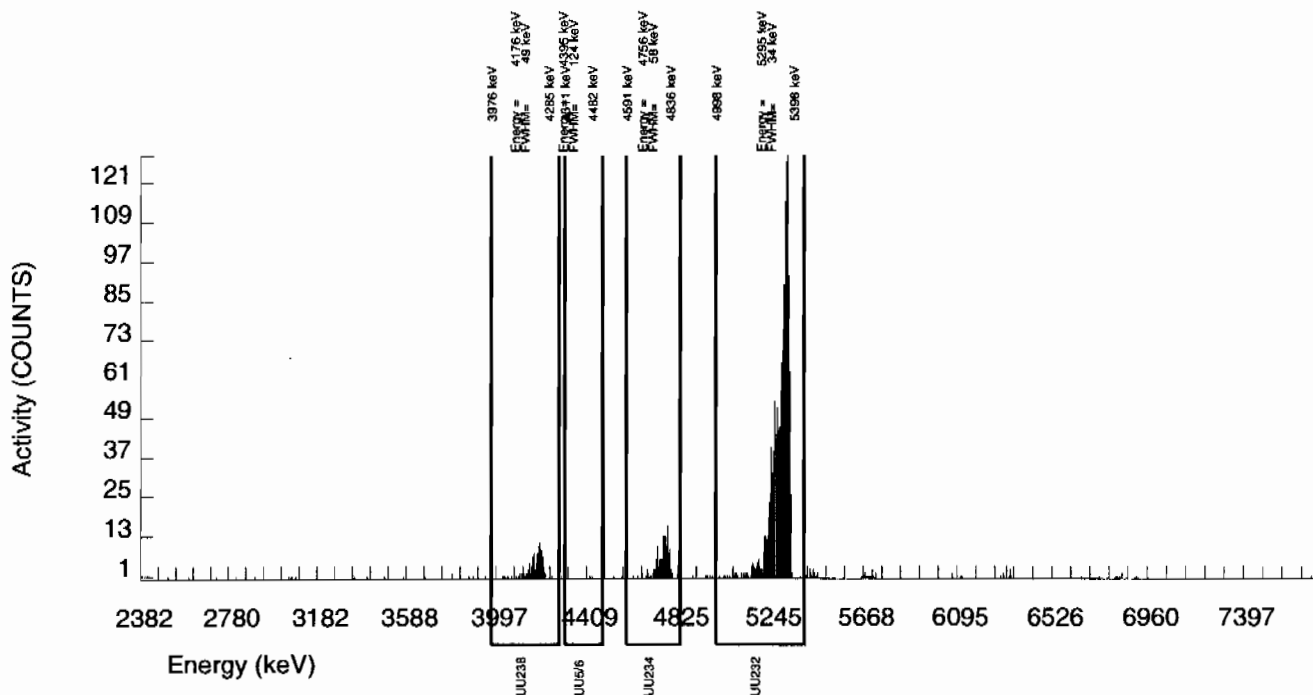
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	148.000	142.622	4.000	6.0782	100.0000	3.91E-01	4.32E-02	3.88E-02	8.50E-02	3.37E-02
U232	5302.100	1371.000	1363.000	8.000	2.8284	100.0000	3.74E+00	2.78E-01	1.80E-02	4.35E-02	1.02E-01
U-235	4391.000	3.000	2.000	1.000	2.7628	80.90000	6.78E-03	6.80E-03	2.18E-02	5.28E-02	6.78E-03
U-238	4184.730	122.000	119.000	3.000	3.2810	100.0000	3.26E-01	3.81E-02	2.09E-02	4.93E-02	3.07E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229013_UU SAMPLE QTY: 0.540 G	
DETECTOR NUMBER :45-111B4 AVERAGE %EFFICIENCY :24.7855 % YIELD : 94.534		COUNT DATE:21-JAN-2010 20:07:55 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 4.26246 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B113.CNF;438 BKG DATE : 17-JAN-2010 EFF FILE : W113.CNF;123 CAL DATE : 18-JAN-2010

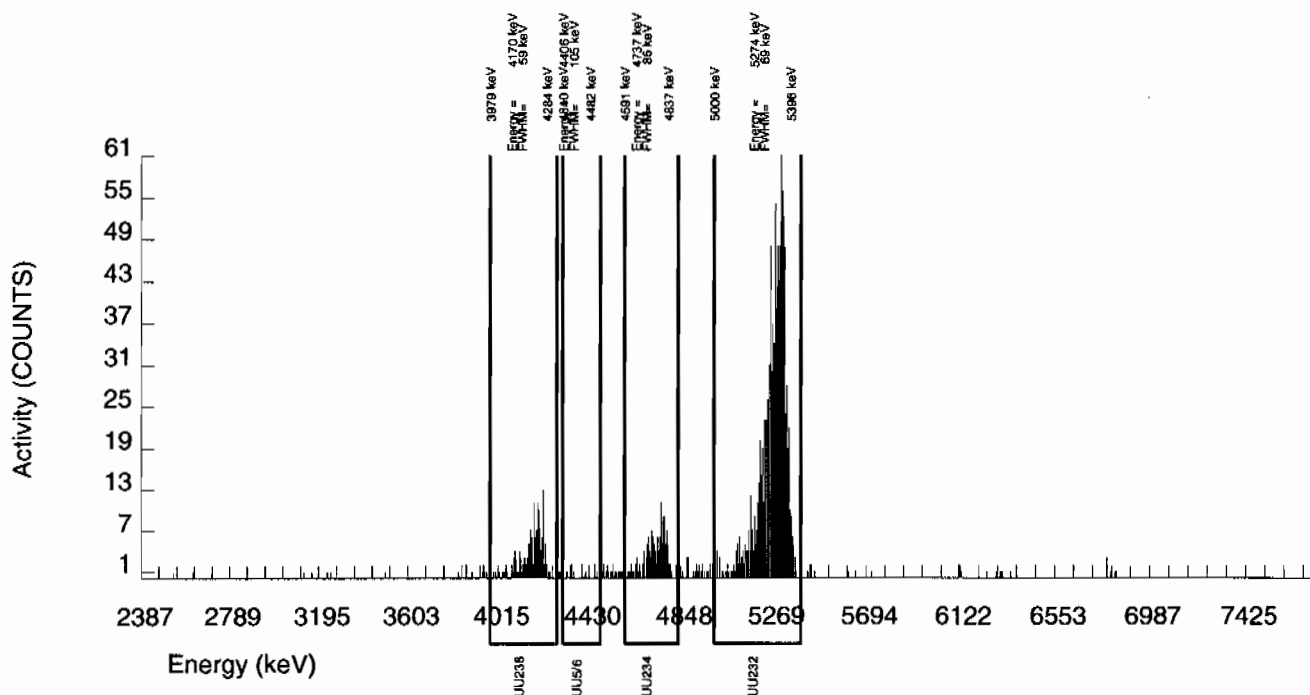
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	143.000	140.932	1.000	6.0782	100.0000	5.02E-01	5.54E-02	5.03E-02	1.10E-01	4.26E-02
U232	5302.100	1060.000	1056.000	4.000	2.0000	100.0000	3.76E+00	2.91E-01	1.66E-02	4.28E-02	1.16E-01
U-235	4391.000	13.000	13.000	0.000	2.7628	80.90000	5.72E-02	1.64E-02	2.83E-02	6.85E-02	1.59E-02
U-238	4184.730	161.000	160.000	1.000	3.2810	100.0000	5.70E-01	6.07E-02	2.72E-02	6.40E-02	4.53E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244229014_UU SAMPLE QTY: 0.524 G	
DETECTOR NUMBER :78258 AVERAGE %EFFICIENCY :25.2301 % YIELD : 84.118		COUNT DATE:21-JAN-2010 20:07:56 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 9.01782 dpm RESULTS : 7.58559 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B114.CNF;439 BKG DATE : 17-JAN-2010 EFF FILE : W114.CNF;119 CAL DATE : 18-JAN-2010

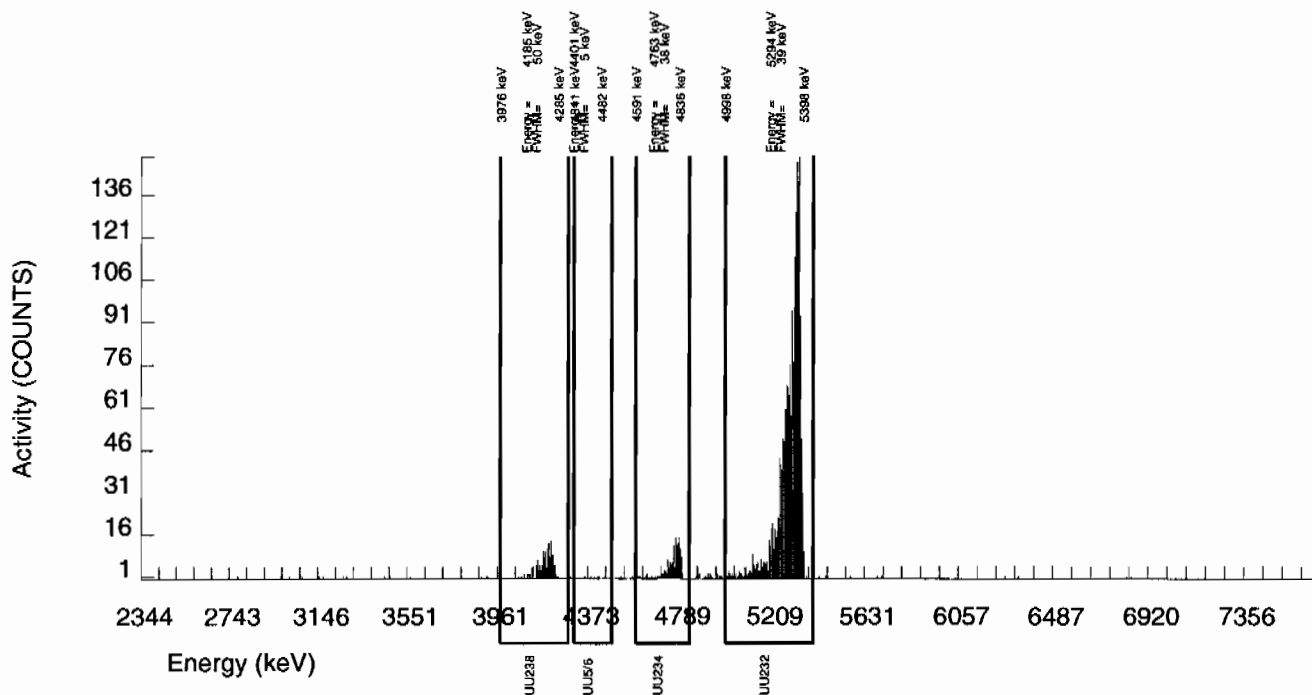
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	147.000	145.065	0.000	6.0782	100.0000	5.88E-01	6.29E-02	5.73E-02	1.26E-01	4.88E-02
U232	5302.100	1913.000	1913.000	0.000	0.0000	100.0000	7.75E+00	5.54E-01	0.00E+00	1.10E-02	1.77E-01
U-235	4391.000	11.000	11.000	0.000	2.7628	80.90000	5.51E-02	1.70E-02	3.22E-02	7.79E-02	1.66E-02
U-238	4184.730	152.000	152.000	0.000	3.2810	100.0000	6.16E-01	6.50E-02	3.09E-02	7.28E-02	4.99E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORTBATCH NUMBER: 941358  
SAMPLE DATE : 6-JAN-2010 00:00:00.SAMPLE ID : S0244229015\_UU  
SAMPLE QTY: 0.522 GDETECTOR NUMBER :79995  
AVERAGE %EFFICIENCY :25.9560  
% YIELD : 89.074COUNT DATE:21-JAN-2010 20:07:59  
ELAPSED LIVE TIME(SEC): 60000.00  
ANALYST :JXD2MS/MSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00LCS/LCSD  
ID : 0244-A  
ISOTOPE : U-238  
PCI/G : 5.750E+00TRACER  
ID : 1283-H  
ISOTOPE : U232  
NOMINAL : 4.50891 dpm  
RESULTS : 4.01628 dpmLIB FILE : ENV\_ALPHA\_UU.N  
BKG FILE : B115.CNF;446  
BKG DATE : 17-JAN-2010  
EFF FILE : W115.CNF;147  
CAL DATE : 18-JAN-2010

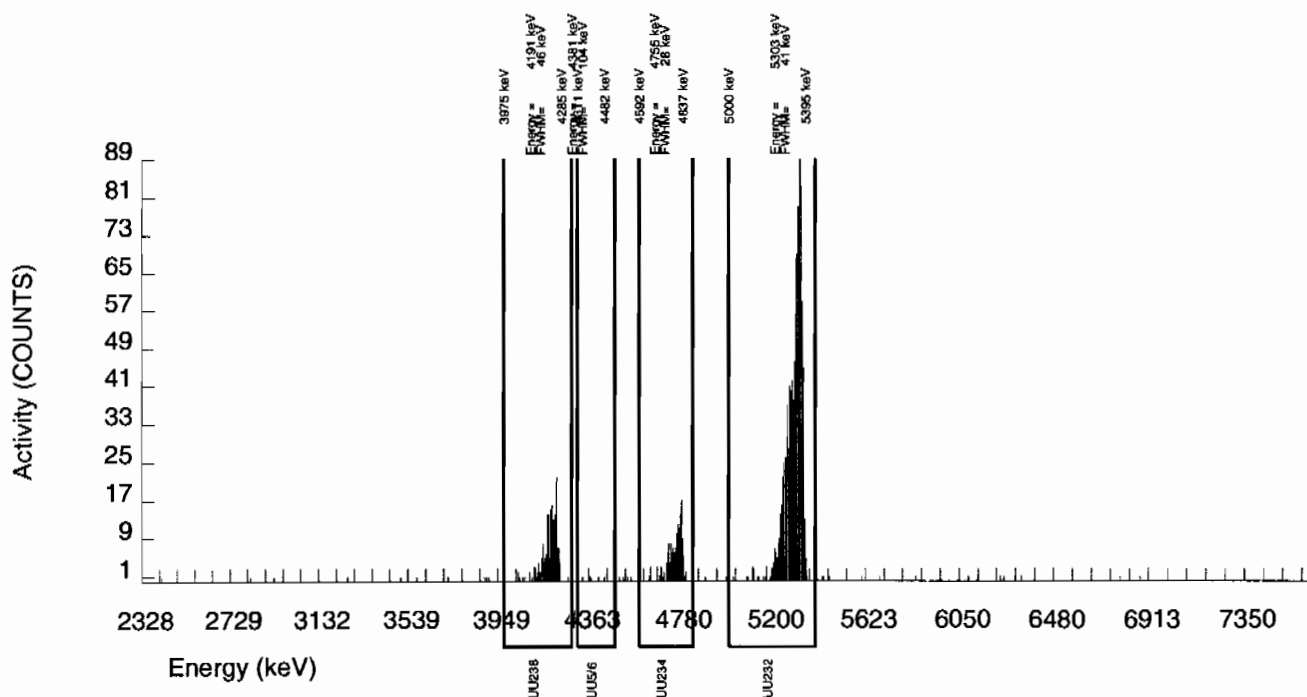
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	160.000	158.946	0.000	6.0782	100.0000	5.93E-01	6.31E-02	5.28E-02	1.16E-01	4.71E-02
U232	5302.100	1045.000	1042.000	3.000	1.7321	100.0000	3.89E+00	3.01E-01	1.50E-02	4.02E-02	1.21E-01
U-235	4391.000	6.000	6.000	0.000	2.7628	80.90000	2.77E-02	1.15E-02	2.97E-02	7.18E-02	1.13E-02
U-238	4184.730	199.000	199.000	0.000	3.2810	100.0000	7.43E-01	7.45E-02	2.85E-02	6.71E-02	5.27E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202014809_UU SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :45-142V2 AVERAGE %EFFICIENCY :25.8260 % YIELD : 98.114		COUNT DATE:21-JAN-2010 20:08:14 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50742 dpm RESULTS : 4.42240 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B124.CNF;434 BKG DATE : 17-JAN-2010 EFF FILE : W124.CNF;112 CAL DATE : 18-JAN-2010

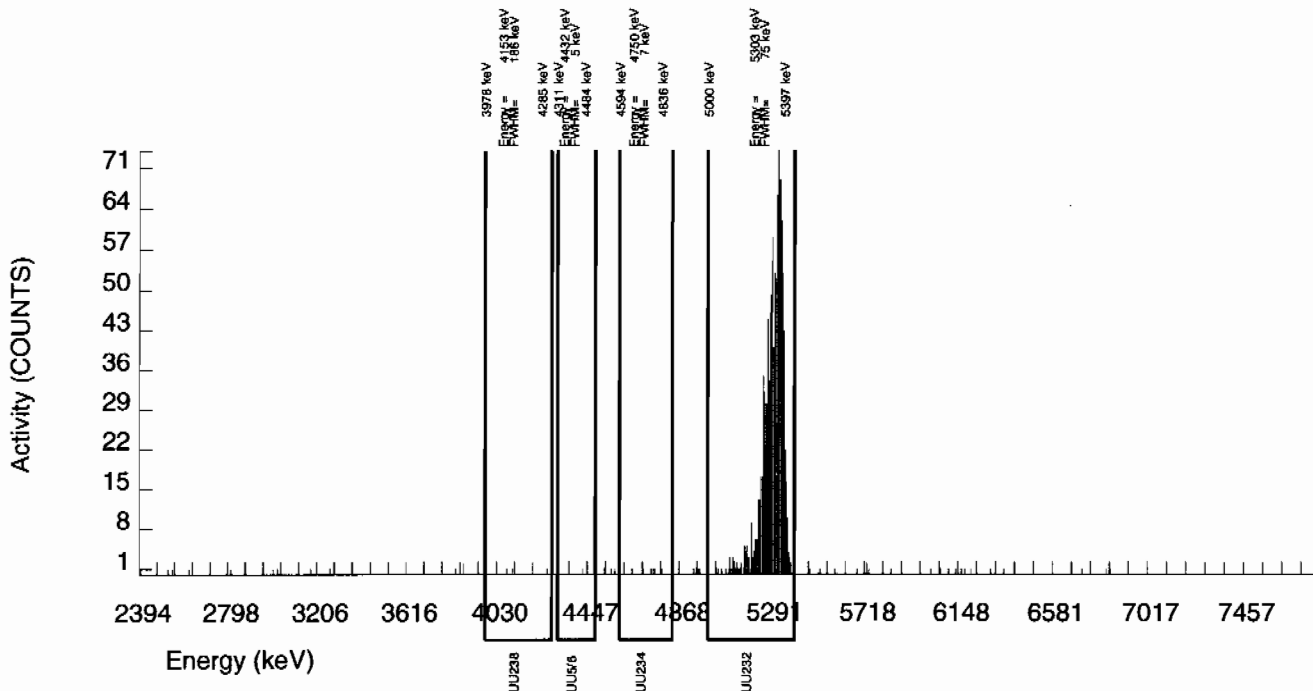
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	8.000	4.845	2.000	6.0782	100.0000	8.61E-03	5.32E-03	2.51E-02	5.51E-02	5.29E-03
U232	5302.100	1143.000	1142.000	1.000	1.0000	100.0000	2.03E+00	1.54E-01	4.14E-03	1.31E-02	6.01E-02
U-235	4391.000	1.000	0.000	1.000	2.7628	80.90000	0.00E+00	3.11E-03	1.41E-02	3.42E-02	3.11E-03
U-238	4184.730	3.000	3.000	0.000	3.2810	100.0000	5.33E-03	3.10E-03	1.36E-02	3.20E-02	3.08E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S1202014810_UU SAMPLE QTY: 0.504 G	
DETECTOR NUMBER :78770 AVERAGE %EFFICIENCY :24.3481 % YIELD : 65.977		COUNT DATE:21-JAN-2010 20:08:17 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 2.97486 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B127.CNF;447 BKG DATE : 17-JAN-2010 EFF FILE : W127.CNF;123 CAL DATE : 18-JAN-2010

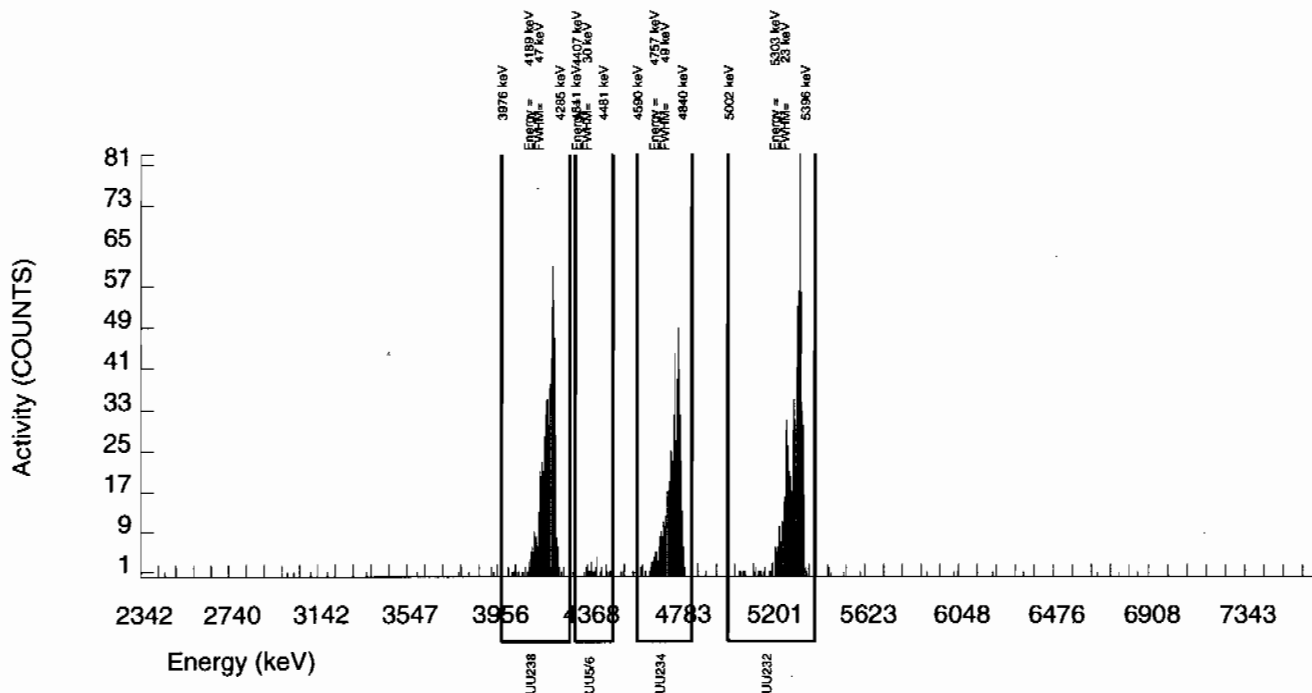
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	540.000	539.268	0.000	6.0782	100.0000	3.00E+00	2.56E-01	7.87E-02	1.72E-01	1.29E-01
U232	5302.100	725.000	724.000	1.000	1.0000	100.0000	4.03E+00	3.33E-01	1.29E-02	4.10E-02	1.50E-01
U-235	4391.000	25.000	25.000	0.000	2.7628	80.90000	1.72E-01	3.67E-02	4.42E-02	1.07E-01	3.44E-02
U-238	4184.730	614.000	614.000	0.000	3.2810	100.0000	3.42E+00	2.87E-01	4.25E-02	1.00E-01	1.38E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941358 SAMPLE DATE : 18-JAN-2010 00:00:00		SAMPLE ID : S1202014811_UU SAMPLE QTY: 0.114 G	
DETECTOR NUMBER :75549 AVERAGE %EFFICIENCY :25.6524 % YIELD : 85.111		COUNT DATE:21-JAN-2010 20:08:20 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :JXD2	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50742 dpm RESULTS : 3.83633 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B128.CNF;453 BKG DATE : 17-JAN-2010 EFF FILE : W128.CNF;133 CAL DATE : 18-JAN-2010

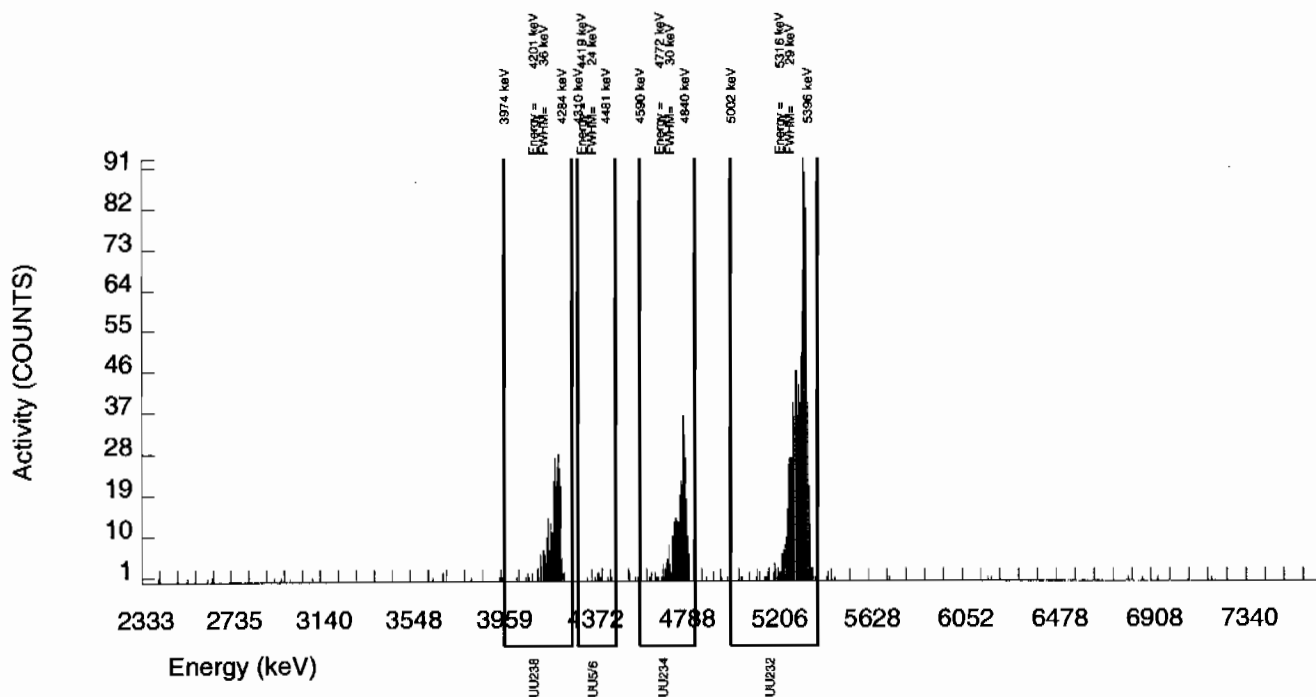
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	321.000	319.005	1.000	6.0782	100.0000	5.77E+00	5.48E-01	2.56E-01	5.61E-01	3.24E-01
U232	5302.100	986.000	984.000	2.000	1.4142	100.0000	1.78E+01	1.48E+00	5.95E-02	1.68E-01	5.69E-01
U-235	4391.000	14.000	13.000	1.000	2.7628	80.90000	2.91E-01	8.94E-02	1.44E-01	3.48E-01	8.66E-02
U-238	4184.730	293.000	292.000	1.000	3.2810	100.0000	5.28E+00	5.09E-01	1.38E-01	3.25E-01	3.10E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



# Radiochemistry Batch Checklist, Rev10

Batch# 941239 Product: OS Date: 1/23/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			NA
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			NA
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			NA
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			NA
Aliquot Correction completed if required.			NA
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: [Signature] 1/23/10

Secondary Review Performed By: [Signature] 1/25/10

LANL  
2/6/10

# Gamma Spec Que Sheet

1.4-1/22/10

01/15/2010

Batch #: 941239

Analyst: MXR1

First Client Due Date: 02/06/2010

Internal Due Date: 01/26/2010

Gamma Spike Isotope: Mixed Gamma

Spike Code: n/a

Expiration Date: n/a

Nominal Concentration: n/a

Vol: n/a

Witness: n/a

Gamma LCS Isotope: Mixed Gamma

LCS Code: 1032-A

Expiration Date: 12/2/10

Nominal Concentration: 15.91

Vol: 1.0 mL

Witness: n/a

Initials: MS

Prep Date: 1/15/10

Library: SOLID

Sealing Date/Time (if Applicable)

Wet/Dry

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	Aliquot (1/g/F)	Detector	Sealing Date/Time (if Applicable)
244229001-1	RE12-10-7734	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF	Can	118.79	15	1/14/10
244229002-1	RE12-10-7701	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		140.39	18	
244229003-1	RE12-10-7702	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		120.65	21	
244229004-1	RE12-10-7700	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		109.13	22	
244229005-1	RE12-10-7699	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		121.28	23	
244229006-1	RE12-10-7727	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		133.39	12	
244229007-1	RE12-10-7710	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		131.27	25	
244229008-1	RE12-10-7715	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		118.76	11	
244229009-1	RE12-10-7707	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		123.31	14	
244229010-1	RE12-10-7719	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		122.52	6	
244229011-1	RE12-10-7717	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		145.70	19	1/15/10
244229012-1	RE12-10-7708	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		116.22	10	1/14/10
244229013-1	RE12-10-7706	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		117.31	13	
244229014-1	RE12-10-7714	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		140.37	15	
244229015-1	RE12-10-7705	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		118.23	18	
1202014507-1	MB	MB	QC ACCOUNT	SOIL	1/15/10	U		145.70	22	1/15/10
1202014508-1	DUP RE12-10-7727(244229006)	DUP	QC ACCOUNT	SOIL	1/15/10	U		133.17	23	1/14/10
1202014509-1	LCS	LCS	QC ACCOUNT	SOIL	1/15/10	U		155.44	19	1/15/10

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: [Signature] 1/23/10



# Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
941239	244229001	SAMPLE	22-JAN-10		Americium-241	0.3865	0.4825	0.200
					Cerium-139	0.03926	0.05883	0.050
					Thorium-234	0.9211	3.558	2.00
941239	244229002	SAMPLE	22-JAN-10		Americium-241	0.00547	0.2259	0.200
941239	244229003	SAMPLE	22-JAN-10		Sodium-22	-0.04543	0.08083	0.080
941239	244229004	SAMPLE	22-JAN-10					
941239	244229005	SAMPLE	22-JAN-10		Americium-241	0.0131	0.3387	0.200
					Cerium-139	0.01315	0.05653	0.050
					Cesium-134	0.09457	0.1015	0.100
941239	244229006	SAMPLE	22-JAN-10		Americium-241	-0.1077	0.2531	0.200
					Sodium-22	0.05658	0.08184	0.080
941239	244229007	SAMPLE	22-JAN-10					
941239	244229008	SAMPLE	22-JAN-10		Americium-241	0.07796	0.2016	0.200
941239	244229009	SAMPLE	22-JAN-10		Americium-241	0.129	0.2457	0.200
					Cerium-139	-0.00578	0.05466	0.050
941239	244229010	SAMPLE	22-JAN-10		Americium-241	0.1713	0.3674	0.200
					Cerium-139	-0.01334	0.06222	0.050
					Cesium-134	0.06349	0.1011	0.100
					Europium-152	0.07265	0.2058	0.200
					Sodium-22	-0.0144	0.08619	0.080
941239	244229011	SAMPLE	22-JAN-10		Americium-241	0.1922	0.2553	0.200
941239	244229012	SAMPLE	22-JAN-10		Americium-241	0.04348	0.4047	0.200
					Thorium-234	1.914	3.001	2.00
941239	244229013	SAMPLE	22-JAN-10		Cerium-139	-0.03085	0.05481	0.050
					Cesium-134	0.04735	0.1213	0.100
					Sodium-22	-0.03308	0.1011	0.080
941239	244229014	SAMPLE	22-JAN-10		Americium-241	0.07939	0.4743	0.200
					Cerium-139	-0.00871	0.05938	0.050
					Sodium-22	0.00587	0.08815	0.080
					Thorium-234	2.495	3.82	2.00
941239	244229015	SAMPLE	22-JAN-10		Americium-241	0.0039	0.2909	0.200
					Thorium-234	0.9591	2.552	2.00
941239	1202014507	MB	22-JAN-10					
941239	1202014508	DUP	22-JAN-10		Americium-241	-0.0156	0.3418	0.200
					Cerium-139	-0.01374	0.05657	0.050
941239	1202014509	LCS	22-JAN-10		Cerium-139	0.01166	0.08057	0.050
					Cesium-134	0.04683	0.1568	0.100
					Europium-152	-0.2327	0.2872	0.200
					Mercury-203	0.00274	0.1122	0.100
					Ruthenium-106	-0.4906	0.9435	0.800
					Sodium-22	-0.01939	0.08178	0.080
					Thorium-234	-0.9759	3.528	2.00
					Tin-113	-0.02964	0.1416	0.100

## Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Paramname	Result	MDA	RDL
941239	1202014509	LCS	22-JAN-10		Uranium-235	0.2185	0.5826	0.500

# GEL QUALS

Batch ID: 941239

Report run on: January 23, 2010 7:11 AM

Samp Id	Parname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
244229001-1 22-JAN-2010 12:56	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.625			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.568			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.09304		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		5.941			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.08223			
244229002-1 22-JAN-2010 12:57	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.23			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.182			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.07101		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		3.263			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.09896			
244229003-1 22-JAN-2010 12:57	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.847			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		4.277			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.1098		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		6.052			
244229004-1 22-JAN-2010 12:58	Bismuth-211	UI	UI	UI	Data rejected due to interference.		3.406			
	Cadmium-109	UI	UI	UI	Data rejected due to interference.		2.149			
	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.07802		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.155			
	Strontium-85	UI	UI	UI	Data rejected due to low abundance.		.156			
244229005-1 22-JAN-2010 13:05	Bismuth-211	UI	UI	UI	Data rejected due to interference.		4.005			

# GEL QUALS

Batch ID: 941239

Report run on: January 23, 2010 7:11 AM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244229005-1 22-JAN-2010 13:05	Radium-224	UI	UI	Data rejected due to interference.		2.207			
244229006-1 22-JAN-2010 13:40	Bismuth-211	UI	UI	Data rejected due to interference.		3.078			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.769			
	Radium-224	UI	UI	Data rejected due to interference.		3.989			
244229007-1 22-JAN-2010 13:40	Bismuth-211	UI	UI	Data rejected due to interference.		4.801			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.522			
	Radium-224	UI	UI	Data rejected due to interference.		5.579			
244229008-1 22-JAN-2010 14:03	Bismuth-211	UI	UI	Data rejected due to interference.		4.524			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.0939		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		2.982			
244229009-1 22-JAN-2010 14:04	Bismuth-211	UI	UI	Data rejected due to interference.		4.034			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.09734		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		4.166			
	Radium-228	UI	UI	Data rejected due to low abundance.		1.517		.5	.5
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1066			
244229010-1 22-JAN-2010 14:11	Bismuth-211	UI	UI	Data rejected due to interference.		3.824			
	Cadmium-109	UI	UI	Data rejected due to interference.		5.004			
	Radium-224	UI	UI	Data rejected due to interference.		5.39			
244229011-1	Bismuth-211	UI	UI	Data rejected due to interference.		2.707			

# GEL QUALS

Batch ID: 941239

Report run on: January 23, 2010 7:11 AM

Samp Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244228011-1 22-JAN-2010 14:16	Cadmium-108	UI	UI	Data rejected due to interference.		3.228			
	Radium-224	UI	UI	Data rejected due to interference.		3.883			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.0742			
244228012-1 22-JAN-2010 14:49	Bismuth-211	UI	UI	Data rejected due to interference.		2.97			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.752			
	Radium-224	UI	UI	Data rejected due to interference.		2.745			
244228013-1 22-JAN-2010 16:50	Bismuth-211	UI	UI	Data rejected due to interference.		3.017			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.063			
	Radium-224	UI	UI	Data rejected due to interference.		3.958			
244228014-1 22-JAN-2010 16:50	Bismuth-211	UI	UI	Data rejected due to interference.		3.842			
	Radium-224	UI	UI	Data rejected due to interference.		4.227			
244228015-1 22-JAN-2010 16:51	Bismuth-211	UI	UI	Data rejected due to interference.		3.715			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.632			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1151		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		3.867			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.1004			
1202014507-1 MB 22-JAN-2010 16:51	Strontium-85	UI	UI	Data rejected due to low abundance.		.08483			
1202014508-1 DUP 22-JAN-2010 16:52	Bismuth-211	UI	UI	Data rejected due to interference.		3.546			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.491			

# GEL QUALS

Batch ID: 941239

Report run on: January 23, 2010 7:11 AM

Samp Id	Parmname	Cofa	Edd	Qual	Comments	Auto	Result	MDA	Uncert	SQL
1202014508-1 DUP 22-JAN-2010 16:52	Cesium-134	UI	UI	UI	Data rejected due to low abundance.		.101		.1	.1
	Radium-224	UI	UI	UI	Data rejected due to interference.		4.263			

## Gamma Review Report based on Result &gt; MDA for Batch:941239

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229001	06-JAN-10 12:00	22-JAN-10 12:56	16	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>AM</i>	2.082	0.1938	pCi/g	0.2197	N	910.6	3	1.696	IDENTIFIED	7.47 <input type="checkbox"/>
Americium-243 <i>AM</i>	0.525	0.06953	pCi/g	0.1201	N	74.19	1	1.74	IDENTIFIED	12.02 <input type="checkbox"/>
Annihilation Rad.	0.1472	0.03921	pCi/g	0.05195	N	510.2	1	2.033	IDENTIFIED	26.48 <input type="checkbox"/>
Bismuth-211 <i>DNT</i>	4.625	0.3009	pCi/g	0.3778	Y	351.3	4	1.464	IDENTIFIED	5.526 <input checked="" type="checkbox"/> <i>UT</i>
Bismuth-212 <i>LA</i>	1.335	0.2952	pCi/g	0.7034	N	0	11	0	FAIL_ABUND	0 <input type="checkbox"/>
Bismuth-214 <i>V</i>	1.343	0.09796	pCi/g	0.1174	0.200	608.7	4	1.519	IDENTIFIED	6.279 <input type="checkbox"/>
Cadmium-109 <i>DNT</i>	2.568	0.6735	pCi/g	1.474	Y	89.32	1	1.613	IDENTIFIED	25.62 <input checked="" type="checkbox"/> <i>UT</i>
Cerium-143	2446	338.2	pCi/g	0	N	0	11	0	SHORT_HLIF	0 <input type="checkbox"/>
Cesium-134 <i>LA</i>	0.09304	0.02833	pCi/g	0.09271	0.100	0	11	0	NOT_IDENTI	0 <input checked="" type="checkbox"/> <i>UI</i> Data rejected due to low abundance.
Cesium-135 <i>HE</i>	0.3894	0.1157	pCi/g	0.281	N	269.3	1	1.085	IDENTIFIED	29.4 <input type="checkbox"/>
Gross Gamma	11.3	1.815	pCi/g	3.386	N	0				<input type="checkbox"/>
Iodine-133 <i>HE</i>	3122	6922	pCi/g	0	N	0	11	0	SHORT_HLIF	0 <input type="checkbox"/>
Krypton-85 <i>HE</i>	15.88	4.256	pCi/g	13.73	N	0	11	0	NOT_IDENTI	0 <input type="checkbox"/>
Lead-212 <i>V</i>	1.972	0.1034	pCi/g	0.1019	0.100	238	4	1.278	IDENTIFIED	3.217 <input type="checkbox"/>
Lead-214 <i>V</i>	1.609	0.1128	pCi/g	0.1317	0.100	351.3	4	1.464	IDENTIFIED	5.526 <input type="checkbox"/>
Lutetium-177 <i>HE</i>	2.777	0.9119	pCi/g	2.561	N	0	11	0	FAIL_ABUND	0 <input type="checkbox"/>
Neptunium-237 <i>AM</i>	1.358	0.2576	pCi/g	0.4363	N	86.59	2	1.608	IDENTIFIED	14.84 <input type="checkbox"/>
Niobium-95m <i>AM</i>	2.139	0.1373	pCi/g	0.4043	N	0	11	0	NOT_IDENTI	0 <input type="checkbox"/>
Polonium-212 <i>AM</i>	1.972	0.1034	pCi/g	0.1019	N	238	4	1.278	IDENTIFIED	3.217 <input type="checkbox"/>
Polonium-214 <i>AM</i>	1.609	0.1128	pCi/g	0.1317	N	351.3	4	1.464	IDENTIFIED	5.526 <input type="checkbox"/>
Polonium-216 <i>AM</i>	1.972	0.1034	pCi/g	0.1019	N	238	4	1.278	IDENTIFIED	3.217 <input type="checkbox"/>
Polonium-218 <i>AM</i>	1.609	0.1128	pCi/g	0.1317	N	351.3	4	1.464	IDENTIFIED	5.526 <input type="checkbox"/>
Potassium-40 <i>V</i>	35.46	1.628	pCi/g	0.5769	1.00	1460	1	2.115	IDENTIFIED	2.542 <input type="checkbox"/>
Radium-224 <i>DNT</i>	5.941	0.8298	pCi/g	1.159	Y	240.9	1	1.973	IDENTIFIED	13.53 <input checked="" type="checkbox"/> <i>UT</i>
Radium-226 <i>V</i>	1.343	0.09796	pCi/g	0.1174	Y	608.7	4	1.519	IDENTIFIED	6.279 <input type="checkbox"/>
Radium-228 <i>V</i>	2.082	0.1938	pCi/g	0.2197	0.500	910.6	3	1.696	IDENTIFIED	7.47 <input type="checkbox"/>
Sodium-24 <i>HE</i>	1.84E+06	1.13E+06	pCi/g	0	N	0	11	0	SHORT_HLIF	0 <input type="checkbox"/>
Strontium-85 <i>LA</i>	0.08223	0.02204	pCi/g	0.07109	Y	0	11	0	NOT_IDENTI	0 <input checked="" type="checkbox"/> <i>UI</i> Data rejected due to low abundance.
Thallium-208 <i>V</i>	0.6186	0.04514	pCi/g	0.06462	0.080	582.5	1	1.675	IDENTIFIED	6.565 <input type="checkbox"/>
Thorium-228 <i>AM</i>	2.004	0.105	pCi/g	0.1035	N	238	4	1.278	IDENTIFIED	3.217 <input type="checkbox"/>
Thorium-230 <i>AM</i>	1.343	0.09796	pCi/g	0.1174	N	608.7	4	1.519	IDENTIFIED	6.279 <input type="checkbox"/>
Thorium-232 <i>AM</i>	2.082	0.1938	pCi/g	0.2197	N	910.6	3	1.696	IDENTIFIED	7.47 <input type="checkbox"/>
Tin-126 <i>AM</i>	0.4626	0.07361	pCi/g	0.1458	N	86.59	2	1.608	IDENTIFIED	14.84 <input type="checkbox"/>
Titanium-44 <i>LA</i>	0.2526	0.03808	pCi/g	0.09221	N	0	11	0	NOT_IDENTI	0 <input type="checkbox"/>
Uranium-234 <i>AM</i>	1.343	0.09796	pCi/g	0.1174	N	608.7	4	1.519	IDENTIFIED	6.279 <input type="checkbox"/>
Zirconium-97	2.61E+07	3.20E+06	pCi/g	0	N	0	11	0	SHORT_HLIF	0 <input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229002	06-JAN-10 12:00	22-JAN-10 12:57	16	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>AM</i>	1.367	0.1409	pCi/g	0.1331	N	910.9	3	1.946	IDENTIFIED	7.888 <input type="checkbox"/>

Americium-243	AM	0.296	0.02908	pCi/g 0.06953	N	75.05	1	1.031	IDENTIFIED	8.89	<input type="checkbox"/>
Annihilation Rad.		0.1473	0.02349	pCi/g 0.02806	N	511	1	1.751	IDENTIFIED	15.6	<input type="checkbox"/>
Barium-137m	AM	0.214	0.02032	pCi/g 0.03631	N	661.6	2	1.363	IDENTIFIED	8.696	<input type="checkbox"/>
Bismuth-211	INT	3.23	0.1797	pCi/g 0.1957	Y	351.9	4	1.265	IDENTIFIED	4.546	<input checked="" type="checkbox"/> UJ
Bismuth-212	LA	0.841	0.1495	pCi/g 0.4077	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	V	0.9496	0.06081	pCi/g 0.07123	0.200	609.1	4	1.646	IDENTIFIED	4.59	<input type="checkbox"/>
Cadmium-109	INT	2.182	0.3476	pCi/g 0.9336	Y	87.47	3	1.073	IDENTIFIED	15.25	<input checked="" type="checkbox"/> UJ
Cerium-143		887.3	133.7	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134	LA	0.07101	0.0187	pCi/g 0.05601	0.100	0	13	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135	HE	0.1858	0.05499	pCi/g 0.1762	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>
Cesium-137	V	0.2262	0.02148	pCi/g 0.03838	0.100	661.6	2	1.363	IDENTIFIED	8.696	<input type="checkbox"/>
Gross Gamma		8.748	0.9469	pCi/g 1.528	N	0					<input type="checkbox"/>
Iodine-123	HE	4.04E+06	6.02E+06	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85	LA	19.11	2.506	pCi/g 8.721	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>
Lead-212	V	1.41	0.0616	pCi/g 0.05706	0.100	238.8	4	1.194	IDENTIFIED	2.516	<input type="checkbox"/>
Lead-214	V	1.124	0.06905	pCi/g 0.06819	0.100	351.9	4	1.265	IDENTIFIED	4.546	<input type="checkbox"/>
Lutetium-177	HE	2.534	0.6236	pCi/g 1.502	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	MC	0.629	0.1194	pCi/g 0.2751	N	87.47	3	1.073	IDENTIFIED	15.25	<input type="checkbox"/>
Niobium-95	HE	0.04888	0.01498	pCi/g 0.04796	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97	HE	48380	88930	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212	AM	1.41	0.0616	pCi/g 0.05706	N	238.8	4	1.194	IDENTIFIED	2.516	<input type="checkbox"/>
Polonium-214	AM	1.124	0.06905	pCi/g 0.06819	N	351.9	4	1.265	IDENTIFIED	4.546	<input type="checkbox"/>
Polonium-216	AM	1.41	0.0616	pCi/g 0.05706	N	238.8	4	1.194	IDENTIFIED	2.516	<input type="checkbox"/>
Polonium-218	AM	1.124	0.06905	pCi/g 0.06819	N	351.9	4	1.265	IDENTIFIED	4.546	<input type="checkbox"/>
Potassium-40	V	32.01	1.351	pCi/g 0.2998	1.00	1460	1	2.32	IDENTIFIED	1.846	<input type="checkbox"/>
Radium-224	INT	3.263	0.4331	pCi/g 0.6484	Y	241.7	1	1.767	IDENTIFIED	12.98	<input checked="" type="checkbox"/> UJ
Radium-226	V	0.9496	0.06081	pCi/g 0.07123	Y	609.1	4	1.646	IDENTIFIED	4.59	<input type="checkbox"/>
Radium-228	V	1.367	0.1409	pCi/g 0.1331	0.500	910.9	3	1.946	IDENTIFIED	7.888	<input type="checkbox"/>
Strontium-85	LA	0.09896	0.01298	pCi/g 0.04516	Y	0	13	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-200	HE	247.6	242.5	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	V	0.4245	0.03037	pCi/g 0.03523	0.080	582.9	1	1.583	IDENTIFIED	5.984	<input type="checkbox"/>
Thorium-228	AM	1.433	0.0626	pCi/g 0.05798	N	238.8	4	1.194	IDENTIFIED	2.516	<input type="checkbox"/>
Thorium-230	AM	0.9496	0.06081	pCi/g 0.07123	N	609.1	4	1.646	IDENTIFIED	4.59	<input type="checkbox"/>
Thorium-232	AM	1.367	0.1409	pCi/g 0.1331	N	910.9	3	1.946	IDENTIFIED	7.888	<input type="checkbox"/>
Thorium-234	V	2.518	0.7944	pCi/g 1.848	2.00	63.55	2	0.8272	IDENTIFIED	30.29	<input type="checkbox"/>
Tin-126	AM	0.2142	0.03412	pCi/g 0.09223	N	87.47	3	1.073	IDENTIFIED	15.25	<input type="checkbox"/>
Titanium-44		0.3243	0.02267	pCi/g 0.06196	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		7.5185	2.36E-06	ug/g 2.7507	N	0					<input type="checkbox"/>
Uranium-234	AM	0.9496	0.06081	pCi/g 0.07123	N	609.1	4	1.646	IDENTIFIED	4.59	<input type="checkbox"/>
Uranium-238	HE	2.518	0.7944	pCi/g 1.848	N	63.55	2	0.8272	IDENTIFIED	30.29	<input type="checkbox"/>
Zirconium-97		6.99E+06	1.68E+06	pCi/g 0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229003	06-JAN-10 12:00	22-JAN-10 12:57	16	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	AM	1.932	0.2013	pCi/g 0.23	N	911	3	1.202	IDENTIFIED	8.741			<input type="checkbox"/>	



Americium-243	u	0.416	0.02544	pCi/g 0.03947	N	74.9	1	0.821	IDENTIFIED	4.403	<input type="checkbox"/>
Annihilation Rad.		0.1244	0.03534	pCi/g 0.04391	N	510.9	1	1.477	IDENTIFIED	28	<input type="checkbox"/>
Bismuth-210	u	1.548	0.3247	pCi/g 0.5548	N	46.59	3	0.6705	IDENTIFIED	20.42	<input type="checkbox"/>
Bismuth-211	DNT	4.847	0.3041	pCi/g 0.2759	Y	351.7	4	1.035	IDENTIFIED	4.364	<input checked="" type="checkbox"/> VI
Bismuth-212	HE	1.233	0.2894	pCi/g 0.7417	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	1.49	0.1178	pCi/g 0.1101	0.200	609	4	1.28	IDENTIFIED	5.25	<input type="checkbox"/>
Cadmium-109	DNT	4.277	0.3773	pCi/g 0.746	Y	87.2	3	0.9403	IDENTIFIED	7.484	<input checked="" type="checkbox"/> VI
Cerium-143		471.1	117.6	pCi/g 0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134	LA	0.1098	0.03123	pCi/g 0.0969	0.100	0	11	0	FAIL_ABUND	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Europium-155	DNT	0.2643	0.06337	pCi/g 0.108	N	105.3	1	1.651	IDENTIFIED	23.4	<input type="checkbox"/>
Gold-195	HE	0.4355	0.1047	pCi/g 0.2478	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Gross Gamma		11.58	1.419	pCi/g 3.567	N	0					<input type="checkbox"/>
Iodine-133	HE	3870	6463	pCi/g 0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Iodine-135		5.59E+16	0	pCi/g 0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-210	u	1.548	0.3247	pCi/g 0.5548	N	46.59	3	0.6705	IDENTIFIED	20.42	<input type="checkbox"/>
Lead-212	✓	1.945	0.1091	pCi/g 0.07384	0.100	238.5	4	0.8495	IDENTIFIED	2.597	<input type="checkbox"/>
Lead-214	✓	1.686	0.1146	pCi/g 0.09623	0.100	351.7	4	1.035	IDENTIFIED	4.364	<input type="checkbox"/>
Lutetium-177	LA	3.417	0.6803	pCi/g 1.832	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	u	1.233	0.1673	pCi/g 0.2138	N	87.2	3	0.9403	IDENTIFIED	7.484	<input type="checkbox"/>
Polonium-210	u	1.548	0.3233	pCi/g 0.5548	N	46.59	3	0.6705	IDENTIFIED	20.42	<input type="checkbox"/>
Polonium-212	u	1.945	0.1091	pCi/g 0.07384	N	238.5	4	0.8495	IDENTIFIED	2.597	<input type="checkbox"/>
Polonium-214	u	1.686	0.1146	pCi/g 0.09623	N	351.7	4	1.035	IDENTIFIED	4.364	<input type="checkbox"/>
Polonium-216	u	1.945	0.1091	pCi/g 0.07384	N	238.5	4	0.8495	IDENTIFIED	2.597	<input type="checkbox"/>
Polonium-218	u	1.686	0.1146	pCi/g 0.09623	N	351.7	4	1.035	IDENTIFIED	4.364	<input type="checkbox"/>
Potassium-40	✓	35.37	1.827	pCi/g 0.5875	1.00	1460	1	1.785	IDENTIFIED	2.908	<input type="checkbox"/>
Radium-224	DNT	6.052	0.706	pCi/g 0.8426	Y	241.3	1	1.71	IDENTIFIED	10.79	<input checked="" type="checkbox"/> VI
Radium-226	✓	1.49	0.1178	pCi/g 0.1101	Y	609	4	1.28	IDENTIFIED	5.25	<input type="checkbox"/>
Radium-228	✓	1.932	0.2013	pCi/g 0.23	0.500	911	3	1.202	IDENTIFIED	8.741	<input type="checkbox"/>
Rhenium-188	HE	0.2667	0.0771	pCi/g 0.2046	N	154.1	1	1.127	IDENTIFIED	28.54	<input type="checkbox"/>
Technetium-99m		9.14E+16	0	pCi/g 0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-200	HE	172.8	373.6	pCi/g 0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.6604	0.05755	pCi/g 0.05944	0.080	583	1	1.208	IDENTIFIED	6.803	<input type="checkbox"/>
Thorium-228	u	1.977	0.1109	pCi/g 0.07503	N	238.5	4	0.8495	IDENTIFIED	2.597	<input type="checkbox"/>
Thorium-230	u	1.49	0.1178	pCi/g 0.1101	N	609	4	1.28	IDENTIFIED	5.25	<input type="checkbox"/>
Thorium-232	u	1.932	0.2013	pCi/g 0.23	N	911	3	1.202	IDENTIFIED	8.741	<input type="checkbox"/>
Thorium-234	✓	2.093	0.4625	pCi/g 0.682	2.00	63.27	2	0.8504	IDENTIFIED	20.26	<input type="checkbox"/>
Tin-126	u	0.4198	0.03704	pCi/g 0.0731	N	87.2	3	0.9403	IDENTIFIED	7.484	<input type="checkbox"/>
Titanium-44	LA	0.4695	0.02463	pCi/g 0.03536	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		6.2548	1.38E-06	ug/g 1.017	N	0					<input type="checkbox"/>
Uranium-234	u	1.49	0.1178	pCi/g 0.1101	N	609	4	1.28	IDENTIFIED	5.25	<input type="checkbox"/>
Uranium-238	✓	2.093	0.4625	pCi/g 0.682	N	63.27	2	0.8504	IDENTIFIED	20.26	<input type="checkbox"/>
Zirconium-97	HE	9.01E+05	2.44E+06	pCi/g 0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229004	06-JAN-10 12:00	22-JAN-10 12:58	16	SAMPLE	LOAD	1	LANL	LANL01004IGEL	N	RGSP
Name                      Result    Uncert.   Units   MDA   RDL   Energy ***   FWHM   Comb Act   Rpt Err(%)   Qual                      Qual Comment										

Actinium-228	MM	1.555	0.1624	pCi/g 0.1729	N	911.5	3	1.979	IDENTIFIED	8.069	<input type="checkbox"/>
Americium-243	MM	0.3577	0.03484	pCi/g 0.06654	N	74.82	1	1.286	IDENTIFIED	8.843	<input type="checkbox"/>
Annihilation Rad.		0.1181	0.02687	pCi/g 0.03634	N	511.1	1	2.358	IDENTIFIED	22.19	<input type="checkbox"/>
Bismuth-211	INT	3.406	0.2567	pCi/g 0.2626	Y	352	4	1.415	IDENTIFIED	4.8	<input checked="" type="checkbox"/> UJ
Bismuth-212	LA	1.045	0.2453	pCi/g 0.5111	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	0.9005	0.08285	pCi/g 0.0915	0.200	609.4	4	1.72	IDENTIFIED	7.13	<input type="checkbox"/>
Cadmium-109	INT	2.149	0.4309	pCi/g 0.9868	Y	86.96	3	1.095	IDENTIFIED	19.49	<input checked="" type="checkbox"/> UJ
Cerium-143		1202	188.2	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-134	LA	0.07802	0.02041	pCi/g 0.07054	0.100	0	12	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135	HE	0.3149	0.08	pCi/g 0.2381	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>
Gross Gamma		9.431	1.526	pCi/g 2.042	N	0					<input type="checkbox"/>
Iodine-135		3.92E+16	0	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Krypton-85	HA	30.13	3.994	pCi/g 12.53	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>
Lead-212	✓	1.537	0.1113	pCi/g 0.07645	0.100	238.7	4	1.267	IDENTIFIED	2.959	<input type="checkbox"/>
Lead-214	✓	1.185	0.09451	pCi/g 0.09332	0.100	352	4	1.415	IDENTIFIED	4.8	<input type="checkbox"/>
Luettium-177	HE	2.435	0.6748	pCi/g 1.819	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237	MM	0.6195	0.1397	pCi/g 0.2735	N	86.96	3	1.095	IDENTIFIED	19.49	<input type="checkbox"/>
Niobium-95m	HE	0.2233	0.06205	pCi/g 0.1861	N	0	12	0	NOT_IDENTI	0	<input type="checkbox"/>
Polonium-212	MM	1.537	0.1113	pCi/g 0.07645	N	238.7	4	1.267	IDENTIFIED	2.959	<input type="checkbox"/>
Polonium-214	MM	1.185	0.09451	pCi/g 0.09332	N	352	4	1.415	IDENTIFIED	4.8	<input type="checkbox"/>
Polonium-216	MM	1.537	0.1113	pCi/g 0.07645	N	238.7	4	1.267	IDENTIFIED	2.959	<input type="checkbox"/>
Polonium-218	MM	1.185	0.09451	pCi/g 0.09332	N	352	4	1.415	IDENTIFIED	4.8	<input type="checkbox"/>
Potassium-40	✓	37.33	1.851	pCi/g 0.3657	1.00	1461	1	2.405	IDENTIFIED	1.897	<input type="checkbox"/>
Radium-224	INT	4.155	0.5677	pCi/g 0.8691	Y	241.7	1	1.886	IDENTIFIED	12.14	<input checked="" type="checkbox"/> UJ
Radium-226	✓	0.9005	0.08285	pCi/g 0.0915	Y	609.4	4	1.72	IDENTIFIED	7.13	<input type="checkbox"/>
Radium-228	✓	1.555	0.1624	pCi/g 0.1729	0.500	911.5	3	1.979	IDENTIFIED	8.069	<input type="checkbox"/>
Strontium-85	LA	0.156	0.02068	pCi/g 0.06487	Y	0	12	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Technetium-99m		3.87E+17	0	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.4963	0.04411	pCi/g 0.04532	0.080	583.2	1	1.733	IDENTIFIED	7.043	<input type="checkbox"/>
Thorium-228	MM	1.562	0.1131	pCi/g 0.07769	N	238.7	4	1.267	IDENTIFIED	2.959	<input type="checkbox"/>
Thorium-230	MM	0.9005	0.08285	pCi/g 0.09149	N	609.4	4	1.72	IDENTIFIED	7.13	<input type="checkbox"/>
Thorium-232	MM	1.555	0.1624	pCi/g 0.1729	N	911.5	3	1.979	IDENTIFIED	8.069	<input type="checkbox"/>
Tin-126	MM	0.211	0.04229	pCi/g 0.1041	N	86.96	3	1.095	IDENTIFIED	19.49	<input type="checkbox"/>
Titanium-44	MM	0.3153	0.02281	pCi/g 0.05885	N	0	12	0	FAIL_ABUND	0	<input type="checkbox"/>
Uranium-234	MM	0.9005	0.08285	pCi/g 0.09149	N	609.4	4	1.72	IDENTIFIED	7.13	<input type="checkbox"/>
Zirconium-97		1.22E+07	2.29E+06	pCi/g 0	N	0	12	0	SHORT_HLIF	0	<input type="checkbox"/>

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quas	Zero?	queue
244229005	06-JAN-10 12:00	22-JAN-10 13:05	16	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	MM	1.373	0.1516	pCi/g 0.2433	N	910.2	3	1.46	IDENTIFIED	9.412 <input type="checkbox"/>
Americium-243	MM	0.3795	0.0492	pCi/g 0.1095	N	74.47	1	1.385	IDENTIFIED	12.18 <input type="checkbox"/>
Annihilation Rad.		0.1515	0.03772	pCi/g 0.04872	N	510.2	1	2.173	IDENTIFIED	24.72 <input type="checkbox"/>
Barium-137m	HE	0.1377	0.04022	pCi/g 0.06048	N	661.4	2	1.573	IDENTIFIED	29.1 <input type="checkbox"/>
Bismuth-211	INT	4.005	0.2764	pCi/g 0.3578	Y	351.5	4	1.4	IDENTIFIED	6.085 <input checked="" type="checkbox"/> UJ
Bismuth-212	MM	1.355	0.239	pCi/g 0.7736	N	0	9	0	FAIL_ABUND	0 <input type="checkbox"/>

Bismuth-214	✓	1.083	0.08827	pCi/g 0.1266	0.200	608.5	4	1.586	IDENTIFIED	7.231	☐
Cerium-143		1349	220.3	pCi/g 0	N	0	9	0	SHORT_HLIF	0	☐
Cesium-135	HE	0.4589	0.1467	pCi/g 0.274	N	269.5	1	1.942	IDENTIFIED	31.74	☐
Cesium-137	✓	0.1456	0.04252	pCi/g 0.06393	0.100	661.4	2	1.573	IDENTIFIED	29.1	☐
Gross Gamma		7.908	1.232	pCi/g 2.544	N		0				☐
Iodine-123	HE	8.40E+06	1.02E+07	pCi/g 0	N	0	9	0	SHORT_HLIF	0	☐
Iodine-135		5.98E+15		pCi/g 0	N	0	9	0	SHORT_HLIF	0	☐
Lead-212	✓	1.304	0.08164	pCi/g 0.1405	0.100	238.3	4	1.096	IDENTIFIED	5.129	☐
Lead-214	✓	1.393	0.1028	pCi/g 0.1247	0.100	351.5	4	1.4	IDENTIFIED	6.085	☐
Lutetium-177	HE	3.45	1.159	pCi/g 2.396	N	0	9	0	FAIL_ABUND	0	☐
Niobium-95m		0.7241	0.09403	pCi/g 0.3151	N	0	9	0	NOT_IDENTI	0	☐
Niobium-97	HE	1.80E+05	1.61E+05	pCi/g 0	N	0	9	0	SHORT_HLIF	0	☐
Polonium-212	<i>MM</i>	1.304	0.08164	pCi/g 0.1405	N	238.3	4	1.096	IDENTIFIED	5.129	☐
Polonium-214	<i>MM</i>	1.393	0.1028	pCi/g 0.1247	N	351.5	4	1.4	IDENTIFIED	6.085	☐
Polonium-216	<i>MM</i>	1.304	0.08164	pCi/g 0.1405	N	238.3	4	1.096	IDENTIFIED	5.129	☐
Polonium-218	<i>MM</i>	1.393	0.1028	pCi/g 0.1247	N	351.5	4	1.4	IDENTIFIED	6.085	☐
Potassium-40	✓	24.72	1.302	pCi/g 0.5597	1.00	1459	1	2.41	IDENTIFIED	3.709	☐
Radium-224	<i>INT</i>	2.207	0.4681	pCi/g 1.599	Y	241.6	1	1.48	IDENTIFIED	21.02	✓ <i>UJ</i>
Radium-226	✓	1.083	0.08827	pCi/g 0.1266	Y	608.5	4	1.586	IDENTIFIED	7.231	☐
Radium-228	✓	1.373	0.1516	pCi/g 0.2433	0.500	910.2	3	1.46	IDENTIFIED	9.412	☐
Thallium-208	✓	0.4797	0.04206	pCi/g 0.06056	0.080	582.5	1	1.517	IDENTIFIED	8.144	☐
Thorium-228	<i>MM</i>	1.325	0.08296	pCi/g 0.1428	N	238.3	4	1.096	IDENTIFIED	5.129	☐
Thorium-230	<i>MM</i>	1.083	0.08827	pCi/g 0.1266	N	608.5	4	1.586	IDENTIFIED	7.231	☐
Thorium-232	<i>MM</i>	1.373	0.1516	pCi/g 0.2433	N	910.2	3	1.46	IDENTIFIED	9.412	☐
Thorium-234	✓	3.459	1.072	pCi/g 2.755	2.00	63.07	2	1.024	IDENTIFIED	29.66	☐
Titanium-44	<i>LA</i>	0.3697	0.03315	pCi/g 0.09638	N	0	9	0	FAIL_ABUND	0	☐
Total Uranium		10.3	3.19E-06	ug/g 4.1009	N		0				☐
Uranium-234	<i>MM</i>	1.083	0.08827	pCi/g 0.1266	N	608.5	4	1.586	IDENTIFIED	7.231	☐
Uranium-238	HE	3.459	1.072	pCi/g 2.755	N	63.07	2	1.024	IDENTIFIED	29.66	☐
Zirconium-97		1.81E+07	3.08E+06	pCi/g 0	N	0	9	0	SHORT_HLIF	0	☐

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
244229006	06-JAN-10 12:00	22-JAN-10 13:40	16.1	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	<i>MM</i>	1.654	0.1879	pCi/g 0.2105	N	910.8	3	2.033	IDENTIFIED	9.946	☐
Americium-243	<i>MM</i>	0.3438	0.03989	pCi/g 0.09005	N	74.69	1	1.223	IDENTIFIED	11.09	☐
Annihilation Rad.		0.1092	0.02856	pCi/g 0.04152	N	510.7	1	1.391	IDENTIFIED	25.98	☐
Barium-137m	<i>MM</i>	0.289	0.03311	pCi/g 0.05938	N	661.5	2	1.335	IDENTIFIED	10.99	☐
Bismuth-211	<i>INT</i>	3.078	0.2171	pCi/g 0.3144	Y	351.6	4	1.128	IDENTIFIED	6.314	✓ <i>UJ</i>
Bismuth-212	HE	0.8274	0.2556	pCi/g 0.659	N	0	10	0	FAIL_ABUND	0	☐
Bismuth-214	✓	1.013	0.07821	pCi/g 0.1009	0.200	609	4	1.511	IDENTIFIED	6.531	☐
Cadmium-109	<i>INT</i>	3.769	0.5699	pCi/g 1.223	Y	87.06	3	1.259	IDENTIFIED	14.64	✓ <i>UJ</i>
Cerium-143		918.3	160	pCi/g 0	N	0	10	0	SHORT_HLIF	0	☐
Cesium-137	✓	0.3055	0.03501	pCi/g 0.06277	0.100	661.5	2	1.335	IDENTIFIED	10.99	☐
Gross Gamma		9.62	1.428	pCi/g 3.063	N		0				☐
Iodine-123	HE	9.80E+05	8.75E+06	pCi/g 0	N	0	10	0	SHORT_HLIF	0	☐

Iodine-133	HE	6190	6069	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Iodine-135		4.66E+16 0		pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	1.554	0.07566	pCi/g 0.08507	0.100	238.5	4	1.047	IDENTIFIED 3.334	<input type="checkbox"/>
Lead-214	✓	1.071	0.08052	pCi/g 0.1097	0.100	351.6	4	1.128	IDENTIFIED 6.314	<input type="checkbox"/>
Lutetium-177	HE	3.137	0.8564	pCi/g 2.127	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237		1.086	0.1988	pCi/g 0.3584	N	87.06	3	1.259	IDENTIFIED 14.64	<input type="checkbox"/>
Niobium-97	HE	1.44E+05	1.42E+05	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Polonium-212	ML	1.554	0.07566	pCi/g 0.08507	N	238.5	4	1.047	IDENTIFIED 3.334	<input type="checkbox"/>
Polonium-214	ML	1.071	0.08052	pCi/g 0.1097	N	351.6	4	1.128	IDENTIFIED 6.314	<input type="checkbox"/>
Polonium-216	ML	1.554	0.07566	pCi/g 0.08507	N	238.5	4	1.047	IDENTIFIED 3.334	<input type="checkbox"/>
Polonium-218	ML	1.071	0.08052	pCi/g 0.1097	N	351.6	4	1.128	IDENTIFIED 6.314	<input type="checkbox"/>
Potassium-40	✓	31.78	1.445	pCi/g 0.58	1.00	1460	1	2.107	IDENTIFIED 2.821	<input type="checkbox"/>
Radium-224	JWT	3.989	0.6501	pCi/g 0.9681	Y	241.4	1	1.784	IDENTIFIED 16.06	<input checked="" type="checkbox"/> UJ
Radium-226	✓	1.013	0.07821	pCi/g 0.1009	Y	609	4	1.511	IDENTIFIED 6.531	<input type="checkbox"/>
Radium-228	✓	1.654	0.1879	pCi/g 0.2105	0.500	910.8	3	2.033	IDENTIFIED 9.946	<input type="checkbox"/>
Thallium-200	HE	248	384.1	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208	✓	0.4942	0.04281	pCi/g 0.06134	0.080	582.9	1	1.148	IDENTIFIED 7.889	<input type="checkbox"/>
Thorium-228	ML	1.579	0.07688	pCi/g 0.08644	N	238.5	4	1.047	IDENTIFIED 3.334	<input type="checkbox"/>
Thorium-230	ML	1.013	0.07821	pCi/g 0.1009	N	609	4	1.511	IDENTIFIED 6.531	<input type="checkbox"/>
Thorium-232	ML	1.654	0.1879	pCi/g 0.2105	N	910.8	3	2.033	IDENTIFIED 9.946	<input type="checkbox"/>
Thorium-234	✓	5.572	1.303	pCi/g 2.07	2.00	63.22	2	0.9829	IDENTIFIED 21.77	<input type="checkbox"/>
Tin-126	NL	0.3699	0.05594	pCi/g 0.1206	N	87.06	3	1.259	IDENTIFIED 14.64	<input type="checkbox"/>
Titanium-44	LA	0.3554	0.02741	pCi/g 0.07162	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>
Total Uranium		16.665	3.88E-06 ug/g	3.0814	N	0				<input type="checkbox"/>
Uranium-234	ML	1.013	0.07821	pCi/g 0.1009	N	609	4	1.511	IDENTIFIED 6.531	<input type="checkbox"/>
Uranium-238	✓	5.572	1.303	pCi/g 2.07	N	63.22	2	0.9829	IDENTIFIED 21.77	<input type="checkbox"/>
Zirconium-97		6.72E+06	2.50E+06	pCi/g 0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue	
244229007	06-JAN-10 12:00	22-JAN-10 13:40	16.1	SAMPLE	LOAD	I	LANL	LANL01004GEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	ML	1.971	0.1981	pCi/g 0.2424	N	911.1	3	1.544	IDENTIFIED 8.107	<input type="checkbox"/>	
Americium-243	ML	0.3786	0.02813	pCi/g 0.04925	N	74.86	1	0.8375	IDENTIFIED 5.419	<input type="checkbox"/>	
Annihilation Rad.		0.1904	0.0343	pCi/g 0.04692	N	510.7	1	1.424	IDENTIFIED 17.26	<input type="checkbox"/>	
Bismuth-210	HE	1.011	0.2763	pCi/g 0.6271	N	46.47	3	0.924	IDENTIFIED 26.85	<input type="checkbox"/>	
Bismuth-211	JWT	4.801	0.3462	pCi/g 0.308	Y	351.8	4	1.144	IDENTIFIED 4.933	<input checked="" type="checkbox"/> UJ	
Bismuth-212	LA	1.528	0.2984	pCi/g 0.7452	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214	✓	1.469	0.1263	pCi/g 0.1034	0.200	609.3	4	1.377	IDENTIFIED 6.125	<input type="checkbox"/>	
Cadmium-109	JWT	4.522	0.4298	pCi/g 0.7603	Y	87.18	3	1.168	IDENTIFIED 7.855	<input checked="" type="checkbox"/> UJ	
Cerium-143		785.5	150.2	pCi/g 0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Europium-155	HE	0.1475	0.03863	pCi/g 0.1432	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>	
Gross Gamma		11.67	1.687	pCi/g 4.339	N	0				<input type="checkbox"/>	
Iodine-123	HE	3.86E+05	7.93E+06	pCi/g 0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-210	HE	1.011	0.2763	pCi/g 0.6271	N	46.47	3	0.924	IDENTIFIED 26.85	<input type="checkbox"/>	
Lead-212	✓	1.982	0.1261	pCi/g 0.07772	0.100	238.6	4	0.9704	IDENTIFIED 2.845	<input type="checkbox"/>	
Lead-214	✓	1.67	0.1281	pCi/g 0.1074	0.100	351.8	4	1.144	IDENTIFIED 4.933	<input type="checkbox"/>	

Lutetium-177	LA	4.354	0.7892	pCi/g 2.12	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	M	1.303	0.1828	pCi/g 0.2177	N	87.18	3	1.168	IDENTIFIED 7.855	<input type="checkbox"/>
Niobium-97		2.95E+05	1.40E+05	pCi/g 0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Polonium-210	HE	1.011	0.2756	pCi/g 0.6271	N	46.47	3	0.924	IDENTIFIED 26.85	<input type="checkbox"/>
Polonium-212	M	1.982	0.1261	pCi/g 0.07772	N	238.6	4	0.9704	IDENTIFIED 2.845	<input type="checkbox"/>
Polonium-214	M	1.67	0.1281	pCi/g 0.1074	N	351.8	4	1.144	IDENTIFIED 4.933	<input type="checkbox"/>
Polonium-216	M	1.982	0.1261	pCi/g 0.07772	N	238.6	4	0.9704	IDENTIFIED 2.845	<input type="checkbox"/>
Polonium-218	M	1.67	0.1281	pCi/g 0.1074	N	351.8	4	1.144	IDENTIFIED 4.933	<input type="checkbox"/>
Potassium-40	V	35.91	1.803	pCi/g 0.4769	1.00	1461	1	2.312	IDENTIFIED 2.661	<input type="checkbox"/>
Radium-224	INT	5.579	0.6432	pCi/g 0.8854	Y	241.6	1	1.611	IDENTIFIED 10.26	<input checked="" type="checkbox"/> U <sub>2</sub>
Radium-226	✓	1.469	0.1263	pCi/g 0.1034	Y	609.3	4	1.377	IDENTIFIED 6.125	<input type="checkbox"/>
Radium-228	✓	1.971	0.1981	pCi/g 0.2424	0.500	911.1	3	1.544	IDENTIFIED 8.107	<input type="checkbox"/>
Thallium-200	HE	668.5	403	pCi/g 0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208	✓	0.5347	0.0476	pCi/g 0.06182	0.080	583.2	1	1.314	IDENTIFIED 6.889	<input type="checkbox"/>
Thorium-228	M	2.014	0.1281	pCi/g 0.07897	N	238.6	4	0.9704	IDENTIFIED 2.845	<input type="checkbox"/>
Thorium-230	M	1.469	0.1263	pCi/g 0.1034	N	609.3	4	1.377	IDENTIFIED 6.125	<input type="checkbox"/>
Thorium-232	M	1.971	0.1981	pCi/g 0.2424	N	911.1	3	1.544	IDENTIFIED 8.107	<input type="checkbox"/>
Thorium-234	✓	1.514	0.3473	pCi/g 0.802	2.00	63.23	2	0.699	IDENTIFIED 20.97	<input type="checkbox"/>
Tin-126	M	0.4439	0.04219	pCi/g 0.07448	N	87.18	3	1.168	IDENTIFIED 7.855	<input type="checkbox"/>
Titanium-44	LA	0.4167	0.02641	pCi/g 0.04768	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>
Total Uranium		4.5827	1.03E-06	ug/g 1.1958	N		0			<input type="checkbox"/>
Uranium-234	M	1.469	0.1263	pCi/g 0.1034	N	609.3	4	1.377	IDENTIFIED 6.125	<input type="checkbox"/>
Uranium-238	✓	1.514	0.3473	pCi/g 0.802	N	63.23	2	0.699	IDENTIFIED 20.97	<input type="checkbox"/>
Zirconium-97	HE	6.99E+05	2.64E+06	pCi/g 0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229008	06-JAN-10 12:00	22-JAN-10 14:03	16.1	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	M	1.66	0.1835	pCi/g 0.1995	N	911.7	3	1.555	IDENTIFIED 9.234	<input type="checkbox"/>
Americium-243	M	0.3002	0.03243	pCi/g 0.07671	N	74.84	1	0.853	IDENTIFIED 10.01	<input type="checkbox"/>
Annihilation Rad. HE		0.1107	0.03662	pCi/g 0.0497	N	511.2	1	1.572	IDENTIFIED 32.64	<input type="checkbox"/>
Barium-137m	M	0.7927	0.05757	pCi/g 0.05805	N	662	2	1.281	IDENTIFIED 5.509	<input type="checkbox"/>
Bismuth-211	INT	4.524	0.3793	pCi/g 0.2855	Y	352	4	1.191	IDENTIFIED 5.201	<input checked="" type="checkbox"/> U <sub>2</sub>
Bismuth-212	HE	0.7567	0.2718	pCi/g 0.6624	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214	✓	1.248	0.1035	pCi/g 0.1026	0.200	609.6	4	1.361	IDENTIFIED 6.072	<input type="checkbox"/>
Cerium-143	~	376.2	130.2	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Cesium-134	LA	0.0939	0.02929	pCi/g 0.0901	0.100	0	11	0	FAIL_ABUND 0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-137	✓	0.838	0.06089	pCi/g 0.06137	0.100	662	2	1.281	IDENTIFIED 5.509	<input type="checkbox"/>
Europium-155	HE	0.1695	0.04362	pCi/g 0.1628	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>
Gross Gamma		10.08	1.504	pCi/g 3.431	N		0			<input type="checkbox"/>
Iodine-123	HE	2.32E+06	8.37E+06	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	1.531	0.1227	pCi/g 0.09392	0.100	238.7	4	1.088	IDENTIFIED 3.905	<input type="checkbox"/>
Lead-214	✓	1.574	0.1382	pCi/g 0.09953	0.100	352	4	1.191	IDENTIFIED 5.201	<input type="checkbox"/>
Lutetium-177	HE	2.65	0.7767	pCi/g 2.042	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	HE	0.4595	0.1572	pCi/g 0.3567	N	86.4	2	0.9876	IDENTIFIED 32.28	<input type="checkbox"/>
Niobium-97	HE	1.24E+05	1.41E+05	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>





Radium-226	✓	1.162	0.1106	pCi/g 0.1441	Y	609.1	4	1.585	IDENTIFIED	8.776	□
Radium-228	✓	1.488	0.2209	pCi/g 0.2825	0.500	911.2	3	1.549	IDENTIFIED	13.93	□
Technetium-99m		3.38E+17	0	pCi/g 0	N	0	10	0	SHORT_HLIF	0	□
Thallium-200	HE	369.9	526.3	pCi/g 0	N	0	10	0	SHORT_HLIF	0	□
Thallium-208	✓	0.6137	0.05421	pCi/g 0.06792	0.080	582.9	1	1.664	IDENTIFIED	8.248	□
Thorium-228	u	1.641	0.08883	pCi/g 0.1249	N	238.4	4	1.181	IDENTIFIED	3.967	□
Thorium-230	u	1.162	0.1106	pCi/g 0.1441	N	609.1	4	1.585	IDENTIFIED	8.776	□
Thorium-232	u	1.488	0.2209	pCi/g 0.2825	N	911.2	3	1.549	IDENTIFIED	13.93	□
Thorium-234	✓	5.902	1.482	pCi/g 3.082	2.00	62.65	2	1.22	IDENTIFIED	23.4	□
Tin-126	u	0.4912	0.06737	pCi/g 0.1474	N	86.98	3	1.561	IDENTIFIED	12.81	□
Titanium-44	u	0.3325	0.03184	pCi/g 0.1023	N	0	10	0	NOT_IDENTI	0	□
Total Uranium		17.73	4.41E-06	ug/g 4.5883	N	0					□
Uranium-234	u	1.162	0.1106	pCi/g 0.1441	N	609.1	4	1.585	IDENTIFIED	8.776	□
Uranium-238	HE	5.902	1.482	pCi/g 3.082	N	62.65	2	1.22	IDENTIFIED	23.4	□
Zirconium-97		1.88E+07	3.43E+06	pCi/g 0	N	0	10	0	SHORT_HLIF	0	□

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229011	06-JAN-10 12:00	22-JAN-10 14:16	16.1	SAMPLE	LOAD	1	LANL	LANL01004KEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err (%)	Qual	Qual Comment
Actinium-228	u	1.172	0.1452	pCi/g 0.2028	N	911.7	3	1.543	IDENTIFIED	11.02	☐
Americium-243	u	0.3616	0.04438	pCi/g 0.08819	N	74.86	1	1.617	IDENTIFIED	11.61	☐
Annihilation Rad.		0.1508	0.02964	pCi/g 0.04017	N	510.8	1	1.728	IDENTIFIED	19.44	☐
Barium-137m	u	0.4864	0.03622	pCi/g 0.05787	N	661.8	2	1.358	IDENTIFIED	6.854	☐
Bismuth-211	JNT	2.707	0.239	pCi/g 0.3349	Y	351.9	4	1.31	IDENTIFIED	8.232	u/ u
Bismuth-212	✓	1.169	0.196	pCi/g 0.6283	N	0	11	0	FAIL_ABUND	0	☐
Bismuth-214	✓	0.856	0.08291	pCi/g 0.1066	0.200	609.5	4	1.432	IDENTIFIED	8.852	☐
Cadmium-109	JNT	3.228	0.6109	pCi/g 1.244	Y	87.54	3	1.799	IDENTIFIED	18.39	u/ u
Cerium-143		1375	199.7	pCi/g 0	N	0	11	0	SHORT_HLIF	0	☐
Cesium-137	✓	0.5141	0.03832	pCi/g 0.06117	0.100	661.8	2	1.358	IDENTIFIED	6.854	☐
Gross Gamma		8.663	1.31	pCi/g 2.719	N	0					☐
Iodine-133	HE	189.6	6015	pCi/g 0	N	0	11	0	SHORT_HLIF	0	☐
Krypton-85	HE	14.32	3.654	pCi/g 12.55	N	0	11	0	NOT_IDENTI	0	☐
Lead-212	✓	1.32	0.06786	pCi/g 0.08958	0.100	238.6	4	1.336	IDENTIFIED	3.659	☐
Lead-214	✓	0.9417	0.0867	pCi/g 0.1167	0.100	351.9	4	1.31	IDENTIFIED	8.232	☐
Neptunium-237	u	0.9305	0.2005	pCi/g 0.3641	N	87.54	3	1.799	IDENTIFIED	18.39	☐
Niobium-95m	~	0.3779	0.07033	pCi/g 0.2337	N	0	11	0	NOT_IDENTI	0	☐
Niobium-97	HE	2.07E+05	1.38E+05	pCi/g 0	N	0	11	0	SHORT_HLIF	0	☐
Polonium-212	u	1.32	0.06786	pCi/g 0.08958	N	238.6	4	1.336	IDENTIFIED	3.659	☐
Polonium-214	u	0.9417	0.0867	pCi/g 0.1167	N	351.9	4	1.31	IDENTIFIED	8.232	☐
Polonium-216	u	1.32	0.06786	pCi/g 0.08958	N	238.6	4	1.336	IDENTIFIED	3.659	☐
Polonium-218	u	0.9417	0.0867	pCi/g 0.1167	N	351.9	4	1.31	IDENTIFIED	8.232	☐
Potassium-40	✓	31.74	1.451	pCi/g 0.4802	1.00	1462	1	1.78	IDENTIFIED	2.655	☐
Radium-224	JNT	3.883	0.6746	pCi/g 1.019	Y	241.5	1	2.176	IDENTIFIED	17.14	u/ u
Radium-226	✓	0.856	0.08291	pCi/g 0.1066	Y	609.5	4	1.432	IDENTIFIED	8.852	☐
Radium-228	✓	1.172	0.1452	pCi/g 0.2028	0.500	911.7	3	1.543	IDENTIFIED	11.02	☐
Strontium-85	LA	0.0742	0.01893	pCi/g 0.06303	Y	0	11	0	NOT_IDENTI	0	☐ UI Data rejected due to low abundance.



Technetium-99m		8.42E+16 0	pCi/g 0	N	0	11 0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-200	HE	548.4	394.9	pCi/g 0	N	0	11 0	SHORT_HLIF 0 <input type="checkbox"/>
Thallium-208	✓	0.388	0.03798	pCi/g 0.05465	0.080	583.2 1	1.448	IDENTIFIED 9.179 <input type="checkbox"/>
Thorium-228	u	1.342	0.06896	pCi/g 0.09103	N	238.6 4	1.336	IDENTIFIED 3.659 <input type="checkbox"/>
Thorium-230	u	0.856	0.08291	pCi/g 0.1066	N	609.5 4	1.432	IDENTIFIED 8.852 <input type="checkbox"/>
Thorium-232	u	1.172	0.1452	pCi/g 0.2028	N	911.7 3	1.543	IDENTIFIED 11.02 <input type="checkbox"/>
Thorium-234	✓	2.325	0.912	pCi/g 2.049	2.00	63.27 2	1.193	IDENTIFIED 38.23 <input type="checkbox"/>
Tin-126	u	0.3169	0.05996	pCi/g 0.1227	N	87.54 3	1.799	IDENTIFIED 18.39 <input type="checkbox"/>
Titanium-44	u	0.2817	0.02399	pCi/g 0.07732	N	0	11 0	FAIL_ABUND 0 <input type="checkbox"/>
Total Uranium		7.0198	2.71E-06	ug/g 3.0513	N	0		<input type="checkbox"/>
Uranium-234	u	0.856	0.08291	pCi/g 0.1066	N	609.5 4	1.432	IDENTIFIED 8.852 <input type="checkbox"/>
Uranium-238	HE	2.325	0.912	pCi/g 2.049	N	63.27 2	1.193	IDENTIFIED 38.23 <input type="checkbox"/>
Zirconium-97		5.97E+06	2.40E+06	pCi/g 0	N	0	11 0	SHORT_HLIF 0 <input type="checkbox"/>

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229012	06-JAN-10 12:00	22-JAN-10 14:49	16.1	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	u	1.644	0.1908	pCi/g 0.2348	N	911.6 3	1.931	IDENTIFIED	9.833	<input type="checkbox"/>	
Americium-243	u	0.3047	0.04607	pCi/g 0.1076	N	74.63 1	1.034	IDENTIFIED	14.09	<input type="checkbox"/>	
Annihilation Rad.		0.2028	0.03863	pCi/g 0.04917	N	511.3 1	1.945	IDENTIFIED	18.77	<input type="checkbox"/>	
Bismuth-211	INT	2.97	0.2536	pCi/g 0.3191	Y	352 4	1.265	IDENTIFIED	7.72	u u	
Bismuth-212	HE	0.9663	0.2412	pCi/g 0.6849	N	0	7 0	FAIL_ABUND 0		<input type="checkbox"/>	
Bismuth-214	✓	1.008	0.08955	pCi/g 0.1103	0.200	609.6 4	1.565	IDENTIFIED	8.03	<input type="checkbox"/>	
Cadmium-109	INT	2.752	0.6229	pCi/g 1.579	Y	86.99 3	1.505	IDENTIFIED	21.93	u u	
Cerium-143		881.1	170.4	pCi/g 0	N	0	7 0	SHORT_HLIF 0		<input type="checkbox"/>	
Gross Gamma		9.49	1.536	pCi/g 2.642	N	0				<input type="checkbox"/>	
Iodine-123	HE	1.02E+06	1.06E+07	pCi/g 0	N	0	7 0	SHORT_HLIF 0		<input type="checkbox"/>	
Lead-212	✓	1.462	0.08672	pCi/g 0.1167	0.100	238.5 4	1.21	IDENTIFIED	4.56	<input type="checkbox"/>	
Lead-214	✓	1.033	0.09224	pCi/g 0.1112	0.100	352 4	1.265	IDENTIFIED	7.72	<input type="checkbox"/>	
Neptunium-237	HE	0.793	0.1973	pCi/g 0.4658	N	86.99 3	1.505	IDENTIFIED	21.93	<input type="checkbox"/>	
Niobium-95m	HE	0.3022	0.06741	pCi/g 0.228	N	0	7 0	NOT_IDENTI 0		<input type="checkbox"/>	
Polonium-212	u	1.462	0.08672	pCi/g 0.1167	N	238.5 4	1.21	IDENTIFIED	4.56	<input type="checkbox"/>	
Polonium-214	u	1.033	0.09224	pCi/g 0.1112	N	352 4	1.265	IDENTIFIED	7.72	<input type="checkbox"/>	
Polonium-216	u	1.462	0.08672	pCi/g 0.1167	N	238.5 4	1.21	IDENTIFIED	4.56	<input type="checkbox"/>	
Polonium-218	u	1.033	0.09224	pCi/g 0.1112	N	352 4	1.265	IDENTIFIED	7.72	<input type="checkbox"/>	
Potassium-40	✓	38.62	1.987	pCi/g 0.4898	1.00	1461 1	2.103	IDENTIFIED	2.817	<input type="checkbox"/>	
Radium-224	INT	2.745	0.4522	pCi/g 1.328	Y	241.7 1	1.421	IDENTIFIED	16.19	u u	
Radium-226	✓	1.008	0.08955	pCi/g 0.1103	Y	609.6 4	1.565	IDENTIFIED	8.03	<input type="checkbox"/>	
Radium-228	✓	1.644	0.1908	pCi/g 0.2348	0.500	911.6 3	1.931	IDENTIFIED	9.833	<input type="checkbox"/>	
Thallium-200	HE	339.7	414.2	pCi/g 0	N	0	7 0	SHORT_HLIF 0		<input type="checkbox"/>	
Thallium-208	✓	0.4389	0.04606	pCi/g 0.05475	0.080	583.4 1	1.365	IDENTIFIED	9.942	<input type="checkbox"/>	
Thorium-228	u	1.486	0.08812	pCi/g 0.1186	N	238.5 4	1.21	IDENTIFIED	4.56	<input type="checkbox"/>	
Thorium-230	u	1.008	0.08955	pCi/g 0.1103	N	609.6 4	1.565	IDENTIFIED	8.03	<input type="checkbox"/>	
Thorium-232	u	1.644	0.1908	pCi/g 0.2348	N	911.6 3	1.931	IDENTIFIED	9.833	<input type="checkbox"/>	
Tin-126	HE	0.2701	0.06114	pCi/g 0.1639	N	86.99 3	1.505	IDENTIFIED	21.93	<input type="checkbox"/>	
Titanium-44		0.3686	0.03537	pCi/g 0.08361	N	0	7 0	FAIL_ABUND 0		<input type="checkbox"/>	

Total Uranium 5.7053 3.94E-06 ug/g 4.4676 N 0 ☐  
 Uranium-234 *ML* 1.008 0.08955 pCi/g 0.1103 N 609.6 4 1.565 IDENTIFIED 8.03 ☐  
 Zirconium-97 7.04E+06 2.82E+06 pCi/g 0 N 0 7 0 SHORT\_HLIF 0 ☐

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244229013	06-JAN-10 12:00	22-JAN-10 16:50	16.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>ML</i>	1.197	0.2328	pCi/g	0.3058	N	911	3	1.565	IDENTIFIED	18.75	<input type="checkbox"/>
Americium-243 <i>ML</i>	0.3507	0.03409	pCi/g	0.06694	N	74.75	1	1.167	IDENTIFIED	8.712	<input type="checkbox"/>
Annihilation Rad.	0.1857	0.04639	pCi/g	0.06309	N	510.6	1	1.759	IDENTIFIED	24.74	<input type="checkbox"/>
Bismuth-210 HE	1.175	0.4617	pCi/g	0.8705	N	46.61	3	1.258	IDENTIFIED	39.08	<input type="checkbox"/>
Bismuth-211 <i>INT</i>	3.017	0.2708	pCi/g	0.455	Y	351.6	4	1.32	IDENTIFIED	8.206	<input checked="" type="checkbox"/> <i>UI</i>
Bismuth-212 HE	1.09	0.4306	pCi/g	0.9128	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214 <i>✓</i>	1.11	0.1322	pCi/g	0.1385	0.200	608.8	4	1.748	IDENTIFIED	10.95	<input type="checkbox"/>
Cadmium-109 <i>INT</i>	4.063	0.5731	pCi/g	1.092	Y	86.99	3	1.436	IDENTIFIED	13.54	<input checked="" type="checkbox"/> <i>UI</i>
Cerium-143	995.4	205.7	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Cesium-135 HE	0.3458	0.1054	pCi/g	0.3412	N	0	9	0	NOT_IDENTI	0	<input type="checkbox"/>
Gross Gamma	8.467	1.498	pCi/g	3.012	N	0					<input type="checkbox"/>
Iodine-123 HE	1.98E+07	1.26E+07	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-210 HE	1.175	0.4617	pCi/g	0.8705	N	46.61	3	1.258	IDENTIFIED	39.08	<input type="checkbox"/>
Lead-212 <i>✓</i>	1.48	0.09229	pCi/g	0.1061	0.100	238.5	4	1.187	IDENTIFIED	4.275	<input type="checkbox"/>
Lead-214 <i>✓</i>	1.05	0.09811	pCi/g	0.1587	0.100	351.6	4	1.32	IDENTIFIED	8.206	<input type="checkbox"/>
Lutetium-177 HE	2.495	0.7922	pCi/g	2.471	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>
Neptunium-237 <i>ML</i>	1.171	0.2046	pCi/g	0.3134	N	86.99	3	1.436	IDENTIFIED	13.54	<input type="checkbox"/>
Niobium-97 HE	15840	1.99E+05	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-210 HE	1.175	0.4611	pCi/g	0.8705	N	46.61	3	1.258	IDENTIFIED	39.08	<input type="checkbox"/>
Polonium-212 <i>ML</i>	1.48	0.09229	pCi/g	0.1061	N	238.5	4	1.187	IDENTIFIED	4.275	<input type="checkbox"/>
Polonium-214 <i>ML</i>	1.05	0.09811	pCi/g	0.1587	N	351.6	4	1.32	IDENTIFIED	8.206	<input type="checkbox"/>
Polonium-216 <i>ML</i>	1.48	0.09229	pCi/g	0.1061	N	238.5	4	1.187	IDENTIFIED	4.275	<input type="checkbox"/>
Polonium-218 <i>ML</i>	1.05	0.09811	pCi/g	0.1587	N	351.6	4	1.32	IDENTIFIED	8.206	<input type="checkbox"/>
Potassium-40 <i>✓</i>	28.78	1.39	pCi/g	0.8043	1.00	1460	1	2.49	IDENTIFIED	3.737	<input type="checkbox"/>
Radium-224 <i>INT</i>	3.958	0.815	pCi/g	1.208	Y	241.4	1	1.821	IDENTIFIED	20.21	<input checked="" type="checkbox"/> <i>UI</i>
Radium-226 <i>✓</i>	1.11	0.1322	pCi/g	0.1385	Y	608.8	4	1.748	IDENTIFIED	10.95	<input type="checkbox"/>
Radium-228 <i>✓</i>	1.197	0.2328	pCi/g	0.3058	0.500	911	3	1.565	IDENTIFIED	18.75	<input type="checkbox"/>
Sodium-24 HE	8.87E+05	1.89E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208 <i>✓</i>	0.5317	0.05702	pCi/g	0.08045	0.080	582.8	1	1.474	IDENTIFIED	9.894	<input type="checkbox"/>
Thorium-228 <i>ML</i>	1.504	0.09379	pCi/g	0.1079	N	238.5	4	1.187	IDENTIFIED	4.275	<input type="checkbox"/>
Thorium-230 <i>ML</i>	1.11	0.1322	pCi/g	0.1385	N	608.8	4	1.748	IDENTIFIED	10.95	<input type="checkbox"/>
Thorium-232 <i>ML</i>	1.197	0.2328	pCi/g	0.3058	N	911	3	1.565	IDENTIFIED	18.75	<input type="checkbox"/>
Tin-126 <i>ML</i>	0.3987	0.05624	pCi/g	0.1071	N	86.99	3	1.436	IDENTIFIED	13.54	<input type="checkbox"/>
Titanium-44	0.3613	0.02742	pCi/g	0.06082	N	0	9	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium	3.277	1.80E-06	ug/g	1.6676	N	0					<input type="checkbox"/>
Uranium-234 <i>ML</i>	1.11	0.1322	pCi/g	0.1385	N	608.8	4	1.748	IDENTIFIED	10.95	<input type="checkbox"/>
Zirconium-97	1.45E+07	4.06E+06	pCi/g	0	N	0	9	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
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244229014	06-JAN-10 12:00	22-JAN-10 16:50	16.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>AM</i>	1.416	0.171	pCi/g	0.2581	N	910.7	3	2.173	IDENTIFIED	10.72	☐
Americium-243 <i>AM</i>	0.3572	0.05903	pCi/g	0.1215	N	74.03	1	1.581	IDENTIFIED	15.56	☐
Annihilation Rad.	0.1278	0.03848	pCi/g	0.05014	N	510.3	1	2.124	IDENTIFIED	29.97	☐
Bismuth-211 <i>INT</i>	3.842	0.2982	pCi/g	0.3694	Y	351.2	4	1.604	IDENTIFIED	6.96	☑ <i>UJ</i>
Bismuth-212 <i>AM</i>	1.403	0.2838	pCi/g	0.7762	N	0	10	0	FAIL_ABUND	0	☐
Bismuth-214 <i>✓</i>	1.018	0.09478	pCi/g	0.1254	0.200	608.7	4	1.632	IDENTIFIED	8.534	☐
Cerium-143	1903	311.9	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐
Cesium-135 <i>AM</i>	0.603	0.1427	pCi/g	0.2868	N	269.6	1	1.792	IDENTIFIED	23.27	☐
Gross Gamma	8.839	1.681	pCi/g	2.985	N	0					☐
Iodine-133 <i>HE</i>	1617	8099	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐
Iodine-135	3.15E+16	0	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐
Lead-212 <i>✓</i>	1.553	0.09053	pCi/g	0.1115	0.100	238	4	1.316	IDENTIFIED	4.105	☐
Lead-214 <i>✓</i>	1.337	0.1094	pCi/g	0.1287	0.100	351.2	4	1.604	IDENTIFIED	6.96	☐
Lawrencium-177 <i>HE</i>	3.171	0.9727	pCi/g	2.703	N	0	10	0	FAIL_ABUND	0	☐
Niobium-95m <i>LA</i>	1.617	0.1257	pCi/g	0.4158	N	0	10	0	NOT_IDENTI	0	☐
Niobium-97 <i>HE</i>	26810	1.57E+05	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐
Polonium-212 <i>AM</i>	1.553	0.09053	pCi/g	0.1115	N	238	4	1.316	IDENTIFIED	4.105	☐
Polonium-214 <i>AM</i>	1.337	0.1094	pCi/g	0.1287	N	351.2	4	1.604	IDENTIFIED	6.96	☐
Polonium-216 <i>AM</i>	1.553	0.09053	pCi/g	0.1115	N	238	4	1.316	IDENTIFIED	4.105	☐
Polonium-218 <i>AM</i>	1.337	0.1094	pCi/g	0.1287	N	351.2	4	1.604	IDENTIFIED	6.96	☐
Potassium-40 <i>✓</i>	30.51	1.5	pCi/g	0.6384	1.00	1460	1	2.176	IDENTIFIED	3.089	☐
Protactinium-234m <i>HE</i>	13.73	3.529	pCi/g	10.24	N	0	10	0	FAIL_ABUND	0	☐
Radium-224 <i>INT</i>	4.227	0.604	pCi/g	1.273	Y	241	1	1.835	IDENTIFIED	13.86	☑ <i>UJ</i>
Radium-226 <i>✓</i>	1.018	0.09478	pCi/g	0.1254	Y	608.7	4	1.632	IDENTIFIED	8.534	☐
Radium-228 <i>✓</i>	1.416	0.171	pCi/g	0.2581	0.500	910.7	3	2.173	IDENTIFIED	10.72	☐
Thallium-208 <i>✓</i>	0.4701	0.05403	pCi/g	0.06859	0.080	582.5	1	1.642	IDENTIFIED	11.04	☐
Thorium-228 <i>AM</i>	1.578	0.09201	pCi/g	0.1133	N	238	4	1.316	IDENTIFIED	4.105	☐
Thorium-230 <i>AM</i>	1.018	0.09478	pCi/g	0.1254	N	608.7	4	1.632	IDENTIFIED	8.534	☐
Thorium-232 <i>AM</i>	1.416	0.171	pCi/g	0.2581	N	910.7	3	2.173	IDENTIFIED	10.72	☐
Titanium-44 <i>AM</i>	0.1999	0.0291	pCi/g	0.09484	N	0	10	0	NOT_IDENTI	0	☐
Total Uranium	7.3994	4.11E-06	ug/g	5.6862	N	0					☐
Uranium-234 <i>AM</i>	1.018	0.09478	pCi/g	0.1254	N	608.7	4	1.632	IDENTIFIED	8.534	☐
Zirconium-97	2.20E+07	3.77E+06	pCi/g	0	N	0	10	0	SHORT_HLIF	0	☐

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
244229015	06-JAN-10 12:00	22-JAN-10 16:51	16.2	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228 <i>AM</i>	1.48	0.1724	pCi/g	0.1669	N	911	3	1.708	IDENTIFIED	9.575	☐
Americium-243 <i>AM</i>	0.3693	0.0413	pCi/g	0.08743	N	75.09	1	1.134	IDENTIFIED	10.37	☐
Annihilation Rad.	0.1809	0.02855	pCi/g	0.03576	N	510.8	1	1.574	IDENTIFIED	15.43	☐
Bismuth-211 <i>INT</i>	3.715	0.2313	pCi/g	0.249	Y	351.9	4	1.335	IDENTIFIED	5.337	☑ <i>UJ</i>
Bismuth-212 HE	0.7428	0.2144	pCi/g	0.5416	N	0	8	0	FAIL_ABUND	0	☐
Bismuth-214 <i>✓</i>	0.9591	0.08266	pCi/g	0.09476	0.200	609.2	4	1.774	IDENTIFIED	7.371	☐
Cadmium-109 <i>INT</i>	2.632	0.5017	pCi/g	1.141	Y	87.23	3	1.283	IDENTIFIED	18.5	☑ <i>UJ</i>
Cerium-143	857.6	161.5	pCi/g	0	N	0	8	0	SHORT_HLIF	0	☐



Cesium-134	LA	0.101	0.03512	pCi/g	0.09844	0.100	0	9	0	FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Cesium-137	✓	0.2623	0.03597	pCi/g	0.07078	0.100	660.9	2	2.345	IDENTIFIED 13.47	<input type="checkbox"/>	
Gross Gamma		9.167	1.443	pCi/g	3.137	N		0			<input type="checkbox"/>	
Iodine-135		3.25E+16		pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Lead-212	✓	1.647	0.08223	pCi/g	0.0991	0.100	238.3	4	1.259	IDENTIFIED 3.468	<input type="checkbox"/>	
Lead-214	✓	1.233	0.09239	pCi/g	0.1269	0.100	351.5	4	1.219	IDENTIFIED 6.221	<input type="checkbox"/>	
Lutetium-177	HE	3.332	0.894	pCi/g	2.459	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237	ML	1.006	0.199	pCi/g	0.4069	N	87.08	3	1.408	IDENTIFIED 16.16	<input type="checkbox"/>	
Niobium-95m	LA	0.6301	0.09041	pCi/g	0.3014	N	0	9	0	NOT_IDENTI 0	<input type="checkbox"/>	
Niobium-97		6.42E+05	2.11E+05	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-212	ML	1.647	0.08223	pCi/g	0.0991	N	238.3	4	1.259	IDENTIFIED 3.468	<input type="checkbox"/>	
Polonium-214	ML	1.233	0.09239	pCi/g	0.1269	N	351.5	4	1.219	IDENTIFIED 6.221	<input type="checkbox"/>	
Polonium-216	ML	1.647	0.08223	pCi/g	0.0991	N	238.3	4	1.259	IDENTIFIED 3.468	<input type="checkbox"/>	
Polonium-218	ML	1.233	0.09239	pCi/g	0.1269	N	351.5	4	1.219	IDENTIFIED 6.221	<input type="checkbox"/>	
Potassium-40	✓	29.97	1.517	pCi/g	0.5575	1.00	1459	1	2.481	IDENTIFIED 3.411	<input type="checkbox"/>	
Radium-224	DT	4.263	0.5778	pCi/g	1.128	Y	241.4	1	1.774	IDENTIFIED 13.26	<input checked="" type="checkbox"/>	U+
Radium-226	✓	0.9657	0.0969	pCi/g	0.1231	Y	608.6	4	1.656	IDENTIFIED 9.303	<input type="checkbox"/>	
Radium-228	✓	1.458	0.1887	pCi/g	0.2522	0.500	910.3	3	1.693	IDENTIFIED 11.58	<input type="checkbox"/>	
Thallium-200	HE	770.5	486.3	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208	✓	0.4359	0.04421	pCi/g	0.06608	0.080	582.6	1	1.735	IDENTIFIED 9.61	<input type="checkbox"/>	
Thorium-228	ML	1.673	0.08357	pCi/g	0.1007	N	238.3	4	1.259	IDENTIFIED 3.468	<input type="checkbox"/>	
Thorium-230	ML	0.9657	0.09689	pCi/g	0.1231	N	608.6	4	1.656	IDENTIFIED 9.303	<input type="checkbox"/>	
Thorium-232	ML	1.458	0.1887	pCi/g	0.2522	N	910.3	3	1.693	IDENTIFIED 11.58	<input type="checkbox"/>	
Thorium-234	✓	3.537	1.604	pCi/g	2.845	2.00	63.49	2	1.306	IDENTIFIED 44.46	<input type="checkbox"/>	
Tin-126	ML	0.3426	0.05781	pCi/g	0.1365	N	87.08	3	1.408	IDENTIFIED 16.16	<input type="checkbox"/>	
Titanium-44	LA	0.3542	0.03192	pCi/g	0.09433	N	0	9	0	FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium		10.629	4.77E-06	ug/g	4.2348	N		0			<input type="checkbox"/>	
Uranium-234	ML	0.9657	0.09689	pCi/g	0.1231	N	608.6	4	1.656	IDENTIFIED 9.303	<input type="checkbox"/>	
Uranium-238	HE	3.537	1.604	pCi/g	2.845	N	63.49	2	1.306	IDENTIFIED 44.46	<input type="checkbox"/>	
Zirconium-97		2.07E+07	3.63E+06	pCi/g	0	N	0	9	0	SHORT_HLIF 0	<input type="checkbox"/>	

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	queue
1202014509		22-JAN-10 16:52	0	LCS	LOAD	1		GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err (%)	Qual	Qual Comment
Actinium-228	HE	0.9507	0.2606	pCi/g	0.7123	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>
Americium-241	✓	14.03	0.6923	pCi/g	0.5361	0.200	59.53	1	1.164	IDENTIFIED 2.721	<input type="checkbox"/>
Americium-243	HE	0.2378	0.0579	pCi/g	0.1557	N	74.93	1	1.399	IDENTIFIED 24.02	<input type="checkbox"/>
Barium-137m		5.717	0.2095	pCi/g	0.1006	N	661.8	2	1.582	IDENTIFIED 2.224	<input type="checkbox"/>
Bismuth-211		1.717	0.3257	pCi/g	0.6451	Y	352.2	4	1.558	IDENTIFIED 18.7	<input type="checkbox"/>
Bismuth-214		0.6082	0.1324	pCi/g	0.2023	0.200	608.8	4	1.562	IDENTIFIED 21.42	<input type="checkbox"/>
Cadmium-109	✓	32.51	1.979	pCi/g	2.438	Y	88.13	2	1.204	IDENTIFIED 4.129	<input type="checkbox"/>
Cesium-137		6.043	0.222	pCi/g	0.1063	0.100	661.8	2	1.582	IDENTIFIED 2.224	<input type="checkbox"/>
Cobalt-57		0.2759	0.03826	pCi/g	0.06531	N	121.8	1	1.622	IDENTIFIED 13.54	<input type="checkbox"/>
Cobalt-60	✓	6.468	0.2901	pCi/g	0.07358	0.100	1333	1	2.018	IDENTIFIED 2.559	<input type="checkbox"/>
Gross Gamma		26.86	3.133	pCi/g	3.685	N		0			<input type="checkbox"/>
Iodine-133	HE	1.156	15.1	pCi/g	0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>

Lead-212		0.8643	0.08394	pCi/g	0.1968	0.100	238.7	4	1.22	IDENTIFIED	9.017	<input type="checkbox"/>
Lead-214		0.5971	0.1144	pCi/g	0.2248	0.100	352.2	4	1.558	IDENTIFIED	18.7	<input type="checkbox"/>
Neptunium-237		7.539	0.9062	pCi/g	1.335	N	0	11	0	NOT_IDENTI	0	<input type="checkbox"/>
Niobium-97		365.6	74.96	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Polonium-212		0.8643	0.08394	pCi/g	0.1968	N	238.7	4	1.22	IDENTIFIED	9.017	<input type="checkbox"/>
Polonium-214		0.5971	0.1144	pCi/g	0.2248	N	352.2	4	1.558	IDENTIFIED	18.7	<input type="checkbox"/>
Polonium-216		0.8643	0.08394	pCi/g	0.1968	N	238.7	4	1.22	IDENTIFIED	9.017	<input type="checkbox"/>
Polonium-218		0.5971	0.1144	pCi/g	0.2248	N	352.2	4	1.558	IDENTIFIED	18.7	<input type="checkbox"/>
Radium-224		7.07	0.8142	pCi/g	2.854	Y	0	11	0	NOT_IDENTI	0	<input type="checkbox"/>
Radium-226		0.6082	0.1324	pCi/g	0.2023	Y	608.8	4	1.562	IDENTIFIED	21.42	<input type="checkbox"/>
Radium-228		0.9507	0.2606	pCi/g	0.7123	0.500	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Silver-110m	HE	0.1359	0.03782	pCi/g	0.1283	N	0	11	0	NOT_IDENTI	0	<input type="checkbox"/>
Sodium-24	HE	89.28	111.8	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208		0.364	0.07228	pCi/g	0.1134	0.080	583.9	1	1.583	IDENTIFIED	19.57	<input type="checkbox"/>
Thorium-228		0.8709	0.08459	pCi/g	0.1983	N	238.7	4	1.22	IDENTIFIED	9.017	<input type="checkbox"/>
Thorium-230		0.6081	0.1324	pCi/g	0.2023	N	608.8	4	1.562	IDENTIFIED	21.42	<input type="checkbox"/>
Thorium-232	HE	0.9507	0.2606	pCi/g	0.7123	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Tin-126		3.231	0.1967	pCi/g	0.2434	N	88.13	2	1.204	IDENTIFIED	4.129	<input type="checkbox"/>
Titanium-44		0.2434	0.04922	pCi/g	0.1181	N	0	11	0	FAIL_ABUND	0	<input type="checkbox"/>
Uranium-234		0.6081	0.1324	pCi/g	0.2023	N	608.8	4	1.562	IDENTIFIED	21.42	<input type="checkbox"/>
Zirconium-97	HE	1965	1297	pCi/g	0	N	0	11	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
941239	244229015	SAMPLE	22-JAN-10	Strontium-85	0.1004	0.01807	pCi/g	0.03198	Y
				Thallium-208	0.4765	0.03421	pCi/g	0.02582	0.080
				Thorium-231	0.6953	0.3222	pCi/g	0.4891	Y
				Yttrium-91	16.86	8.164	pCi/g	14.4	N
				Zirconium-97	1.42E+07	2.34E+06	pCi/g	0	N
941239	1202014507	MB	22-JAN-10	Iodine-123	25.47	120.5	pCi/g	0	N
				Iodine-135	1.74E+07	9.56E+06	pCi/g	0	N
				Krypton-85	17.89	2.617	pCi/g	4.9	N
				Strontium-85	0.08483	0.01241	pCi/g	0.02324	Y
				Zirconium-97	1725	418.9	pCi/g	0	N
941239	1202014508	DUP	22-JAN-10	Bismuth-211	3.546	0.249	pCi/g	0.1874	Y
				Bismuth-214	0.9657	0.0969	pCi/g	0.06158	0.200
				Cadmium-109	3.491	0.5891	pCi/g	0.6918	Y
				Cerium-143	1730	252.7	pCi/g	0	N
				Cesium-134	0.101	0.03512	pCi/g	0.04925	0.100
				Cesium-137	0.2623	0.03597	pCi/g	0.03541	0.100
				Gross Gamma	9.167	1.443	pCi/g	1.521	N
				Iodine-135	3.25E+16	0	pCi/g	0	N
				Krypton-85	10.43	4.205	pCi/g	6.818	N
				Lead-212	1.647	0.08223	pCi/g	0.04858	0.100
				Lead-214	1.233	0.09239	pCi/g	0.0635	0.100
				Mercury-203	0.05478	0.02399	pCi/g	0.03913	0.100
				Niobium-97	6.42E+05	2.11E+05	pCi/g	0	N
				Potassium-40	29.97	1.517	pCi/g	0.2789	1.00
				Radium-224	4.263	0.5778	pCi/g	0.5642	Y
				Radium-226	0.9657	0.0969	pCi/g	0.06158	Y
				Radium-228	1.458	0.1887	pCi/g	0.1262	0.500
				Strontium-85	0.05409	0.02181	pCi/g	0.03536	Y
				Thallium-200	770.5	486.3	pCi/g	0	N
				Thallium-208	0.4359	0.04421	pCi/g	0.03308	0.080
				Thorium-234	3.537	1.604	pCi/g	1.423	2.00
				Uranium-235	0.2312	0.1182	pCi/g	0.2632	0.500
				Zirconium-97	2.07E+07	3.63E+06	pCi/g	0	N
941239	1202014509	LCS	22-JAN-10	Americium-241	14.03	0.6923	pCi/g	0.2682	0.200
				Barium-137m	5.717	0.2095	pCi/g	0.05031	N
				Bismuth-211	1.717	0.3257	pCi/g	0.3228	Y
				Bismuth-214	0.8082	0.1324	pCi/g	0.1012	0.200

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 15:57:23.95

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229001.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:56:54
Sample ID          : G244229001      Sample quantity   : 1.18790E+02 GRAM
Detector name      : GAM15           Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00   Elapsed real time: 0 03:00:02.04  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials  : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 941239          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.31*	28	602	0.75	125.12	122	8	2.60E-03	157.3	
2	3	74.19	518	879	1.74	148.86	142	17	4.80E-02	12.0	1.77E+00
3	3	76.52*	698	673	1.29	153.53	142	17	6.47E-02	7.8	
4	2	83.52*	155	658	1.60	167.52	163	29	1.43E-02	33.0	2.22E+00
5	2	86.59*	358	647	1.61	173.66	163	29	3.31E-02	14.8	
6	2	89.32	204	638	1.61	179.12	163	29	1.89E-02	25.6	
7	2	92.21*	321	501	1.31	184.89	163	29	2.98E-02	15.2	
8	0	185.31*	281	630	1.38	371.01	365	12	2.60E-02	19.7	
9	0	208.43	127	491	1.38	417.23	413	9	1.18E-02	32.7	
10	3	238.02*	1762	343	1.28	476.39	471	18	1.63E-01	3.2	1.08E+00
11	3	240.92	466	447	1.97	482.18	471	18	4.32E-02	13.5	
12	0	269.28	114	314	1.08	538.87	534	9	1.06E-02	29.4	
13	0	277.59	48	364	1.31	555.48	548	10	4.46E-03	75.9	
14	0	294.52*	528	316	1.38	589.35	583	11	4.89E-02	8.0	
15	0	299.73	165	321	1.36	599.75	595	12	1.53E-02	23.2	
16	0	337.62	392	327	1.33	675.50	669	15	3.63E-02	11.3	
17	0	351.31*	911	323	1.46	702.87	697	14	8.43E-02	5.5	
18	0	461.62	120	263	1.85	923.41	916	15	1.11E-02	30.8	
19	0	510.19*	172	258	2.03	1020.52	1012	19	1.59E-02	26.5	
20	0	582.55*	551	162	1.67	1165.18	1160	12	5.11E-02	6.6	
21	0	608.75*	636	187	1.52	1217.57	1211	14	5.89E-02	6.3	
22	0	726.70*	140	152	1.67	1453.40	1445	16	1.29E-02	21.8	
23	0	767.43	70	107	2.02	1534.84	1529	11	6.46E-03	31.2	
24	0	794.02*	85	106	1.63	1588.00	1581	16	7.84E-03	29.6	
25	0	860.30*	73	120	1.63	1720.54	1711	14	6.72E-03	34.5	
26	0	910.60*	419	102	1.70	1821.10	1813	17	3.88E-02	7.5	
27	0	934.13	39	85	1.93	1868.15	1860	13	3.63E-03	50.9	
28	0	964.31	60	57	1.10	1928.50	1924	8	5.53E-03	25.5	
29	0	968.39*	234	81	1.81	1936.66	1932	11	2.17E-02	9.7	
30	0	1119.97*	189	111	1.93	2239.77	2232	18	1.75E-02	15.2	
31	0	1407.18	37	15	1.71	2814.09	2806	15	3.45E-03	27.9	
32	0	1460.11*	1795	39	2.12	2919.95	2910	22	1.66E-01	2.5	
33	0	1763.54*	132	0	2.05	3526.78	3519	15	1.22E-02	9.5	

Flag: "\*" = Peak area was modified by background subtraction



## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 15:57:27

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 12:56:54
Sample ID        : G244229001           Sample quantity  : 118.79 GRAM
Sample type       : SOLID                Sample geometry   :
Detector name     : GAMMA15              Detector geometry: CAN
Elapsed live time : 0 03:00:00.00         Elapsed real time: 0 03:00:02.04   0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                    Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   : 75.00                 WTM error limit   : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.546E+01	3.256E+00	5.785E-01	4.422E-02	61.305
CD-109	+	88.03	*	2.568E+00	1.347E+00	1.432E+00	1.656E-01	1.793
SN-126		64.28		1.265E+00	9.343E-01	1.381E+00	2.368E-01	0.916
	+	86.94		1.923E+00	9.898E-01	5.955E-01	2.504E-01	3.229
	+	87.57	*	4.626E-01	1.472E-01	1.417E-01	1.635E-02	3.265
CS-135	+	268.24	*	3.894E-01	2.314E-01	2.764E-01	2.363E-02	1.409
TL-208	+	277.35		3.943E-01	6.000E-01	6.244E-01	6.996E-02	0.631
	+	510.84		6.816E-01	3.674E-01	2.382E-01	2.398E-02	2.861
	+	583.14	*	6.186E-01	9.028E-02	6.413E-02	4.083E-03	9.646
	+	860.37		7.607E-01	5.290E-01	4.391E-01	3.774E-02	1.732
BI-211	+	72.87		2.728E+01	7.227E+00	6.476E+00	7.221E-01	4.213
	+	351.07	*	4.625E+00	6.017E-01	3.728E-01	2.562E-02	12.405
PB-212	+	74.81		3.238E+00	9.096E-01	7.150E-01	1.038E-01	4.529
	+	77.11		2.393E+00	4.594E-01	3.811E-01	4.232E-02	6.279
	+	87.30		2.139E+00	7.137E-01	6.583E-01	1.004E-01	3.250
	+	238.63	*	1.972E+00	2.067E-01	1.001E-01	8.285E-03	19.704
	+	300.09		2.844E+00	1.344E+00	1.306E+00	1.171E-01	2.177
PO-212	+	74.81		3.238E+00	9.096E-01	7.150E-01	1.038E-01	4.529
	+	77.11		2.393E+00	4.594E-01	3.811E-01	4.232E-02	6.279
	+	87.30		2.139E+00	7.137E-01	6.583E-01	1.004E-01	3.250
		115.19		1.240E+00	4.164E+00	6.858E+00	5.247E-01	0.181
	+	238.63	*	1.972E+00	2.067E-01	1.001E-01	8.285E-03	19.704
	+	300.09		2.844E+00	1.344E+00	1.306E+00	1.171E-01	2.177
BI-214	+	609.31	*	1.343E+00	1.959E-01	1.165E-01	8.653E-03	11.523
	+	1120.29		2.082E+00	6.611E-01	4.830E-01	4.456E-02	4.311
	+	1764.49		1.990E+00	3.997E-01	3.210E-01	1.998E-02	6.200
PB-214	+	74.81		5.580E+00	1.535E+00	1.232E+00	1.645E-01	4.529
	+	77.11		4.102E+00	8.474E-01	6.533E-01	8.798E-02	6.279
	+	87.30		3.665E+00	1.200E+00	1.128E+00	1.563E-01	3.250
	+	241.98		3.133E+00	8.927E-01	5.594E-01	5.000E-02	5.601
	+	295.21		1.597E+00	2.963E-01	2.516E-01	2.327E-02	6.348
	+	351.92	*	1.609E+00	2.255E-01	1.299E-01	1.120E-02	12.381
PO-214	+	74.81		5.580E+00	1.535E+00	1.232E+00	1.645E-01	4.529
	+	77.11		4.102E+00	8.474E-01	6.533E-01	8.798E-02	6.279

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	87.30		3.665E+00	1.200E+00	1.128E+00	1.563E-01	3.250
	+	241.98		3.133E+00	8.927E-01	5.594E-01	5.000E-02	5.601
	+	295.21		1.597E+00	2.963E-01	2.516E-01	2.327E-02	6.348
	+	351.92	*	1.609E+00	2.255E-01	1.299E-01	1.120E-02	12.381
	+	74.81		3.238E+00	9.096E-01	7.150E-01	1.038E-01	4.529
	+	77.11		2.393E+00	4.594E-01	3.811E-01	4.232E-02	6.279
	+	87.30		2.139E+00	7.137E-01	6.583E-01	1.004E-01	3.250
PO-218	+	238.63	*	1.972E+00	2.067E-01	1.001E-01	8.285E-03	19.704
	+	300.09		2.844E+00	1.344E+00	1.306E+00	1.171E-01	2.177
	+	74.81		5.580E+00	1.535E+00	1.232E+00	1.645E-01	4.529
	+	77.11		4.102E+00	8.474E-01	6.533E-01	8.798E-02	6.279
	+	87.30		3.665E+00	1.200E+00	1.128E+00	1.563E-01	3.250
	+	241.98		3.133E+00	8.927E-01	5.594E-01	5.000E-02	5.601
	+	295.21		1.597E+00	2.963E-01	2.516E-01	2.327E-02	6.348
RA-224	+	351.92	*	1.609E+00	2.255E-01	1.299E-01	1.120E-02	12.381
	+	240.98	*	5.941E+00	1.660E+00	1.139E+00	7.926E-02	5.217
	+	609.31	*	1.343E+00	1.959E-01	1.165E-01	8.653E-03	11.523
RA-226	+	1120.29		2.082E+00	6.611E-01	4.830E-01	4.456E-02	4.311
	+	1764.49		1.990E+00	3.997E-01	3.210E-01	1.998E-02	6.200
	+	338.32		2.195E+00	1.024E+00	3.972E-01	1.623E-01	5.526
AC-228	+	911.07	*	2.082E+00	3.876E-01	2.192E-01	2.436E-02	9.498
	+	969.11		2.050E+00	6.177E-01	3.688E-01	8.528E-02	5.560
	+	338.32		2.195E+00	1.024E+00	3.972E-01	1.623E-01	5.526
RA-228	+	911.07	*	2.082E+00	3.876E-01	2.192E-01	2.436E-02	9.498
	+	969.11		2.050E+00	6.177E-01	3.688E-01	8.528E-02	5.560
	+	74.81		3.290E+00	8.724E-01	7.265E-01	8.113E-02	4.529
TH-228	+	77.11		2.432E+00	4.669E-01	3.872E-01	4.300E-02	6.279
	+	87.30		2.174E+00	6.919E-01	6.689E-01	7.706E-02	3.250
	+	238.63	*	2.004E+00	2.101E-01	1.017E-01	8.418E-03	19.704
TH-230	+	300.09		2.889E+00	2.170E+00	1.327E+00	7.836E-01	2.177
	+	609.31	*	1.343E+00	1.959E-01	1.165E-01	8.652E-03	11.523
	+	1120.29		2.082E+00	6.611E-01	4.830E-01	4.456E-02	4.311
TH-232	+	1764.49		1.990E+00	3.997E-01	3.210E-01	1.997E-02	6.200
	+	338.32		2.195E+00	5.139E-01	3.972E-01	2.557E-02	5.526
	+	911.07	*	2.082E+00	3.876E-01	2.192E-01	2.436E-02	9.498
TH-234	+	969.11		2.050E+00	6.177E-01	3.688E-01	8.528E-02	5.560
	+	63.29	*	9.211E-01	2.904E+00	3.446E+00	6.801E-01	0.267
	+	92.38		2.596E+00	9.313E-01	9.015E-01	1.719E-01	2.879
U-234	+	609.31	*	1.343E+00	1.959E-01	1.165E-01	8.652E-03	11.523
	+	1120.29		2.082E+00	6.611E-01	4.830E-01	4.456E-02	4.311
	+	1764.49		1.990E+00	3.997E-01	3.210E-01	1.997E-02	6.200
NP-237	+	86.50	*	1.358E+00	5.152E-01	4.240E-01	1.001E-01	3.204
	+	95.87		-5.832E-01	1.258E+00	1.763E+00	4.424E-01	-0.331
U-238	+	63.29	*	9.211E-01	2.904E+00	3.446E+00	6.801E-01	0.267
	+	92.38		2.596E+00	8.348E-01	9.015E-01	9.484E-02	2.879
AM-243	+	74.67	*	5.250E-01	1.391E-01	1.165E-01	1.295E-02	4.507
	+	86.72		5.094E+01	1.621E+01	1.584E+01	1.818E+00	3.217
	+	117.66		-2.595E+00	4.525E+00	7.246E+00	5.413E-01	-0.358
	+	142.18		5.342E+00	2.090E+01	3.325E+01	2.265E+00	0.161

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	1.472E-01	7.841E-02	5.147E-02	2.907E-03	2.860

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-8.368E-02	3.411E-01	5.494E-01	3.661E-02	-0.152
NA-22		1274.54	*	-4.184E-03	4.970E-02	7.992E-02	5.485E-03	-0.052
NA-24		1368.53	*	1.844E+00	4.970E-02	Half-Life too short		
AL-26		1129.67		3.825E-01	2.057E+00	3.156E+00	1.988E-01	0.121
		1808.65	*	7.246E-03	3.248E-02	5.516E-02	3.301E-03	0.131
TI-44		67.85		-1.379E-01	9.586E-02	1.067E-01	1.217E-02	-1.293
		78.38	*	2.526E-01	7.616E-02	8.950E-02	9.952E-03	2.822
SC-46		889.25	*	-2.551E-02	4.401E-02	6.982E-02	5.856E-03	-0.365
	+	1120.51		3.592E-01	1.115E-01	1.441E-01	9.252E-03	2.493
V-48		944.10		-7.437E-01	1.078E+00	1.690E+00	1.389E-01	-0.440
		983.50	*	-4.434E-02	7.756E-02	1.218E-01	9.620E-03	-0.364
		1312.09		1.068E-02	9.630E-02	1.571E-01	1.147E-02	0.068
CR-51		320.08	*	6.397E-02	4.060E-01	6.802E-01	4.906E-02	0.094
MN-52		744.21		-5.621E-02	2.838E-01	4.685E-01	2.874E-02	-0.120
		848.13		4.519E+00	7.922E+00	1.365E+01	1.052E+00	0.331
	+	935.52		4.301E-01	4.393E-01	5.605E-01	4.643E-02	0.767
		1246.25		8.857E+00	9.391E+00	1.621E+01	1.057E+00	0.547
		1333.61		1.992E+00	5.943E+00	9.916E+00	7.483E-01	0.201
		1434.06	*	3.279E-02	2.743E-01	4.637E-01	3.438E-02	0.071
MN-54		834.83	*	3.215E-02	4.015E-02	6.985E-02	5.236E-03	0.460
CO-56		846.75	*	2.156E-02	4.077E-02	7.007E-02	5.385E-03	0.308
		977.42		-3.198E-01	3.107E+00	5.073E+00	4.035E-01	-0.063
		1037.82		3.969E-01	3.428E-01	6.070E-01	4.804E-02	0.654
		1175.09		-1.693E+00	2.601E+00	3.968E+00	2.268E-01	-0.427
		1238.25		1.156E-01	1.092E-01	1.869E-01	1.263E-02	0.618
		1360.21		6.204E-01	1.201E+00	2.028E+00	1.526E-01	0.306
		1771.40		-5.286E-01	2.893E-01	3.504E-01	2.168E-02	-1.508
CO-57		122.06	*	6.798E-03	3.015E-02	4.947E-02	3.557E-03	0.137
		136.48		9.139E-02	2.308E-01	3.795E-01	2.912E-02	0.241
CO-58		810.76	*	-8.709E-03	4.057E-02	6.648E-02	4.749E-03	-0.131
FE-59		142.65		2.351E+00	3.265E+00	5.262E+00	3.583E-01	0.447
		192.34		-1.436E-01	1.144E+00	1.783E+00	2.199E-01	-0.081
		1099.22	*	9.745E-03	1.024E-01	1.686E-01	1.276E-02	0.058
		1291.56		6.740E-02	1.336E-01	2.256E-01	1.903E-02	0.299
CO-60		1173.22		-1.529E-02	5.010E-02	7.843E-02	4.467E-03	-0.195
		1332.49	*	-1.780E-02	4.270E-02	6.599E-02	4.980E-03	-0.270
ZN-65		1115.52	*	-6.902E-02	1.218E-01	1.604E-01	1.042E-02	-0.430
GE-68		1077.35	*	9.456E-01	1.516E+00	2.582E+00	1.794E-01	0.366
AS-73		53.44	*	6.900E-01	1.908E+00	3.208E+00	4.384E-01	0.215
AS-74		595.88	*	-5.700E-02	1.151E-01	1.743E-01	9.372E-03	-0.327
		634.78		4.725E-02	3.707E-01	6.025E-01	3.125E-02	0.078
SE-75		66.05		-5.493E+00	8.479E+00	1.186E+01	1.538E+00	-0.463
		96.73		-1.356E-02	1.010E+00	1.452E+00	2.083E-01	-0.009

---- Non-Identified Nuclides ----

	Line	Energy	Activity	Act error	MDA	MDA error	Act/MDA
Nuclide	Ided	(keV)	Key	(pCi/GRAM)	(pCi/GRAM)		
		121.11		9.207E-02	1.619E-01	2.681E-01	0.343
		136.00		5.694E-03	4.305E-02	7.023E-02	0.081
		198.60		8.474E-01	2.168E+00	3.416E+00	0.248
		264.65	*	-2.327E-02	5.601E-02	7.985E-02	-0.291
		279.53		-2.636E-02	1.368E-01	1.970E-01	-0.134
		303.91		4.087E-01	2.512E+00	3.677E+00	0.111
		400.65		-3.292E-02	2.987E-01	4.633E-01	-0.071
BR-77	+	87.88		1.339E+03	4.261E+02	5.425E+02	2.468
		200.40		-1.065E+02	2.540E+02	4.007E+02	-0.266
	+	239.00		4.170E+02	3.951E+01	5.598E+01	7.449
		249.79		1.391E+01	9.583E+01	1.619E+02	0.086
		281.68		1.510E+01	1.455E+02	2.129E+02	0.071
		297.23		3.248E+02	1.404E+02	1.648E+02	1.972
		303.76		6.539E+01	2.810E+02	4.130E+02	0.158
		439.47		1.430E+02	1.950E+02	3.326E+02	0.430
		484.57		1.619E+01	3.145E+02	5.152E+02	0.031
		520.65	*	-1.277E+00	1.463E+01	2.367E+01	-0.054
		574.64		-3.528E+01	3.211E+02	5.021E+02	-0.070
		578.91		7.349E+01	1.545E+02	2.237E+02	0.329
		585.48		1.269E+03	3.444E+02	5.811E+02	2.183
		755.35		3.703E+01	2.310E+02	3.896E+02	0.095
		817.79		7.211E+01	1.732E+02	2.964E+02	0.243
SR-82		698.33		4.037E+00	3.656E+01	6.170E+01	0.065
		776.49	*	-6.428E-01	4.182E-01	6.230E-01	-1.032
		1395.20		-7.146E+00	1.092E+01	1.692E+01	-0.422
RB-83		520.41	*	-2.190E-02	7.417E-02	1.185E-01	-0.185
		529.64		5.227E-03	1.150E-01	1.874E-01	0.028
		552.65		5.438E-02	2.081E-01	3.431E-01	0.158
RB-84		881.50	*	-4.224E-02	7.785E-02	1.239E-01	-0.341
KR-85		513.99	*	1.588E+01	8.512E+00	1.360E+01	1.167
SR-85		513.99	*	8.223E-02	4.408E-02	7.045E-02	1.167
RB-86		1076.63	*	3.723E-01	9.617E-01	1.616E+00	0.230
Y-88		898.02		-3.864E-03	4.476E-02	7.359E-02	-0.053
		1836.01	*	8.027E-03	3.311E-02	5.653E-02	0.142
ZR-88		392.90	*	4.176E-03	3.480E-02	5.772E-02	0.072
Y-91		1204.90	*	-1.223E+01	2.141E+01	3.335E+01	-0.367
NB-94		702.63	*	6.998E-03	3.489E-02	5.917E-02	0.118
		871.10		-3.299E-03	3.587E-02	5.905E-02	-0.056
NB-95		765.79	*	8.153E-02	5.247E-02	8.466E-02	0.963
NB-95M		235.69	*	2.139E+00	2.746E-01	3.972E-01	5.386
ZR-95		724.18		1.853E-01	1.304E-01	2.065E-01	0.897
		756.15	*	6.044E-02	7.561E-02	1.322E-01	0.457
NB-97		657.90	*	-2.031E-02	7.561E-02	Half-Life too short	
		1024.50		-1.160E+01	7.561E-02	Half-Life too short	
ZR-97		254.15		-1.628E+01	7.561E-02	Half-Life too short	
		355.39		8.183E+00	7.561E-02	Half-Life too short	
		507.63	*	2.607E+01	7.561E-02	Half-Life too short	
		602.52		-1.387E+01	7.561E-02	Half-Life too short	
		1021.30		3.897E+00	7.561E-02	Half-Life too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1147.95			1.493E+01	7.561E-02	Half-Life	too short	
	1362.66			7.738E+00	7.561E-02	Half-Life	too short	
	1750.46			-1.064E+01	7.561E-02	Half-Life	too short	
MO-99	140.51			-1.933E+01	3.815E+01	6.030E+01	1.639E+01	-0.321
	181.06			-1.413E+01	2.888E+01	3.945E+01	6.894E+00	-0.358
	366.43			-6.641E+01	1.200E+02	1.932E+02	1.173E+01	-0.344
	739.58	*		-9.462E+00	1.582E+01	2.538E+01	3.527E+00	-0.373
	778.00			-3.621E+01	4.510E+01	7.111E+01	4.710E+00	-0.509
TC-99M	140.51	*		-2.996E+11	4.510E+01	Half-Life	too short	
RH-101	127.23			5.427E-02	3.807E-02	6.424E-02	4.526E-03	0.845
	198.01	*		2.573E-05	3.998E-02	6.220E-02	4.243E-03	0.000
	325.23			3.369E-01	2.491E-01	4.349E-01	2.860E-02	0.775
RH-102	418.52			-8.598E-02	3.235E-01	5.250E-01	2.995E-02	-0.164
	475.06	*		-1.174E-02	3.081E-02	4.924E-02	2.807E-03	-0.238
	631.29			-1.082E-02	5.777E-02	9.187E-02	4.782E-03	-0.118
	697.49			-1.631E-02	8.087E-02	1.341E-01	7.365E-03	-0.122
	766.84	+		2.448E-01	1.533E-01	2.188E-01	1.413E-02	1.119
	1046.59			-8.516E-02	1.203E-01	1.857E-01	1.354E-02	-0.458
	1112.84			1.587E-01	2.769E-01	4.114E-01	2.682E-02	0.386
RU-103	497.08	*		-2.022E-02	4.585E-02	7.279E-02	9.162E-03	-0.278
	610.33			1.493E+01	2.722E+00	3.021E+00	4.604E-01	4.943
RH-106	511.85			1.487E+00	2.401E-01	4.522E-01	2.553E-02	3.288
	621.84	*		-3.581E-01	3.437E-01	5.105E-01	5.860E-02	-0.701
	1050.47			6.083E-01	2.377E+00	3.974E+00	2.881E-01	0.153
RU-106	511.85			1.487E+00	2.401E-01	4.522E-01	2.553E-02	3.288
	621.84	*		-3.581E-01	3.418E-01	5.105E-01	2.682E-02	-0.701
	1050.47			6.083E-01	2.377E+00	3.974E+00	2.881E-01	0.153
AG-108M	433.93	*		-1.764E-02	3.499E-02	5.584E-02	3.472E-03	-0.316
	614.37			8.896E-03	4.673E-02	6.611E-02	3.852E-03	0.135
	722.95			-1.140E-02	5.216E-02	7.392E-02	4.676E-03	-0.154
AG-110M	657.75	*		-2.541E-03	3.732E-02	5.971E-02	3.273E-03	-0.043
	677.61			2.204E-01	3.091E-01	5.211E-01	2.931E-02	0.423
	706.67			1.218E-01	2.149E-01	3.719E-01	2.222E-02	0.328
	763.93			1.220E-01	1.874E-01	2.855E-01	1.925E-02	0.427
	884.67			1.366E-02	5.415E-02	9.119E-02	7.840E-03	0.150
	937.48			9.719E-04	1.341E-01	1.902E-01	1.635E-02	0.005
	1384.27			2.290E-02	1.688E-01	2.862E-01	2.224E-02	0.080
IN-111	171.28			7.352E-01	1.440E+00	2.359E+00	1.575E-01	0.312
	245.39	*		-7.911E-01	1.621E+00	2.312E+00	1.609E-01	-0.342
IN-113M	391.69	*		1.744E-02	5.083E-02	8.516E-02	5.166E-03	0.205
SN-113	391.69	*		1.744E-02	5.083E-02	8.516E-02	5.166E-03	0.205
IN-114M	190.27	*		7.256E-02	2.390E-01	3.396E-01	2.303E-02	0.214
CD-115	260.90			-7.387E+01	1.977E+02	3.270E+02	2.273E+01	-0.226
	492.35			3.048E+01	5.315E+01	8.947E+01	5.081E+00	0.341
	527.90	*		-1.194E+01	1.574E+01	2.437E+01	1.367E+00	-0.490
SN-117M	156.02			-8.698E-01	2.693E+00	4.306E+00	2.886E-01	-0.202
	158.56	*		-5.369E-02	6.514E-02	1.021E-01	6.829E-03	-0.526
SB-122	563.90	*		3.327E-01	2.923E+00	4.770E+00	2.624E-01	0.070
	692.80			8.903E-01	5.736E+01	9.632E+01	5.232E+00	0.009

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-123	159.00	*		-1.483E+01	5.736E+01	Half-Life	too short	
	528.96			-7.229E+02	5.736E+01	Half-Life	too short	
TE-123M	159.00	*		-2.230E-02	3.197E-02	5.036E-02	3.400E-03	-0.443
I-124	602.71	*		-5.158E-01	1.015E+00	1.351E+00	7.223E-02	-0.382
	722.78			-1.961E+00	6.341E+00	8.914E+00	5.202E-01	-0.220
	1325.50			2.830E+01	4.165E+01	7.174E+01	5.354E+00	0.395
	1376.25			3.442E+01	3.832E+01	6.698E+01	5.026E+00	0.514
	1509.49			2.202E+01	2.139E+01	3.665E+01	2.654E+00	0.601
	1691.02			-3.892E+00	4.360E+00	6.332E+00	4.168E-01	-0.615
SB-124	602.71			-2.592E-02	5.099E-02	6.789E-02	3.631E-03	-0.382
	645.85			-5.200E-01	5.673E-01	8.550E-01	5.091E-02	-0.608
	709.31			-1.232E+00	2.923E+00	4.773E+00	2.698E-01	-0.258
	713.82			-3.858E-01	1.784E+00	2.949E+00	2.997E-01	-0.131
	722.78			-1.428E-01	4.619E-01	6.493E-01	3.965E-02	-0.220
	+ 968.20			2.134E+01	4.462E+00	7.703E+00	6.185E-01	2.770
	1045.16			-2.083E+00	2.701E+00	4.068E+00	2.972E-01	-0.512
	1325.50			2.202E+00	3.240E+00	5.581E+00	4.165E-01	0.395
	1368.21			1.615E+00	1.908E+00	3.329E+00	4.259E-01	0.485
	1436.60			1.040E+00	3.871E+00	6.645E+00	4.924E-01	0.157
	1691.02	*		-6.687E-02	7.493E-02	1.088E-01	7.640E-03	-0.615
SB-125	427.89	*		9.726E-03	1.042E-01	1.720E-01	1.025E-02	0.057
	463.38			8.011E-01	3.847E-01	6.131E-01	4.099E-02	1.307
	600.56			-1.712E-02	2.139E-01	3.234E-01	2.046E-02	-0.053
	635.90			-2.505E-01	2.824E-01	4.250E-01	2.665E-02	-0.589
TE-125M	109.28	*		-9.389E+00	1.083E+01	1.716E+01	1.706E+00	-0.547
I-126	388.63			2.356E-02	2.463E-01	4.083E-01	2.336E-02	0.058
	666.33	*		2.688E-02	2.096E-01	3.395E-01	1.728E-02	0.079
	753.82			-9.602E-01	1.664E+00	2.679E+00	1.680E-01	-0.358
SB-126	223.80			-4.025E-01	5.016E+00	7.978E+00	5.527E-01	-0.050
	+ 278.60			2.748E+00	4.175E+00	4.991E+00	3.444E-01	0.551
	296.50			1.315E+01	3.143E+00	4.010E+00	2.730E-01	3.279
	414.70			-6.802E-02	8.968E-02	1.419E-01	8.089E-03	-0.479
	415.30			-4.895E+00	7.410E+00	1.178E+01	6.717E-01	-0.415
	555.20			5.863E-01	4.365E+00	7.140E+00	3.949E-01	0.082
	573.80			2.809E-01	1.216E+00	1.996E+00	1.091E-01	0.141
	593.00			-3.350E-01	1.110E+00	1.761E+00	9.489E-02	-0.190
	656.30			-3.823E-01	3.834E+00	6.121E+00	3.100E-01	-0.062
	666.33			1.126E-02	8.779E-02	1.422E-01	7.236E-03	0.079
	675.00			-9.598E-01	2.154E+00	3.343E+00	1.738E-01	-0.287
	695.00			2.298E-02	8.563E-02	1.458E-01	7.964E-03	0.158
	697.00			-5.208E-02	2.959E-01	4.912E-01	2.695E-02	-0.106
	720.50	*		7.890E-02	1.880E-01	2.812E-01	1.632E-02	0.281
	856.80			7.211E-01	6.220E-01	9.787E-01	7.682E-02	0.737
	989.30			4.683E-03	1.374E+00	2.260E+00	1.774E-01	0.002
	1034.80			-2.706E+00	1.043E+01	1.678E+01	1.244E+00	-0.161
	1213.00			-1.292E+00	5.878E+00	9.260E+00	5.685E-01	-0.140
SB-127	+ 61.10			4.475E+01	1.409E+02	2.002E+02	2.853E+01	0.224
	252.40			1.806E+00	5.855E+00	9.860E+00	4.122E+00	0.183
	290.80			-3.753E+01	3.329E+01	4.499E+01	4.577E+00	-0.834

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		411.60		5.586E+00	1.671E+01	2.789E+01	4.061E+00	0.200
		444.90		-8.417E+00	1.284E+01	2.026E+01	2.237E+00	-0.415
		473.00		1.369E+00	2.126E+00	3.592E+00	4.098E-01	0.381
		543.00		1.403E+01	2.058E+01	3.469E+01	4.528E+00	0.404
		603.60		-1.142E+01	1.746E+01	2.286E+01	2.474E+00	-0.500
		685.20	*	1.347E+00	1.587E+00	2.794E+00	2.653E-01	0.482
		698.50		7.399E-01	1.891E+01	3.178E+01	4.635E+00	0.023
		722.20		5.220E-01	4.285E+01	6.194E+01	5.897E+00	0.008
		783.80		2.959E+00	4.552E+00	7.865E+00	9.013E-01	0.376
XE-127		57.60		1.026E+01	1.334E+01	2.005E+01	2.554E+00	0.512
		145.22		3.294E-02	8.244E-01	1.338E+00	9.074E-02	0.025
		172.10		3.968E-02	1.378E-01	2.242E-01	1.497E-02	0.177
		202.84	*	-3.298E-02	6.354E-02	8.859E-02	6.065E-03	-0.372
		374.96		-8.383E-02	2.292E-01	3.722E-01	2.212E-02	-0.225
I-131		80.18		-1.423E+00	9.235E+00	9.539E+00	1.069E+00	-0.149
		284.30		7.633E-01	1.778E+00	3.021E+00	2.248E-01	0.253
		364.48	*	2.179E-02	1.382E-01	2.304E-01	1.556E-02	0.095
		636.97		-2.404E+00	1.769E+00	2.559E+00	1.523E-01	-0.939
		722.89		-2.382E+00	9.513E+00	1.344E+01	7.970E-01	-0.177
TE-132		49.72		-2.840E+01	6.666E+01	1.094E+02	1.661E+01	-0.260
		111.76		-4.655E+01	4.327E+01	6.699E+01	7.089E+00	-0.695
		116.30		9.266E+00	3.987E+01	6.551E+01	6.757E+00	0.141
		228.16	*	2.381E-01	9.412E-01	1.599E+00	2.405E-01	0.149
BA-133		53.15		2.907E+00	8.336E+00	1.402E+01	1.921E+00	0.207
		79.62		1.436E-01	2.419E+00	2.538E+00	4.260E-01	0.057
		81.00		1.707E-02	1.776E-01	1.868E-01	3.250E-02	0.091
	+	276.40		3.897E-01	5.938E-01	7.255E-01	9.792E-02	0.537
		302.84		8.540E-02	1.701E-01	2.537E-01	3.087E-02	0.337
		356.01	*	5.349E-02	5.284E-02	8.049E-02	9.478E-03	0.665
		383.85		-1.762E-01	3.379E-01	5.431E-01	5.905E-02	-0.324
I-133	+	510.53		3.185E+00	3.379E-01	Half-Life	too short	
		529.87	*	3.122E-03	3.379E-01	Half-Life	too short	
		706.58		4.844E-01	3.379E-01	Half-Life	too short	
		856.28		1.116E+00	3.379E-01	Half-Life	too short	
		875.33		1.175E-01	3.379E-01	Half-Life	too short	
		1236.41		3.361E+00	3.379E-01	Half-Life	too short	
		1298.22		3.739E-02	3.379E-01	Half-Life	too short	
CS-134		475.35		-9.615E-01	2.017E+00	3.204E+00	1.826E-01	-0.300
		563.23		1.949E-01	3.991E-01	6.650E-01	3.745E-02	0.293
		569.32		9.296E-02	2.225E-01	3.690E-01	2.090E-02	0.252
		604.70		-1.460E-03	4.348E-02	6.036E-02	3.243E-03	-0.024
		795.84	*	9.304E-02	5.666E-02	9.232E-02	6.433E-03	1.008
		801.93		-2.852E-01	5.180E-01	7.084E-01	4.989E-02	-0.403
		1038.57		5.425E+00	4.232E+00	7.552E+00	5.569E-01	0.718
		1167.94		-2.673E-02	2.713E+00	4.414E+00	2.548E-01	-0.006
		1365.15		-3.137E-02	1.438E+00	2.312E+00	1.841E-01	-0.014
I-135		288.45		1.811E+11	1.438E+00	Half-Life	too short	
		417.63		4.910E+10	1.438E+00	Half-Life	too short	
		546.56		-1.669E+11	1.438E+00	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		836.80		2.094E+11	1.438E+00	Half-Life	too short	
		1038.76		2.562E+11	1.438E+00	Half-Life	too short	
		1124.00		8.337E+10	1.438E+00	Half-Life	too short	
		1131.51		3.623E+09	1.438E+00	Half-Life	too short	
		1260.41	*	-5.282E+10	1.438E+00	Half-Life	too short	
		1457.56		1.359E+13	1.438E+00	Half-Life	too short	
		1678.03		-6.765E+09	1.438E+00	Half-Life	too short	
		1706.46		-1.220E+10	1.438E+00	Half-Life	too short	
		1791.20		-6.706E+10	1.438E+00	Half-Life	too short	
		66.91		-2.401E+00	1.586E+00	1.911E+00	3.287E-01	-1.256
	+	86.29		6.344E+00	2.108E+00	2.561E+00	3.815E-01	2.477
		153.22		9.153E-01	7.983E-01	1.333E+00	1.064E-01	0.687
		163.89		8.594E-01	1.277E+00	2.105E+00	1.674E-01	0.408
		176.55		1.016E-01	4.465E-01	7.242E-01	5.311E-02	0.140
		273.65		2.842E-01	8.764E-01	8.873E-01	6.757E-02	0.320
		340.57		2.234E-01	1.599E-01	2.486E-01	1.677E-02	0.899
		818.51		1.654E-02	7.756E-02	1.309E-01	9.489E-03	0.126
		1048.07	*	7.169E-03	1.157E-01	1.906E-01	1.468E-02	0.038
		1235.34		1.182E+00	7.478E-01	1.310E+00	1.355E-01	0.902
BA-137M		661.65	*	-2.110E-02	3.820E-02	5.906E-02	2.971E-03	-0.357
CS-137		661.65	*	-2.231E-02	4.038E-02	6.243E-02	3.159E-03	-0.357
CE-139		165.85	*	3.926E-02	3.449E-02	5.757E-02	3.828E-03	0.682
BA-140		162.64		-6.406E-01	9.065E-01	1.427E+00	1.042E-01	-0.449
		304.84		8.186E-01	1.587E+00	2.351E+00	6.468E-01	0.348
		423.70		-6.732E-02	2.267E+00	3.721E+00	1.182E+00	-0.018
LA-140		537.32	*	-4.596E-01	3.285E-01	4.275E-01	1.389E-01	-1.075
		328.77		6.010E-01	3.541E-01	6.227E-01	4.462E-02	0.965
		432.53		2.609E-01	2.311E+00	3.817E+00	2.416E-01	0.068
		487.03		1.146E-01	1.538E-01	2.616E-01	1.691E-02	0.438
		751.79		-1.184E+00	1.924E+00	3.086E+00	2.303E-01	-0.384
		815.85		3.170E-02	3.436E-01	5.752E-01	4.809E-02	0.055
		867.82		1.353E+00	1.526E+00	2.632E+00	2.242E-01	0.514
		919.63		9.596E-01	3.251E+00	5.107E+00	5.345E-01	0.188
		925.24		5.587E-01	1.311E+00	2.083E+00	1.857E-01	0.268
		1596.49	*	-6.805E-02	8.042E-02	1.168E-01	8.142E-03	-0.583
CE-141		145.44	*	-5.771E-03	7.465E-02	1.207E-01	8.424E-03	-0.048
CE-143		57.37		5.159E-04	7.465E-02	Half-Life	too short	
		231.56		-3.645E-03	7.465E-02	Half-Life	too short	
	+	293.26	*	2.446E-03	7.465E-02	Half-Life	too short	
	+	350.59		5.898E-02	7.465E-02	Half-Life	too short	
		490.36		-1.165E-03	7.465E-02	Half-Life	too short	
		664.57		-4.660E-04	7.465E-02	Half-Life	too short	
		721.93		1.068E-03	7.465E-02	Half-Life	too short	
CE-144		80.11		-6.562E-01	3.931E+00	4.056E+00	4.525E-01	-0.162
		133.54	*	-2.248E-01	2.311E-01	3.595E-01	5.284E-02	-0.625
PM-144		476.78		-1.101E-02	7.153E-02	1.159E-01	7.947E-03	-0.095
		618.01		-7.424E-03	3.374E-02	5.362E-02	3.032E-03	-0.138
		696.49	*	7.235E-03	3.484E-02	5.915E-02	3.245E-03	0.122
		778.57		-1.797E+00	2.397E+00	3.794E+00	2.518E-01	-0.473



## ---- Non-Identified Nuclides ----

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PR-144		696.49	*	4.905E-01	2.362E+00	4.010E+00	2.198E-01	0.122
		1489.15		-7.115E+00	1.305E+01	2.041E+01	1.489E+00	-0.349
PM-146		453.90	*	2.409E-02	5.303E-02	8.116E-02	6.951E-03	0.297
		633.02		-3.475E-02	1.402E+00	2.255E+00	8.282E-01	-0.015
		735.90		1.512E-02	1.590E-01	2.618E-01	7.312E-02	0.058
		747.13		-1.678E-02	9.683E-02	1.600E-01	2.030E-02	-0.105
ND-147	+	91.11		1.386E+00	4.485E-01	6.834E-01	7.773E-02	2.028
		319.41		2.242E+00	3.789E+00	6.461E+00	4.286E-01	0.347
		439.89		1.646E+00	6.506E+00	1.082E+01	6.187E-01	0.152
		531.02	*	8.351E-01	6.345E-01	1.097E+00	1.473E-01	0.762
PM-149		285.90	*	1.603E+02	1.376E+02	2.369E+02	3.470E+01	0.676
EU-152		121.78		5.530E-02	8.694E-02	1.442E-01	1.258E-02	0.383
		244.69		3.516E-02	3.827E-01	5.634E-01	3.922E-02	0.062
		344.27	*	-3.138E-02	1.562E-01	1.733E-01	1.221E-02	-0.181
		443.98		-1.276E+00	1.056E+00	1.613E+00	9.218E-02	-0.791
		778.89		-9.458E-02	2.719E-01	4.427E-01	2.938E-02	-0.214
		867.32		3.773E-01	8.861E-01	1.449E+00	1.162E-01	0.260
	+	964.01		6.031E-01	3.118E-01	6.060E-01	4.886E-02	0.995
		1085.78		4.485E-02	4.407E-01	7.263E-01	4.975E-02	0.062
		1112.02		5.262E-01	3.893E-01	6.205E-01	4.051E-02	0.848
	+	1407.95		3.693E-01	2.080E-01	3.182E-01	2.374E-02	1.160
GD-153		69.67		1.214E+00	2.617E+00	3.867E+00	4.365E-01	0.314
	+	83.37		3.756E+01	2.516E+01	3.025E+01	3.413E+00	1.241
		97.43	*	4.855E-02	1.050E-01	1.537E-01	1.475E-02	0.316
		103.18		2.059E-02	1.230E-01	2.024E-01	1.781E-02	0.102
EU-154		123.07		-9.703E-03	6.140E-02	9.954E-02	1.025E-02	-0.097
		247.94		-2.767E-01	4.172E-01	6.422E-01	6.608E-02	-0.431
		591.81		-3.038E-02	6.896E-01	1.112E+00	1.060E-01	-0.027
		723.30		2.066E-02	2.253E-01	3.277E-01	2.332E-02	0.063
		756.87		6.326E-01	8.180E-01	1.426E+00	1.489E-01	0.444
		873.19		-1.160E-01	3.222E-01	5.198E-01	6.184E-02	-0.223
		996.32		-2.478E-01	4.067E-01	6.349E-01	1.103E-01	-0.390
		1004.76		-6.978E-02	2.379E-01	3.825E-01	4.201E-02	-0.182
		1274.45	*	-1.168E-02	1.388E-01	2.231E-01	2.237E-02	-0.052
EU-155		48.70		-3.528E+00	7.456E+00	1.223E+01	1.574E+00	-0.288
		60.01		8.403E+00	9.630E+00	1.450E+01	1.772E+00	0.580
	+	86.54		5.573E-01	1.775E-01	2.252E-01	2.597E-02	2.475
		105.31	*	1.582E-02	1.257E-01	2.065E-01	1.788E-02	0.077
TB-160	+	86.79		1.502E+00	4.779E-01	6.097E-01	7.002E-02	2.463
		197.04		2.993E-01	6.792E-01	1.072E+00	7.310E-02	0.279
		215.65		5.040E-01	9.047E-01	1.473E+00	1.017E-01	0.342
	+	298.57		4.175E-01	1.959E-01	2.368E-01	1.609E-02	1.763
		879.36	*	-5.071E-02	1.518E-01	2.454E-01	2.017E-02	-0.207
		962.29		1.280E+00	6.797E-01	1.109E+00	8.961E-02	1.154
		966.15		1.888E+00	4.165E-01	6.014E-01	4.839E-02	3.139
		1177.93		3.840E-01	3.962E-01	6.887E-01	3.958E-02	0.558
		1271.85		-4.671E-02	8.182E-01	1.319E+00	8.993E-02	-0.035
HO-166M		80.57		-4.644E-02	4.999E-01	5.187E-01	5.793E-02	-0.090
	+	184.41		1.647E-01	6.597E-02	7.981E-02	5.385E-03	2.064

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TM-171		280.46		-3.600E-02	1.038E-01	1.479E-01	1.020E-02	-0.243
		410.95		2.480E-01	2.868E-01	4.898E-01	2.790E-02	0.506
		711.68	*	4.445E-03	6.384E-02	1.074E-01	6.105E-03	0.041
		752.31		-2.042E-01	2.920E-01	4.659E-01	2.911E-02	-0.438
		810.29		-1.246E-02	6.024E-02	9.878E-02	7.024E-03	-0.126
		51.35		-2.718E+01	7.839E+01	1.290E+02	1.782E+01	-0.211
		52.39		1.371E+00	3.786E+01	6.312E+01	8.707E+00	0.022
		59.40		7.540E+01	5.295E+01	8.082E+01	9.946E+00	0.933
		66.72	*	-7.865E+01	5.414E+01	6.697E+01	7.701E+00	-1.174
		88.36		5.979E-01	3.136E-01	4.308E-01	4.943E-02	1.388
LU-176	+	201.83		-3.480E-02	3.368E-02	5.181E-02	3.545E-03	-0.672
		306.84	*	2.407E-04	2.958E-02	4.488E-02	3.023E-03	0.005
		401.10		6.192E-01	7.781E+00	1.219E+01	6.930E-01	0.051
LU-177		112.95		1.577E-01	2.113E+00	3.414E+00	2.672E-01	0.046
	+	208.36	*	2.777E+00	1.824E+00	2.513E+00	1.727E-01	1.105
LU-177M		52.97		1.898E+00	3.814E+00	6.435E+00	8.838E-01	0.295
		54.07		3.793E-01	1.901E+00	3.182E+00	4.313E-01	0.119
	+	61.30		9.876E-01	3.109E+00	4.376E+00	5.283E-01	0.226
		121.62		3.104E-01	4.484E-01	7.453E-01	5.370E-02	0.417
		147.16		-2.177E-01	7.662E-01	1.230E+00	8.321E-02	-0.177
		171.86		1.240E-01	5.489E-01	8.914E-01	5.952E-02	0.139
		218.09		1.003E+00	1.011E+00	1.669E+00	1.153E-01	0.601
	+	268.79		1.965E+00	1.163E+00	1.666E+00	1.155E-01	1.179
		319.02		1.997E-01	2.778E-01	4.762E-01	3.160E-02	0.419
		367.43		-7.447E-01	1.028E+00	1.641E+00	9.940E-02	-0.454
HF-181		413.65	*	-1.721E-01	2.045E-01	3.225E-01	1.838E-02	-0.534
		56.28		-1.075E+00	1.950E+00	3.178E+00	4.150E-01	-0.338
		57.53		6.421E-01	1.072E+00	1.684E+00	2.148E-01	0.381
		65.20		2.166E-01	1.685E+00	2.441E+00	2.841E-01	0.089
		133.02		-9.429E-02	7.555E-02	1.173E-01	8.136E-03	-0.804
		136.25		2.048E-01	5.073E-01	8.346E-01	5.747E-02	0.245
		345.85		1.080E-03	2.849E-01	3.587E-01	2.277E-02	0.003
		482.03	*	-5.175E-02	4.591E-02	6.979E-02	3.973E-03	-0.742
		56.28		-4.161E-01	7.555E-01	1.231E+00	1.608E-01	-0.338
		57.53		2.486E-01	4.157E-01	6.532E-01	8.331E-02	0.381
TA-182		65.20	*	8.335E-02	6.483E-01	9.392E-01	1.093E-01	0.089
		67.75		-3.379E-01	2.306E-01	2.561E-01	2.924E-02	-1.320
		100.10		1.354E-01	2.107E-01	3.513E-01	3.231E-02	0.385
		152.43		2.141E-01	3.981E-01	6.545E-01	4.402E-02	0.327
		222.10		-3.735E-01	4.095E-01	6.292E-01	4.356E-02	-0.594
RE-183		1001.68		1.673E+00	2.312E+00	3.968E+00	3.070E-01	0.422
	+	1121.28		9.901E-01	3.074E-01	3.915E-01	2.510E-02	2.529
		1189.05		-4.241E-02	3.435E-01	5.536E-01	3.250E-02	-0.077
		1221.42	*	-3.263E-03	2.187E-01	3.548E-01	2.212E-02	-0.009
		1230.97		-3.422E-01	5.895E-01	9.079E-01	5.760E-02	-0.377
		57.98		3.785E-01	4.275E-01	6.444E-01	8.148E-02	0.587
		59.32		3.072E-01	2.200E-01	3.356E-01	4.136E-02	0.915
		67.20		-6.920E-01	4.248E-01	4.651E-01	5.330E-02	-1.488
		162.32	*	-1.285E-01	1.265E-01	1.967E-01	1.311E-02	-0.653

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RE-184	+	208.81		2.286E+00	1.501E+00	2.063E+00	1.418E-01	1.108
		291.72		1.567E+00	1.271E+00	1.956E+00	1.337E-01	0.801
		57.98		1.387E+00	1.567E+00	2.362E+00	2.986E-01	0.587
		59.32		1.125E+00	8.055E-01	1.229E+00	1.515E-01	0.915
		67.20		-2.535E+00	1.556E+00	1.704E+00	1.953E-01	-1.488
		161.27		-2.109E-01	4.007E-01	6.350E-01	4.236E-02	-0.332
		216.55		2.629E-01	3.165E-01	5.200E-01	3.590E-02	0.506
		252.85	*	-3.021E-02	2.622E-01	4.385E-01	3.052E-02	-0.069
		318.01		2.450E-01	4.893E-01	8.314E-01	5.524E-02	0.295
		792.07		1.359E+00	1.228E+00	1.927E+00	1.317E-01	0.705
OS-185		903.28		2.485E-01	1.148E+00	1.670E+00	1.421E-01	0.149
		920.93		-9.108E-02	4.689E-01	7.631E-01	6.400E-02	-0.119
	+	59.72		7.117E-01	5.817E-01	8.838E-01	1.083E-01	0.805
		61.14		1.083E-01	3.411E-01	4.837E-01	5.849E-02	0.224
		69.30		-4.015E-02	4.780E-01	6.926E-01	7.833E-02	-0.058
		592.07		-6.498E-01	2.887E+00	4.602E+00	2.482E-01	-0.141
		646.12	*	-3.983E-02	4.772E-02	7.238E-02	3.708E-03	-0.550
		717.42		4.885E-01	1.043E+00	1.718E+00	9.899E-02	0.284
		874.81		-1.396E-01	6.371E-01	1.039E+00	8.463E-02	-0.134
		880.27		-2.771E-03	8.479E-01	1.404E+00	1.156E-01	-0.002
RE-188		155.03	*	-9.601E-03	2.000E-01	3.229E-01	2.166E-02	-0.030
		477.96		-6.746E-01	3.223E+00	5.201E+00	2.963E-01	-0.130
		633.10		-8.585E-02	2.859E+00	4.595E+00	2.387E-01	-0.019
W-188	+	63.58		3.737E+01	1.177E+02	1.487E+02	1.755E+01	0.251
		227.08		9.787E+00	1.440E+01	2.478E+01	1.719E+00	0.395
IR-192		290.67	*	-1.197E+01	9.757E+00	1.314E+01	8.995E-01	-0.911
	+	295.96		1.229E+00	2.150E-01	3.069E-01	2.115E-02	4.003
		308.46		3.244E-03	1.053E-01	1.757E-01	1.191E-02	0.018
		316.51	*	7.964E-03	3.820E-02	6.415E-02	4.287E-03	0.124
		468.07		-4.931E-02	8.558E-02	1.155E-01	7.628E-03	-0.427
		604.41		-2.443E-01	5.827E-01	7.811E-01	8.687E-02	-0.313
		612.46		9.217E-01	9.283E-01	1.390E+00	1.001E-01	0.663
AU-195		65.12		5.439E-02	3.009E-01	4.367E-01	5.087E-02	0.125
		66.83		-2.694E-01	1.789E-01	2.204E-01	2.532E-02	-1.222
	+	75.70		2.120E+00	4.069E-01	6.009E-01	6.673E-02	3.527
		98.88	*	1.892E-01	2.853E-01	4.428E-01	4.150E-02	0.427
TL-200		129.76		5.340E+00	3.310E+00	5.610E+00	3.923E-01	0.952
		367.94	*	-2.975E-04	3.310E+00	Half-Life	too short	
		579.30		1.908E-02	3.310E+00	Half-Life	too short	
		828.27		-2.171E-04	3.310E+00	Half-Life	too short	
		1205.75		8.745E-05	3.310E+00	Half-Life	too short	
TL-201		68.90		-5.539E+00	9.685E+00	1.374E+01	1.557E+00	-0.403
		70.82		9.692E+00	5.307E+00	8.074E+00	9.066E-01	1.200
		80.30		-1.516E+00	1.149E+01	1.188E+01	1.326E+00	-0.128
		135.34		-1.122E+01	3.491E+01	5.610E+01	3.870E+00	-0.200
TL-202		167.43	*	1.970E+00	9.868E+00	1.602E+01	1.066E+00	0.123
		68.90		-4.240E-01	7.413E-01	1.051E+00	1.192E-01	-0.403
		70.82		7.398E-01	4.051E-01	6.163E-01	6.920E-02	1.200
		80.30		-1.158E-01	8.770E-01	9.074E-01	1.013E-01	-0.128

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203		439.56	*	5.510E-02	7.562E-02	1.289E-01	7.367E-03	0.427
		70.83		3.095E+00	1.719E+00	2.568E+00	3.952E-01	1.205
	+	72.87		5.503E+00	1.558E+00	1.732E+00	2.594E-01	3.177
	+	82.60		2.824E+00	1.916E+00	2.276E+00	3.533E-01	1.241
BI-207		279.20	*	6.055E-03	5.228E-02	7.657E-02	5.515E-03	0.079
	+	72.80		1.591E+00	4.214E-01	4.990E-01	5.565E-02	3.188
	+	74.97		9.424E-01	2.496E-01	3.364E-01	3.738E-02	2.801
	+	84.90		4.845E-01	3.246E-01	4.301E-01	4.887E-02	1.126
TL-207		569.67		3.166E-02	3.381E-02	5.768E-02	3.161E-03	0.549
		1063.62	*	-6.801E-03	5.966E-02	9.689E-02	6.884E-03	-0.070
		1770.23		5.699E-02	4.913E-01	7.099E-01	4.396E-02	0.080
	+	81.07		4.553E-02	3.916E-01	4.124E-01	4.614E-02	0.110
PO-209		83.78		3.194E-01	2.140E-01	2.615E-01	2.956E-02	1.221
		94.90		2.012E-01	3.003E-01	4.429E-01	4.441E-02	0.454
		122.32		-1.509E-01	2.080E+00	3.381E+00	2.677E-01	-0.045
		144.24		1.692E-01	8.103E-01	1.287E+00	1.036E-01	0.132
BI-210		154.21		3.117E-01	4.567E-01	7.537E-01	5.868E-02	0.414
	+	269.46		4.581E-01	2.714E-01	3.940E-01	2.818E-02	1.163
		323.87	*	-1.245E+00	7.692E-01	1.143E+00	1.921E-01	-1.089
	+	338.28		9.166E+00	2.292E+00	2.660E+00	2.899E-01	3.446
PB-210		445.03		-1.465E+00	2.532E+00	4.016E+00	4.105E-01	-0.365
		260.50		-8.677E-01	1.090E+01	1.823E+01	1.267E+00	-0.048
		262.80		-2.067E+01	3.293E+01	4.872E+01	3.385E+00	-0.424
		896.60	*	4.110E-01	7.878E+00	1.308E+01	1.114E+00	0.031
PB-211		46.50	*	1.855E+00	1.303E+01	2.100E+01	2.182E+00	0.088
		46.50	*	1.855E+00	1.303E+01	2.100E+01	2.182E+00	0.088
		46.50	*	1.855E+00	1.303E+01	2.100E+01	2.018E+00	0.088
		404.84	*	-1.302E+00	1.359E+00	1.694E+00	1.056E+00	-0.769
BI-212		427.08		-5.130E-02	2.314E+00	3.797E+00	2.347E+00	-0.014
		831.96		7.187E-02	1.285E+00	2.141E+00	1.338E+00	0.034
	+	727.18	*	1.335E+00	5.905E-01	6.997E-01	5.448E-02	1.908
		785.46		1.476E-01	1.991E+00	3.096E+00	2.085E-01	0.048
PO-215		1620.62		7.759E-01	1.352E+00	2.386E+00	1.641E-01	0.325
		81.07		4.553E-02	3.916E-01	4.124E-01	4.614E-02	0.110
	+	83.78		3.194E-01	2.140E-01	2.615E-01	2.956E-02	1.221
		94.90		2.012E-01	3.003E-01	4.429E-01	4.441E-02	0.454
RN-219		122.32		-1.509E-01	2.080E+00	3.381E+00	2.677E-01	-0.045
		144.24		1.692E-01	8.103E-01	1.287E+00	1.036E-01	0.132
		154.21		3.117E-01	4.567E-01	7.537E-01	5.868E-02	0.414
	+	269.46		4.581E-01	2.714E-01	3.940E-01	2.818E-02	1.163
RA-223		323.87	*	-1.245E+00	7.692E-01	1.143E+00	1.921E-01	-1.089
	+	338.28		9.166E+00	2.292E+00	2.660E+00	2.899E-01	3.446
		445.03		-1.465E+00	2.532E+00	4.016E+00	4.105E-01	-0.365
		271.23		5.399E-02	5.071E-01	5.017E-01	4.488E-02	0.108
RN-220		401.81	*	1.786E-01	4.497E-01	7.541E-01	1.022E-01	0.237
		549.76	*	-6.101E+00	2.686E+01	4.294E+01	2.382E+00	-0.142
		81.07		4.553E-02	3.916E-01	4.124E-01	4.614E-02	0.110
	+	83.78		3.194E-01	2.140E-01	2.615E-01	2.956E-02	1.221
RA-223		94.90		2.012E-01	3.003E-01	4.429E-01	4.441E-02	0.454

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-1.509E-01	2.080E+00	3.381E+00	2.677E-01	-0.045
		144.24		1.692E-01	8.103E-01	1.287E+00	1.036E-01	0.132
		154.21		3.117E-01	4.567E-01	7.537E-01	5.868E-02	0.414
	+	269.46		4.581E-01	2.714E-01	3.940E-01	2.818E-02	1.163
		323.87	*	-1.245E+00	7.692E-01	1.143E+00	1.921E-01	-1.089
	+	338.28		9.166E+00	2.292E+00	2.660E+00	2.899E-01	3.446
		445.03		-1.465E+00	2.532E+00	4.016E+00	4.105E-01	-0.365
		79.80		-1.796E-01	3.054E+00	3.177E+00	7.192E-01	-0.057
		236.00		5.550E+00	7.446E-01	8.265E-01	9.202E-02	6.715
		256.20	*	1.413E-01	4.359E-01	7.393E-01	1.070E-01	0.191
		286.10		1.289E+00	1.716E+00	2.940E+00	3.566E-01	0.438
	+	299.80		5.270E+00	2.599E+00	3.040E+00	5.066E-01	1.733
TH-227		304.40		4.807E-01	2.211E+00	3.246E+00	5.726E-01	0.148
		334.20		-1.345E+00	2.927E+00	4.086E+00	7.585E-01	-0.329
		79.80		-1.796E-01	3.054E+00	3.177E+00	7.275E-01	-0.057
		94.00		1.063E+01	3.518E+00	4.263E+00	9.569E-01	2.495
		236.00		5.550E+00	6.860E-01	8.265E-01	8.130E-02	6.715
		256.20	*	1.413E-01	4.361E-01	7.393E-01	1.281E-01	0.191
		286.10		1.289E+00	2.143E+00	2.940E+00	2.947E+00	0.438
	+	299.80		5.270E+00	2.599E+00	3.040E+00	5.066E-01	1.733
		304.40		4.807E-01	2.211E+00	3.246E+00	5.726E-01	0.148
		334.20		-1.345E+00	2.927E+00	4.086E+00	7.585E-01	-0.329
	+	85.43		1.037E+00	3.301E-01	4.294E-01	4.893E-02	2.416
	+	88.47		3.442E-01	1.805E-01	2.460E-01	2.815E-02	1.399
PA-231		100.00		1.564E-01	2.175E-01	3.634E-01	3.348E-02	0.430
		193.63	*	-2.497E-01	6.094E-01	9.401E-01	6.392E-02	-0.266
		210.97		1.097E+00	1.009E+00	1.477E+00	1.016E-01	0.743
		283.67	*	-7.335E-01	1.717E+00	2.819E+00	4.022E-01	-0.260
		301.29		1.415E+00	7.295E-01	1.144E+00	1.261E-01	1.237
TH-231		81.07		4.553E-02	3.916E-01	4.124E-01	4.614E-02	0.110
	+	83.78		3.194E-01	2.140E-01	2.615E-01	2.956E-02	1.221
		94.90		2.012E-01	3.003E-01	4.429E-01	4.441E-02	0.454
		122.32		-1.509E-01	2.080E+00	3.381E+00	2.677E-01	-0.045
		144.24		1.692E-01	8.103E-01	1.287E+00	1.036E-01	0.132
U-231		154.21		3.117E-01	4.567E-01	7.537E-01	5.868E-02	0.414
	+	269.46		4.581E-01	2.714E-01	3.940E-01	2.818E-02	1.163
		323.87	*	-1.245E+00	7.692E-01	1.143E+00	1.921E-01	-1.089
	+	338.28		9.166E+00	2.292E+00	2.660E+00	2.899E-01	3.446
		445.03		-1.465E+00	2.532E+00	4.016E+00	4.105E-01	-0.365
	+	84.21		1.607E+01	1.077E+01	1.350E+01	1.529E+00	1.190
	+	92.29		1.158E+01	3.723E+00	5.526E+00	5.824E-01	2.095
		95.87	*	-7.722E-01	1.657E+00	2.335E+00	2.301E-01	-0.331
		108.00		-1.838E+00	2.773E+00	4.436E+00	3.669E-01	-0.414
	+	75.28		2.750E+01	8.078E+00	9.858E+00	1.663E+00	2.790
	+	86.59		9.056E+00	3.687E+00	3.662E+00	1.021E+00	2.473
	+	300.12		1.469E+00	7.118E-01	8.450E-01	1.174E-01	1.739
PA-233		311.98	*	2.913E-02	7.010E-02	1.188E-01	8.324E-03	0.245
		340.50		1.189E+00	7.901E-01	1.168E+00	2.702E-01	1.018
		398.62		-1.425E+00	2.417E+00	3.601E+00	9.300E-01	-0.396

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-1.308E+00	1.884E+00	2.961E+00	6.088E-01	-0.442
		63.00		1.074E+00	3.383E+00	4.385E+00	7.683E-01	0.245
		94.67		2.553E-01	2.198E-01	3.268E-01	4.396E-02	0.781
		98.44		5.532E-02	1.273E-01	1.809E-01	1.011E-01	0.306
		99.86		3.775E-01	5.508E-01	9.197E-01	8.490E-02	0.410
		111.00		-4.234E-02	2.123E-01	3.447E-01	4.015E-02	-0.123
		131.20		-1.077E-01	1.217E-01	1.919E-01	1.337E-02	-0.561
		152.70		2.037E-01	3.816E-01	6.254E-01	1.011E-01	0.326
		186.00		5.929E+00	2.967E+00	2.860E+00	8.795E-01	2.073
		226.40		3.219E-01	4.508E-01	7.746E-01	9.427E-02	0.416
		227.20		2.990E-01	4.808E-01	8.261E-01	5.731E-02	0.362
		248.90		-1.581E-01	8.956E-01	1.494E+00	3.262E-01	-0.106
		293.70		7.666E+00	1.765E+00	1.943E+00	3.202E-01	3.945
		369.80		6.846E-01	9.539E-01	1.612E+00	3.367E-01	0.425
		568.70		3.067E-01	1.128E+00	1.856E+00	1.018E-01	0.165
		569.50		1.981E-01	3.034E-01	5.098E-01	2.794E-02	0.389
		574.00		3.523E-02	1.678E+00	2.720E+00	1.486E-01	0.013
		699.00		-1.707E-01	7.553E-01	1.249E+00	2.235E-01	-0.137
		706.10		7.971E-02	1.076E+00	1.810E+00	7.983E-01	0.044
		733.00		2.234E-01	4.368E-01	6.562E-01	1.398E-01	0.340
		742.81		2.893E-01	1.443E+00	2.419E+00	1.620E+00	0.120
		796.30		1.269E+00	1.180E+00	1.778E+00	4.722E-01	0.714
		805.60		9.627E-01	1.086E+00	1.844E+00	5.578E-01	0.522
		819.60		6.049E-02	1.200E+00	2.002E+00	7.554E-01	0.030
		826.30		3.812E-02	8.142E-01	1.357E+00	6.043E-01	0.028
		831.60		-1.375E-01	6.654E-01	1.088E+00	3.214E-01	-0.126
		876.40		6.216E-01	1.097E+00	1.547E+00	1.590E+00	0.402
		880.51		-3.551E-02	3.050E-01	5.009E-01	4.128E-02	-0.071
		883.24		-5.039E-03	3.067E-01	5.071E-01	3.407E-01	-0.010
		899.00		-8.063E-01	9.572E-01	1.374E+00	6.005E-01	-0.587
		925.00		4.624E-01	1.287E+00	2.035E+00	1.701E-01	0.227
		926.50		1.399E-01	2.057E-01	3.096E-01	7.798E-02	0.452
		946.00	*	4.156E-02	3.501E-01	5.818E-01	1.081E-01	0.071
		949.00		4.896E-01	5.214E-01	9.094E-01	7.441E-02	0.538
		980.50		3.729E-01	7.496E-01	1.280E+00	1.014E-01	0.291
		1394.10		-5.106E-01	1.208E+00	1.850E+00	1.202E+00	-0.276
PA-234M	+	766.42		2.573E+01	2.063E+01	2.299E+01	1.159E+01	1.119
		1001.03	*	4.927E+00	5.135E+00	8.930E+00	8.231E-01	0.552
U-235	+	89.95		3.454E+00	2.081E+00	2.342E+00	7.409E-01	1.475
	+	93.35		3.121E+00	1.304E+00	1.429E+00	4.087E-01	2.184
		105.00		1.068E-01	1.236E+00	2.029E+00	6.053E-01	0.053
		143.76	*	2.424E-02	2.480E-01	3.923E-01	6.546E-02	0.062
		163.35		1.380E-01	5.382E-01	8.752E-01	1.600E-01	0.158
	+	185.71		2.196E-01	8.796E-02	1.061E-01	7.168E-03	2.070
		205.31		5.408E-01	7.046E-01	9.816E-01	1.801E-01	0.551
NP-236		94.67		1.955E-01	1.659E-01	2.481E-01	2.498E-02	0.788
		98.44		4.181E-02	9.345E-02	1.367E-01	1.291E-02	0.306
		111.00		-3.202E-02	1.605E-01	2.607E-01	2.084E-02	-0.123
		160.31	*	-3.795E-03	8.821E-02	1.423E-01	9.499E-03	-0.027

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.176E-01	1.838E-01	3.065E-01	2.843E-02	0.384
		117.00	*	-2.973E-02	2.240E-01	3.640E-01	2.737E-02	-0.082
	+	209.75		1.787E+00	1.173E+00	1.637E+00	1.126E-01	1.092
		228.18		6.499E-02	2.518E-01	4.280E-01	2.970E-02	0.152
	+	277.60		1.902E-01	2.889E-01	3.577E-01	2.470E-02	0.532
AM-241		334.30		-5.716E-01	1.660E+00	2.343E+00	1.519E-01	-0.244
		59.54	*	3.865E-01	3.073E-01	4.669E-01	5.942E-02	0.828
	CM-243	99.55		1.210E-01	1.891E-01	3.154E-01	2.926E-02	0.384
		103.76	*	2.443E-02	1.128E-01	1.860E-01	1.623E-02	0.131
		117.00		-3.059E-02	2.305E-01	3.746E-01	2.816E-02	-0.082
AM-246	+	209.75		1.761E+00	1.157E+00	1.613E+00	1.110E-01	1.092
		228.18		6.567E-02	2.544E-01	4.325E-01	3.001E-02	0.152
	+	277.60		1.917E-01	2.913E-01	3.606E-01	2.490E-02	0.532
		798.80		-2.303E-01	1.751E-01	2.176E-01	1.509E-02	-1.059
		1036.00		5.230E-02	3.281E-01	5.446E-01	4.030E-02	0.096
CM-247		1062.04		-1.139E-01	2.602E-01	4.122E-01	2.936E-02	-0.276
		1078.86	*	9.824E-02	1.722E-01	2.923E-01	2.026E-02	0.336
	+	278.00		7.886E-01	1.198E+00	1.465E+00	1.011E-01	0.538
		287.40		-1.328E-01	1.523E+00	2.307E+00	1.582E-01	-0.058
		402.60	*	7.612E-03	4.101E-02	6.817E-02	3.877E-03	0.112
CF-249		252.85		-1.129E-01	9.799E-01	1.639E+00	1.141E-01	-0.069
		333.44		-3.437E-02	2.106E-01	3.007E-01	1.952E-02	-0.114
		387.95	*	2.099E-03	4.574E-02	7.565E-02	4.337E-03	0.028
CF-251		176.60	*	3.288E-02	1.465E-01	2.376E-01	1.593E-02	0.138
		227.00		3.085E-01	4.287E-01	7.387E-01	5.124E-02	0.418
		285.00		2.040E+00	1.924E+00	3.340E+00	2.296E-01	0.611

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229001      *
* Acquisition date   : 22-JAN-2010 12:56:54 Detector SN#      :              *
* Detector ID        : GAM15                      Sensitivity    : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 03:00:00.00             Abundance limit : 75.000       *
* Elapsed real time  : 0 03:00:02.04             Half life ratio : 8.000       *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229001             Analyst initials: MXR1         *
* Batch Number       : 941239                 Sample Quantity : 1.1879E+02 GRAM *
* Recovery           : 1.00000                Carrier Weight  : 0.00000       *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12 MS Isotope       :
* MSD DPM             : 0.000                      MSD Isotope   :
* LCS DPM             : 0.000                      LCS Isotope   :
* LCSD DPM            : 0.000                      LCSD Isotope  :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.546E+01	3.191E+00	5.769E-01	0.000E+00
CD-109	2.568E+00	1.320E+00	1.474E+00	0.000E+00
SN-126	4.626E-01	1.443E-01	1.458E-01	0.000E+00
CS-135	3.894E-01	2.268E-01	2.810E-01	0.000E+00
TL-208	6.186E-01	8.848E-02	6.462E-02	0.000E+00
BI-211	4.625E+00	5.897E-01	3.778E-01	0.000E+00
PB-212	1.972E+00	2.026E-01	1.019E-01	0.000E+00
PO-212	1.972E+00	2.026E-01	1.019E-01	0.000E+00
BI-214	1.343E+00	1.920E-01	1.174E-01	0.000E+00
PB-214	1.609E+00	2.210E-01	1.317E-01	0.000E+00
PO-214	1.609E+00	2.210E-01	1.317E-01	0.000E+00
PO-216	1.972E+00	2.026E-01	1.019E-01	0.000E+00
PO-218	1.609E+00	2.210E-01	1.317E-01	0.000E+00
RA-224	5.941E+00	1.626E+00	1.159E+00	0.000E+00
RA-226	1.343E+00	1.920E-01	1.174E-01	0.000E+00
AC-228	2.082E+00	3.799E-01	2.197E-01	0.000E+00
RA-228	2.082E+00	3.799E-01	2.197E-01	0.000E+00
TH-228	2.004E+00	2.059E-01	1.035E-01	0.000E+00
TH-230	1.343E+00	1.920E-01	1.174E-01	0.000E+00
TH-232	2.082E+00	3.799E-01	2.197E-01	0.000E+00
TH-234	9.211E-01	2.845E+00	3.558E+00	0.000E+00
U-234	1.343E+00	1.920E-01	1.174E-01	0.000E+00
NP-237	1.358E+00	5.049E-01	4.363E-01	0.000E+00
U-238	9.211E-01	2.845E+00	3.558E+00	0.000E+00
AM-243	5.250E-01	1.363E-01	1.201E-01	0.000E+00
ANH-511	1.472E-01	7.684E-02	5.195E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-8.368E-02	3.342E-01	5.548E-01	0.000E+00 NOT IDENT.



NA-22	-4.184E-03	4.871E-02	7.982E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.210E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	7.246E-03	3.183E-02	5.487E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	7.464E-02	9.221E-02	0.000E+00	NOT IDENT.
SC-46	-2.551E-02	4.313E-02	7.002E-02	0.000E+00	FAIL ABUN
V-48	-4.434E-02	7.600E-02	1.220E-01	0.000E+00	NOT IDENT.
CR-51	6.397E-02	3.979E-01	6.901E-01	0.000E+00	NOT IDENT.
MN-52	3.279E-02	2.688E-01	4.625E-01	0.000E+00	FAIL ABUN
MN-54	3.215E-02	3.935E-02	7.011E-02	0.000E+00	NOT IDENT.
CO-56	2.156E-02	3.995E-02	7.031E-02	0.000E+00	NOT IDENT.
CO-57	6.798E-03	2.955E-02	5.072E-02	0.000E+00	NOT IDENT.
CO-58	-8.709E-03	3.976E-02	6.674E-02	0.000E+00	NOT IDENT.
FE-59	9.745E-03	1.004E-01	1.686E-01	0.000E+00	NOT IDENT.
CO-60	-1.780E-02	4.184E-02	6.587E-02	0.000E+00	NOT IDENT.
ZN-65	-6.902E-02	1.193E-01	1.605E-01	0.000E+00	NOT IDENT.
GE-68	9.456E-01	1.486E+00	2.584E+00	0.000E+00	NOT IDENT.
AS-73	6.900E-01	1.870E+00	3.319E+00	0.000E+00	NOT IDENT.
AS-74	-5.700E-02	1.128E-01	1.756E-01	0.000E+00	NOT IDENT.
SE-75	-2.327E-02	5.489E-02	8.118E-02	0.000E+00	NOT IDENT.
BR-77	-1.277E+00	1.433E+01	2.389E+01	0.000E+00	FAIL ABUN
SR-82	-6.428E-01	4.098E-01	6.257E-01	0.000E+00	NOT IDENT.
RB-83	-2.190E-02	7.268E-02	1.196E-01	0.000E+00	NOT IDENT.
RB-84	-4.224E-02	7.630E-02	1.242E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	8.342E+00	1.373E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.320E-02	7.109E-02	0.000E+00	NOT IDENT.
RB-86	3.723E-01	9.425E-01	1.617E+00	0.000E+00	NOT IDENT.
Y-88	8.027E-03	3.245E-02	5.622E-02	0.000E+00	NOT IDENT.
ZR-88	4.176E-03	3.410E-02	5.842E-02	0.000E+00	NOT IDENT.
Y-91	-1.223E+01	2.099E+01	3.333E+01	0.000E+00	NOT IDENT.
NB-94	6.998E-03	3.420E-02	5.950E-02	0.000E+00	NOT IDENT.
NB-95	8.153E-02	5.142E-02	8.505E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.691E-01	4.043E-01	0.000E+00	NOT IDENT.
ZR-95	6.044E-02	7.409E-02	1.328E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.572E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.267E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-9.462E+00	1.551E+01	2.551E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.806E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.573E-05	3.918E-02	6.343E-02	0.000E+00	NOT IDENT.
RH-102	-1.174E-02	3.019E-02	4.973E-02	0.000E+00	FAIL ABUN
RU-103	-2.022E-02	4.494E-02	7.348E-02	0.000E+00	NOT IDENT.
RH-106	-3.581E-01	3.368E-01	5.141E-01	0.000E+00	NOT IDENT.
RU-106	-3.581E-01	3.349E-01	5.141E-01	0.000E+00	NOT IDENT.
AG-108M	-1.764E-02	3.429E-02	5.646E-02	0.000E+00	NOT IDENT.
AG-110M	-2.541E-03	3.657E-02	6.008E-02	0.000E+00	NOT IDENT.
IN-111	-7.911E-01	1.589E+00	2.352E+00	0.000E+00	NOT IDENT.
IN-113M	1.744E-02	4.981E-02	8.620E-02	0.000E+00	NOT IDENT.
SN-113	1.744E-02	4.981E-02	8.620E-02	0.000E+00	NOT IDENT.
IN-114M	7.256E-02	2.342E-01	3.465E-01	0.000E+00	NOT IDENT.
CD-115	-1.194E+01	1.542E+01	2.459E+01	0.000E+00	NOT IDENT.
SN-117M	-5.369E-02	6.384E-02	1.044E-01	0.000E+00	NOT IDENT.
SB-122	3.327E-01	2.865E+00	4.808E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.083E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.230E-02	3.133E-02	5.148E-02	0.000E+00	NOT IDENT.
I-124	-5.158E-01	9.944E-01	1.361E+00	0.000E+00	NOT IDENT.
SB-124	-6.687E-02	7.343E-02	1.083E-01	0.000E+00	FAIL ABUN
SB-125	9.726E-03	1.021E-01	1.739E-01	0.000E+00	NOT IDENT.
TE-125M	-9.389E+00	1.061E+01	1.762E+01	0.000E+00	NOT IDENT.
I-126	2.688E-02	2.054E-01	3.416E-01	0.000E+00	NOT IDENT.
SB-126	7.890E-02	1.843E-01	2.826E-01	0.000E+00	FAIL ABUN
SB-127	1.347E+00	1.555E+00	2.811E+00	0.000E+00	FAIL ABUN
XE-127	-3.298E-02	6.227E-02	9.033E-02	0.000E+00	NOT IDENT.
I-131	2.179E-02	1.355E-01	2.334E-01	0.000E+00	NOT IDENT.
TE-132	2.381E-01	9.223E-01	1.628E+00	0.000E+00	NOT IDENT.
BA-133	5.349E-02	5.178E-02	8.155E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.357E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.552E-02	9.271E-02	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.131E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	7.169E-03	1.134E-01	1.907E-01	0.000E+00	FAIL ABUN
BA-137M	-2.110E-02	3.744E-02	5.943E-02	0.000E+00	NOT IDENT.
CS-137	-2.231E-02	3.958E-02	6.282E-02	0.000E+00	NOT IDENT.
CE-139	3.926E-02	3.380E-02	5.883E-02	0.000E+00	NOT IDENT.
BA-140	-4.596E-01	3.220E-01	4.312E-01	0.000E+00	NOT IDENT.
LA-140	-6.805E-02	7.881E-02	1.164E-01	0.000E+00	NOT IDENT.
CE-141	-5.771E-03	7.316E-02	1.235E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.630E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-2.248E-01	2.264E-01	3.683E-01	0.000E+00	NOT IDENT.
PM-144	7.235E-03	3.414E-02	5.948E-02	0.000E+00	NOT IDENT.
PR-144	4.905E-01	2.315E+00	4.033E+00	0.000E+00	NOT IDENT.

PM-146	2.409E-02	5.197E-02	8.202E-02	0.000E+00	NOT IDENT.
ND-147	8.351E-01	6.218E-01	1.106E+00	0.000E+00	FAIL ABUN
PM-149	1.603E+02	1.348E+02	2.407E+02	0.000E+00	NOT IDENT.
EU-152	-3.138E-02	1.531E-01	1.757E-01	0.000E+00	FAIL ABUN
GD-153	4.855E-02	1.029E-01	1.580E-01	0.000E+00	FAIL ABUN
EU-154	-1.168E-02	1.360E-01	2.228E-01	0.000E+00	NOT IDENT.
EU-155	1.582E-02	1.232E-01	2.120E-01	0.000E+00	FAIL ABUN
TB-160	-5.071E-02	1.488E-01	2.461E-01	0.000E+00	FAIL ABUN
HO-166M	4.445E-03	6.257E-02	1.080E-01	0.000E+00	FAIL ABUN
TM-171	-7.865E+01	5.305E+01	6.911E+01	0.000E+00	NOT IDENT.
LU-176	2.407E-04	2.899E-02	4.555E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.787E+00	2.561E+00	0.000E+00	FAIL ABUN
LU-177M	-1.721E-01	2.004E-01	3.262E-01	0.000E+00	FAIL ABUN
HF-181	-5.175E-02	4.499E-02	7.047E-02	0.000E+00	NOT IDENT.
W-181	8.335E-02	6.353E-01	9.695E-01	0.000E+00	NOT IDENT.
TA-182	-3.263E-03	2.144E-01	3.545E-01	0.000E+00	FAIL ABUN
RE-183	-1.285E-01	1.240E-01	2.011E-01	0.000E+00	FAIL ABUN
RE-184	-3.021E-02	2.569E-01	4.460E-01	0.000E+00	NOT IDENT.
OS-185	-3.983E-02	4.677E-02	7.285E-02	0.000E+00	FAIL ABUN
RE-188	-9.601E-03	1.960E-01	3.302E-01	0.000E+00	NOT IDENT.
W-188	-1.197E+01	9.562E+00	1.335E+01	0.000E+00	FAIL ABUN
IR-192	7.964E-03	3.744E-02	6.509E-02	0.000E+00	FAIL ABUN
AU-195	1.892E-01	2.796E-01	4.550E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.192E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.970E+00	9.671E+00	1.637E+01	0.000E+00	NOT IDENT.
TL-202	5.510E-02	7.411E-02	1.303E-01	0.000E+00	NOT IDENT.
HG-203	6.055E-03	5.123E-02	7.780E-02	0.000E+00	FAIL ABUN
BI-207	-6.801E-03	5.846E-02	9.697E-02	0.000E+00	FAIL ABUN
TL-207	-1.245E+00	7.538E-01	1.159E+00	0.000E+00	FAIL ABUN
PO-209	4.110E-01	7.721E+00	1.312E+01	0.000E+00	NOT IDENT.
BI-210	1.855E+00	1.277E+01	2.176E+01	0.000E+00	NOT IDENT.
PB-210	1.855E+00	1.277E+01	2.176E+01	0.000E+00	NOT IDENT.
PO-210	1.855E+00	1.277E+01	2.176E+01	0.000E+00	NOT IDENT.
PB-211	-1.302E+00	1.331E+00	1.714E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.787E-01	7.034E-01	0.000E+00	FAIL ABUN
PO-215	-1.245E+00	7.538E-01	1.159E+00	0.000E+00	FAIL ABUN
RN-219	1.786E-01	4.407E-01	7.631E-01	0.000E+00	NOT IDENT.
RN-220	-6.101E+00	2.632E+01	4.330E+01	0.000E+00	NOT IDENT.
RA-223	-1.245E+00	7.538E-01	1.159E+00	0.000E+00	FAIL ABUN
AC-227	1.413E-01	4.272E-01	7.518E-01	0.000E+00	FAIL ABUN
TH-227	1.413E-01	4.274E-01	7.518E-01	0.000E+00	FAIL ABUN
TH-229	-2.497E-01	5.972E-01	9.591E-01	0.000E+00	FAIL ABUN
PA-231	-7.335E-01	1.683E+00	2.863E+00	0.000E+00	NOT IDENT.
TH-231	-1.245E+00	7.538E-01	1.159E+00	0.000E+00	FAIL ABUN
U-231	-7.722E-01	1.623E+00	2.400E+00	0.000E+00	FAIL ABUN
PA-233	2.913E-02	6.869E-02	1.205E-01	0.000E+00	FAIL ABUN
PA-234	4.156E-02	3.431E-01	5.831E-01	0.000E+00	FAIL ABUN
PA-234M	4.927E+00	5.032E+00	8.944E+00	0.000E+00	FAIL ABUN
U-235	2.424E-02	2.431E-01	4.015E-01	0.000E+00	FAIL ABUN
NP-236	-3.795E-03	8.645E-02	1.454E-01	0.000E+00	NOT IDENT.
NP-239	-2.973E-02	2.195E-01	3.734E-01	0.000E+00	FAIL ABUN
AM-241	3.865E-01	3.012E-01	4.825E-01	0.000E+00	NOT IDENT.
CM-243	2.443E-02	1.106E-01	1.910E-01	0.000E+00	FAIL ABUN
AM-246	9.824E-02	1.687E-01	2.925E-01	0.000E+00	NOT IDENT.
CM-247	7.612E-03	4.019E-02	6.898E-02	0.000E+00	FAIL ABUN
CF-249	2.099E-03	4.483E-02	7.658E-02	0.000E+00	NOT IDENT.
CF-251	3.288E-02	1.436E-01	2.426E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229001.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:56:54
Sample ID          : G244229001          Sample quantity  : 1.18790E+02 GRAM
Detector name      : GAM15              Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00      Elapsed real time: 0 03:00:02.04  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID          : 941239              Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1795	10.67*	9.991E-01	3.546E+01	3.546E+01	9.18
CD-109	88.03	204	3.72*	4.618E+00	2.507E+00	2.568E+00	52.45
SN-126	64.28	-----	9.60	1.930E+00	-----	Line Not Found	-----
	86.94	358	8.90	4.403E+00	1.923E+00	1.923E+00	51.47
	87.57	358	37.00*	4.403E+00	4.626E-01	4.626E-01	31.83
CS-135	268.24	114	16.00*	3.869E+00	3.894E-01	3.894E-01	59.43
TL-208	277.35	48	6.80	3.786E+00	3.943E-01	3.943E-01	152.18
	510.84	172	21.60	2.462E+00	6.816E-01	6.816E-01	53.91
	583.14	551	84.20*	2.230E+00	6.186E-01	6.186E-01	14.59
	860.37	73	12.46	1.613E+00	7.607E-01	7.607E-01	69.54
BI-211	72.87	518	1.27	3.149E+00	2.728E+01	2.728E+01	26.49
	351.07	911	12.94*	3.207E+00	4.625E+00	4.625E+00	13.01
PB-212	74.81	518	10.70	3.149E+00	3.238E+00	3.238E+00	28.09
	77.11	698	18.00	3.416E+00	2.393E+00	2.393E+00	19.20
	87.30	358	8.00	4.403E+00	2.139E+00	2.139E+00	33.36
	238.63	1762	44.60*	4.221E+00	1.972E+00	1.972E+00	10.48
	300.09	165	3.41	3.586E+00	2.844E+00	2.844E+00	47.27
PO-212	74.81	518	10.70	3.149E+00	3.238E+00	3.238E+00	28.09
	77.11	698	18.00	3.416E+00	2.393E+00	2.393E+00	19.20
	87.30	358	8.00	4.403E+00	2.139E+00	2.139E+00	33.36
	115.19	-----	0.60	5.666E+00	-----	Line Not Found	-----
	238.63	1762	44.60*	4.221E+00	1.972E+00	1.972E+00	10.48
	300.09	165	3.41	3.586E+00	2.844E+00	2.844E+00	47.27
BI-214	609.31	636	46.30*	2.156E+00	1.343E+00	1.343E+00	14.59
	1120.29	189	15.10	1.263E+00	2.082E+00	2.082E+00	31.75
	1764.49	132	15.80	8.818E-01	1.990E+00	1.990E+00	20.08
PB-214	74.81	518	6.21	3.149E+00	5.580E+00	5.580E+00	27.51
	77.11	698	10.50	3.416E+00	4.102E+00	4.102E+00	20.66
	87.30	358	4.67	4.403E+00	3.665E+00	3.665E+00	32.75
	241.98	466	7.49	4.185E+00	3.133E+00	3.133E+00	28.49
	295.21	528	19.20	3.630E+00	1.597E+00	1.597E+00	18.55
	351.92	911	37.20*	3.207E+00	1.609E+00	1.609E+00	14.02

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	74.81	518	6.21	3.149E+00	5.580E+00	5.580E+00	27.51
	77.11	698	10.50	3.416E+00	4.102E+00	4.102E+00	20.66
	87.30	358	4.67	4.403E+00	3.665E+00	3.665E+00	32.75
	241.98	466	7.49	4.185E+00	3.133E+00	3.133E+00	28.49
	295.21	528	19.20	3.630E+00	1.597E+00	1.597E+00	18.55
	351.92	911	37.20*	3.207E+00	1.609E+00	1.609E+00	14.02
PO-216	74.81	518	10.70	3.149E+00	3.238E+00	3.238E+00	28.09
	77.11	698	18.00	3.416E+00	2.393E+00	2.393E+00	19.20
	87.30	358	8.00	4.403E+00	2.139E+00	2.139E+00	33.36
	238.63	1762	44.60*	4.221E+00	1.972E+00	1.972E+00	10.48
	300.09	165	3.41	3.586E+00	2.844E+00	2.844E+00	47.27
PO-218	74.81	518	6.21	3.149E+00	5.580E+00	5.580E+00	27.51
	77.11	698	10.50	3.416E+00	4.102E+00	4.102E+00	20.66
	87.30	358	4.67	4.403E+00	3.665E+00	3.665E+00	32.75
	241.98	466	7.49	4.185E+00	3.133E+00	3.133E+00	28.49
	295.21	528	19.20	3.630E+00	1.597E+00	1.597E+00	18.55
	351.92	911	37.20*	3.207E+00	1.609E+00	1.609E+00	14.02
RA-224	240.98	466	3.95*	4.185E+00	5.941E+00	5.941E+00	27.94
RA-226	609.31	636	46.30*	2.156E+00	1.343E+00	1.343E+00	14.59
	1120.29	189	15.10	1.263E+00	2.082E+00	2.082E+00	31.75
	1764.49	132	15.80	8.818E-01	1.990E+00	1.990E+00	20.08
AC-228	338.32	392	11.40	3.297E+00	2.195E+00	2.195E+00	46.65
	911.07	419	27.70*	1.532E+00	2.082E+00	2.082E+00	18.62
	969.11	234	16.60	1.447E+00	2.050E+00	2.050E+00	30.12
RA-228	338.32	392	11.40	3.297E+00	2.195E+00	2.195E+00	46.65
	911.07	419	27.70*	1.532E+00	2.082E+00	2.082E+00	18.62
	969.11	234	16.60	1.447E+00	2.050E+00	2.050E+00	30.12
TH-228	74.81	518	10.70	3.149E+00	3.238E+00	3.238E+00	26.51
	77.11	698	18.00	3.416E+00	2.393E+00	2.432E+00	19.20
	87.30	358	8.00	4.403E+00	2.139E+00	2.174E+00	31.83
	238.63	1762	44.60*	4.221E+00	1.972E+00	2.004E+00	10.48
	300.09	165	3.41	3.586E+00	2.844E+00	2.889E+00	75.10
TH-230	609.31	636	46.30*	2.156E+00	1.343E+00	1.343E+00	14.59
	1120.29	189	15.10	1.263E+00	2.082E+00	2.082E+00	31.75
	1764.49	132	15.80	8.818E-01	1.990E+00	1.990E+00	20.08
TH-232	338.32	392	11.40	3.297E+00	2.195E+00	2.195E+00	23.41
	911.07	419	27.70*	1.532E+00	2.082E+00	2.082E+00	18.62
	969.11	234	16.60	1.447E+00	2.050E+00	2.050E+00	30.12
TH-234	63.29	28	3.80*	1.688E+00	9.211E-01	9.211E-01	315.22
	92.38	321	5.41	4.820E+00	2.596E+00	2.596E+00	35.87
U-234	609.31	636	46.30*	2.156E+00	1.343E+00	1.343E+00	14.59
	1120.29	189	15.10	1.263E+00	2.082E+00	2.082E+00	31.75
	1764.49	132	15.80	8.818E-01	1.990E+00	1.990E+00	20.08
NP-237	86.50	358	12.60*	4.403E+00	1.358E+00	1.358E+00	37.93
	95.87	-----	2.60	5.041E+00	-----	Line Not Found	-----
U-238	63.29	28	3.80*	1.688E+00	9.211E-01	9.211E-01	315.22
	92.38	321	5.41	4.820E+00	2.596E+00	2.596E+00	32.16
AM-243	74.67	518	66.00*	3.149E+00	5.250E-01	5.250E-01	26.49
	86.72	358	0.34	4.403E+00	5.094E+01	5.094E+01	31.83

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	117.66	-----	0.55	5.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.637E+00	-----	Line Not Found	-----
ANH-511	511.00	172	100.00*	2.462E+00	1.472E-01	1.472E-01	53.26

Flag: "\*" = Keyline

Total number of lines in spectrum 33  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 31 93.94%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.546E+01	3.546E+01	0.326E+01	9.18	
CD-109	464.00D	1.02	2.507E+00	2.568E+00	1.347E+00	52.45	
SN-126	1.00E+05Y	1.00	4.626E-01	4.626E-01	1.472E-01	31.83	
CS-135	2.30E+06Y	1.00	3.894E-01	3.894E-01	2.314E-01	59.43	
TL-208	1.41E+10Y	1.00	6.186E-01	6.186E-01	0.903E-01	14.59	
BI-211	7.04E+08Y	1.00	4.625E+00	4.625E+00	0.602E+00	13.01	
PB-212	1.41E+10Y	1.00	1.972E+00	1.972E+00	0.207E+00	10.48	
PO-212	1.41E+10Y	1.00	1.972E+00	1.972E+00	0.207E+00	10.48	
BI-214	1600.00Y	1.00	1.343E+00	1.343E+00	0.196E+00	14.59	
PB-214	1600.00Y	1.00	1.609E+00	1.609E+00	0.226E+00	14.02	
PO-214	1600.00Y	1.00	1.609E+00	1.609E+00	0.226E+00	14.02	
PO-216	1.41E+10Y	1.00	1.972E+00	1.972E+00	0.207E+00	10.48	
PO-218	1600.00Y	1.00	1.609E+00	1.609E+00	0.226E+00	14.02	
RA-224	1.41E+10Y	1.00	5.941E+00	5.941E+00	1.660E+00	27.94	
RA-226	1600.00Y	1.00	1.343E+00	1.343E+00	0.196E+00	14.59	
AC-228	1.41E+10Y	1.00	2.082E+00	2.082E+00	0.388E+00	18.62	
RA-228	1.41E+10Y	1.00	2.082E+00	2.082E+00	0.388E+00	18.62	
TH-228	1.91Y	1.02	1.972E+00	2.004E+00	0.210E+00	10.48	
TH-230	4.47E+09Y	1.00	1.343E+00	1.343E+00	0.196E+00	14.59	
TH-232	1.41E+10Y	1.00	2.082E+00	2.082E+00	0.388E+00	18.62	
TH-234	4.47E+09Y	1.00	9.211E-01	9.211E-01	29.04E-01	315.22	
U-234	4.47E+09Y	1.00	1.343E+00	1.343E+00	0.196E+00	14.59	
NP-237	2.14E+06Y	1.00	1.358E+00	1.358E+00	0.515E+00	37.93	
U-238	4.47E+09Y	1.00	9.211E-01	9.211E-01	29.04E-01	315.22	
AM-243	7380.00Y	1.00	5.250E-01	5.250E-01	1.391E-01	26.49	
ANH-511	1.00E+09Y	1.00	1.472E-01	1.472E-01	0.784E-01	53.26	
Total Activity :			7.821E+01	7.830E+01			

Grand Total Activity : 7.821E+01 7.830E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229001

Page : 5  
Acquisition date : 22-JAN-2010 12:56:54

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	83.52	155	658	1.60	167.52	163	29	1.43E-02	66.0	4.13E+00	T
0	185.31	281	630	1.38	371.01	365	12	2.60E-02	39.5	4.98E+00	T
0	208.43	127	491	1.38	417.23	413	9	1.18E-02	65.3	4.62E+00	T
0	461.62	120	263	1.85	923.41	916	15	1.11E-02	61.6	2.65E+00	
0	726.70	140	152	1.67	1453.40	1445	16	1.29E-02	43.5	1.87E+00	T
0	767.43	70	107	2.02	1534.84	1529	11	6.46E-03	62.3	1.78E+00	T
0	794.02	85	106	1.63	1588.00	1581	16	7.84E-03	59.2	1.73E+00	
0	934.13	39	85	1.93	1868.15	1860	13	3.63E-03	****	1.50E+00	T
0	964.31	60	57	1.10	1928.50	1924	8	5.53E-03	51.1	1.45E+00	T
0	1407.18	37	15	1.71	2814.09	2806	15	3.45E-03	55.8	1.03E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229001.CNF;1
* Acquisition date   : 22-JAN-2010 12:56:54  Detector SN#      :
* Detector ID        : GAM15                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 03:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 03:00:02.04          Half life ratio : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244229001            Analyst initials: MXR1
* Batch Number       : 941239                Sample Quantity : 1.18790E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12.9MS Isotope      :
* MSD ID              :                      MSD Isotope      :
* LCS ID              : 1032-A               LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.546E+01	3.256E+00	5.785E-01	4.422E-02	61.305
CD-109	2.568E+00	1.347E+00	1.432E+00	1.656E-01	1.793
SN-126	4.626E-01	1.472E-01	1.417E-01	1.635E-02	3.265
CS-135	3.894E-01	2.314E-01	2.764E-01	2.363E-02	1.409
TL-208	6.186E-01	9.028E-02	6.413E-02	4.083E-03	9.646
BI-211	4.625E+00	6.017E-01	3.728E-01	2.562E-02	12.405
PB-212	1.972E+00	2.067E-01	1.001E-01	8.285E-03	19.704
PO-212	1.972E+00	2.067E-01	1.001E-01	8.285E-03	19.704
BI-214	1.343E+00	1.959E-01	1.165E-01	8.653E-03	11.523
PB-214	1.609E+00	2.255E-01	1.299E-01	1.120E-02	12.381
PO-214	1.609E+00	2.255E-01	1.299E-01	1.120E-02	12.381
PO-216	1.972E+00	2.067E-01	1.001E-01	8.285E-03	19.704
PO-218	1.609E+00	2.255E-01	1.299E-01	1.120E-02	12.381
RA-224	5.941E+00	1.660E+00	1.139E+00	7.926E-02	5.217
RA-226	1.343E+00	1.959E-01	1.165E-01	8.653E-03	11.523
AC-228	2.082E+00	3.876E-01	2.192E-01	2.436E-02	9.498
RA-228	2.082E+00	3.876E-01	2.192E-01	2.436E-02	9.498
TH-228	2.004E+00	2.101E-01	1.017E-01	8.418E-03	19.704



---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.343E+00	1.959E-01	1.165E-01	8.652E-03	11.523
TH-232	2.082E+00	3.876E-01	2.192E-01	2.436E-02	9.498
TH-234	9.211E-01	2.904E+00	3.446E+00	6.801E-01	0.267
U-234	1.343E+00	1.959E-01	1.165E-01	8.652E-03	11.523
NP-237	1.358E+00	5.152E-01	4.240E-01	1.001E-01	3.204
U-238	9.211E-01	2.904E+00	3.446E+00	6.801E-01	0.267
AM-243	5.250E-01	1.391E-01	1.165E-01	1.295E-02	4.507
ANH-511	1.472E-01	7.841E-02	5.147E-02	2.907E-03	2.860

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-8.368E-02		3.411E-01	5.494E-01	3.661E-02	-0.152
NA-22	-4.184E-03		4.970E-02	7.992E-02	5.485E-03	-0.052
NA-24	1.844E+00		1.127E+00	Half-Life too short		
AL-26	7.246E-03		3.248E-02	5.516E-02	3.301E-03	0.131
TI-44	2.526E-01		7.616E-02	8.950E-02	9.952E-03	2.822
SC-46	-2.551E-02		4.401E-02	6.982E-02	5.856E-03	-0.365
V-48	-4.434E-02		7.756E-02	1.218E-01	9.620E-03	-0.364
CR-51	6.397E-02		4.060E-01	6.802E-01	4.906E-02	0.094
MN-52	3.279E-02		2.743E-01	4.637E-01	3.438E-02	0.071
MN-54	3.215E-02		4.015E-02	6.985E-02	5.236E-03	0.460
CO-56	2.156E-02		4.077E-02	7.007E-02	5.385E-03	0.308
CO-57	6.798E-03		3.015E-02	4.947E-02	3.557E-03	0.137
CO-58	-8.709E-03		4.057E-02	6.648E-02	4.749E-03	-0.131
FE-59	9.745E-03		1.024E-01	1.686E-01	1.276E-02	0.058
CO-60	-1.780E-02		4.270E-02	6.599E-02	4.980E-03	-0.270
ZN-65	-6.902E-02		1.218E-01	1.604E-01	1.042E-02	-0.430
GE-68	9.456E-01		1.516E+00	2.582E+00	1.794E-01	0.366
AS-73	6.900E-01		1.908E+00	3.208E+00	4.384E-01	0.215
AS-74	-5.700E-02		1.151E-01	1.743E-01	9.372E-03	-0.327
SE-75	-2.327E-02		5.601E-02	7.985E-02	5.585E-03	-0.291
BR-77	-1.277E+00		1.463E+01	2.367E+01	1.332E+00	-0.054
SR-82	-6.428E-01		4.182E-01	6.230E-01	4.112E-02	-1.032
RB-83	-2.190E-02		7.417E-02	1.185E-01	6.668E-03	-0.185
RB-84	-4.224E-02		7.785E-02	1.239E-01	1.023E-02	-0.341
KR-85	1.588E+01		8.512E+00	1.360E+01	7.674E-01	1.167
SR-85	8.223E-02		4.408E-02	7.045E-02	3.974E-03	1.167
RB-86	3.723E-01		9.617E-01	1.616E+00	1.124E-01	0.230
Y-88	8.027E-03		3.311E-02	5.653E-02	3.302E-03	0.142
ZR-88	4.176E-03		3.480E-02	5.772E-02	3.273E-03	0.072
Y-91	-1.223E+01		2.141E+01	3.335E+01	2.017E+00	-0.367
NB-94	6.998E-03		3.489E-02	5.917E-02	3.291E-03	0.118
NB-95	8.153E-02		5.247E-02	8.466E-02	5.456E-03	0.963
NB-95M	2.139E+00		2.746E-01	3.972E-01	3.356E-02	5.386
ZR-95	6.044E-02		7.561E-02	1.322E-01	9.854E-03	0.457
NB-97	-2.031E-02		1.312E-01	Half-Life too short		

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	2.607E+01		3.198E+00	Half-Life too short		
MO-99	-9.462E+00		1.582E+01	2.538E+01	3.527E+00	-0.373
TC-99M	-2.996E+11		2.962E+11	Half-Life too short		
RH-101	2.573E-05		3.998E-02	6.220E-02	4.243E-03	0.000
RH-102	-1.174E-02		3.081E-02	4.924E-02	2.807E-03	-0.238
RU-103	-2.022E-02		4.585E-02	7.279E-02	9.162E-03	-0.278
RH-106	-3.581E-01		3.437E-01	5.105E-01	5.860E-02	-0.701
RU-106	-3.581E-01		3.418E-01	5.105E-01	2.682E-02	-0.701
AG-108M	-1.764E-02		3.499E-02	5.584E-02	3.472E-03	-0.316
AG-110M	-2.541E-03		3.732E-02	5.971E-02	3.273E-03	-0.043
IN-111	-7.911E-01		1.621E+00	2.312E+00	1.609E-01	-0.342
IN-113M	1.744E-02		5.083E-02	8.516E-02	5.166E-03	0.205
SN-113	1.744E-02		5.083E-02	8.516E-02	5.166E-03	0.205
IN-114M	7.256E-02		2.390E-01	3.396E-01	2.303E-02	0.214
CD-115	-1.194E+01		1.574E+01	2.437E+01	1.367E+00	-0.490
SN-117M	-5.369E-02		6.514E-02	1.021E-01	6.829E-03	-0.526
SB-122	3.327E-01		2.923E+00	4.770E+00	2.624E-01	0.070
I-123	-1.483E+01		1.063E+01	Half-Life too short		
TE-123M	-2.230E-02		3.197E-02	5.036E-02	3.400E-03	-0.443
I-124	-5.158E-01		1.015E+00	1.351E+00	7.223E-02	-0.382
SB-124	-6.687E-02		7.493E-02	1.088E-01	7.640E-03	-0.615
SB-125	9.726E-03		1.042E-01	1.720E-01	1.025E-02	0.057
TE-125M	-9.389E+00		1.083E+01	1.716E+01	1.706E+00	-0.547
I-126	2.688E-02		2.096E-01	3.395E-01	1.728E-02	0.079
SB-126	7.890E-02		1.880E-01	2.812E-01	1.632E-02	0.281
SB-127	1.347E+00		1.587E+00	2.794E+00	2.653E-01	0.482
XE-127	-3.298E-02		6.354E-02	8.859E-02	6.065E-03	-0.372
I-131	2.179E-02		1.382E-01	2.304E-01	1.556E-02	0.095
TE-132	2.381E-01		9.412E-01	1.599E+00	2.405E-01	0.149
BA-133	5.349E-02		5.284E-02	8.049E-02	9.478E-03	0.665
I-133	3.122E-03		6.922E-03	Half-Life too short		
CS-134	9.304E-02		5.666E-02	9.232E-02	6.433E-03	1.008
I-135	-5.282E+10		3.638E+10	Half-Life too short		
CS-136	7.169E-03		1.157E-01	1.906E-01	1.468E-02	0.038
BA-137M	-2.110E-02		3.820E-02	5.906E-02	2.971E-03	-0.357
CS-137	-2.231E-02		4.038E-02	6.243E-02	3.159E-03	-0.357
CE-139	3.926E-02		3.449E-02	5.757E-02	3.828E-03	0.682
BA-140	-4.596E-01		3.285E-01	4.275E-01	1.389E-01	-1.075
LA-140	-6.805E-02		8.042E-02	1.168E-01	8.142E-03	-0.583
CE-141	-5.771E-03		7.465E-02	1.207E-01	8.424E-03	-0.048
CE-143	2.446E-03	+	3.382E-04	Half-Life too short		
CE-144	-2.248E-01		2.311E-01	3.595E-01	5.284E-02	-0.625
PM-144	7.235E-03		3.484E-02	5.915E-02	3.245E-03	0.122
PR-144	4.905E-01		2.362E+00	4.010E+00	2.198E-01	0.122
PM-146	2.409E-02		5.303E-02	8.116E-02	6.951E-03	0.297
ND-147	8.351E-01		6.345E-01	1.097E+00	1.473E-01	0.762
PM-149	1.603E+02		1.376E+02	2.369E+02	3.470E+01	0.676
EU-152	-3.138E-02		1.562E-01	1.733E-01	1.221E-02	-0.181

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	4.855E-02		1.050E-01	1.537E-01	1.475E-02	0.316
EU-154	-1.168E-02		1.388E-01	2.231E-01	2.237E-02	-0.052
EU-155	1.582E-02		1.257E-01	2.065E-01	1.788E-02	0.077
TB-160	-5.071E-02		1.518E-01	2.454E-01	2.017E-02	-0.207
HO-166M	4.445E-03		6.384E-02	1.074E-01	6.105E-03	0.041
TM-171	-7.865E+01		5.414E+01	6.697E+01	7.701E+00	-1.174
LU-176	2.407E-04		2.958E-02	4.488E-02	3.023E-03	0.005
LU-177	2.777E+00	+	1.824E+00	2.513E+00	1.727E-01	1.105
LU-177M	-1.721E-01		2.045E-01	3.225E-01	1.838E-02	-0.534
HF-181	-5.175E-02		4.591E-02	6.979E-02	3.973E-03	-0.742
W-181	8.335E-02		6.483E-01	9.392E-01	1.093E-01	0.089
TA-182	-3.263E-03		2.187E-01	3.548E-01	2.212E-02	-0.009
RE-183	-1.285E-01		1.265E-01	1.967E-01	1.311E-02	-0.653
RE-184	-3.021E-02		2.622E-01	4.385E-01	3.052E-02	-0.069
OS-185	-3.983E-02		4.772E-02	7.238E-02	3.708E-03	-0.550
RE-188	-9.601E-03		2.000E-01	3.229E-01	2.166E-02	-0.030
W-188	-1.197E+01		9.757E+00	1.314E+01	8.995E-01	-0.911
IR-192	7.964E-03		3.820E-02	6.415E-02	4.287E-03	0.124
AU-195	1.892E-01		2.853E-01	4.428E-01	4.150E-02	0.427
TL-200	-2.975E-04		4.690E-04	Half-Life too short		
TL-201	1.970E+00		9.868E+00	1.602E+01	1.066E+00	0.123
TL-202	5.510E-02		7.562E-02	1.289E-01	7.367E-03	0.427
HG-203	6.055E-03		5.228E-02	7.657E-02	5.515E-03	0.079
BI-207	-6.801E-03		5.966E-02	9.689E-02	6.884E-03	-0.070
TL-207	-1.245E+00		7.692E-01	1.143E+00	1.921E-01	-1.089
PO-209	4.110E-01		7.878E+00	1.308E+01	1.114E+00	0.031
BI-210	1.855E+00		1.303E+01	2.100E+01	2.182E+00	0.088
PB-210	1.855E+00		1.303E+01	2.100E+01	2.182E+00	0.088
PO-210	1.855E+00		1.303E+01	2.100E+01	2.018E+00	0.088
PB-211	-1.302E+00		1.359E+00	1.694E+00	1.056E+00	-0.769
BI-212	1.335E+00	+	5.905E-01	6.997E-01	5.448E-02	1.908
PO-215	-1.245E+00		7.692E-01	1.143E+00	1.921E-01	-1.089
RN-219	1.786E-01		4.497E-01	7.541E-01	1.022E-01	0.237
RN-220	-6.101E+00		2.686E+01	4.294E+01	2.382E+00	-0.142
RA-223	-1.245E+00		7.692E-01	1.143E+00	1.921E-01	-1.089
AC-227	1.413E-01		4.359E-01	7.393E-01	1.070E-01	0.191
TH-227	1.413E-01		4.361E-01	7.393E-01	1.281E-01	0.191
TH-229	-2.497E-01		6.094E-01	9.401E-01	6.392E-02	-0.266
PA-231	-7.335E-01		1.717E+00	2.819E+00	4.022E-01	-0.260
TH-231	-1.245E+00		7.692E-01	1.143E+00	1.921E-01	-1.089
U-231	-7.722E-01		1.657E+00	2.335E+00	2.301E-01	-0.331
PA-233	2.913E-02		7.010E-02	1.188E-01	8.324E-03	0.245
PA-234	4.156E-02		3.501E-01	5.818E-01	1.081E-01	0.071
PA-234M	4.927E+00		5.135E+00	8.930E+00	8.231E-01	0.552
U-235	2.424E-02		2.480E-01	3.923E-01	6.546E-02	0.062
NP-236	-3.795E-03		8.821E-02	1.423E-01	9.499E-03	-0.027
NP-239	-2.973E-02		2.240E-01	3.640E-01	2.737E-02	-0.082
AM-241	3.865E-01		3.073E-01	4.669E-01	5.942E-02	0.828

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.443E-02		1.128E-01	1.860E-01	1.623E-02	0.131
AM-246	9.824E-02		1.722E-01	2.923E-01	2.026E-02	0.336
CM-247	7.612E-03		4.101E-02	6.817E-02	3.877E-03	0.112
CF-249	2.099E-03		4.574E-02	7.565E-02	4.337E-03	0.028
CF-251	3.288E-02		1.465E-01	2.376E-01	1.593E-02	0.138

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229001            *
* Acquisition date   : 22-JAN-2010 12:56:54 Detector SN#      :              *
* Detector ID        : GAM15                      Sensitivity   : 5.000      *
* Geometry           : CAN                        Energy tolerance: 1.500      *
* Elapsed live time  : 0 03:00:00.00              Abundance limit : 75.000      *
* Elapsed real time  : 0 03:00:02.04              Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G244229001              Analyst initials: MXR1         *
* Batch Number       : 941239                  Sample Quantity : 1.1879E+02 GRAM *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 16-FEB-2009 10:54:12 MS Isotope       :              *
* MSD DPM            : 0.000                     MSD Isotope  :              *
* LCS DPM            : 0.000                     LCS Isotope  :              *
* LCSD DPM           : 0.000                     LCSD Isotope :              *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.546E+01	3.191E+00	2.886E-01	1.628E+00
CD-109	2.568E+00	1.320E+00	7.372E-01	6.735E-01
SN-126	4.626E-01	1.443E-01	7.293E-02	7.361E-02
CS-135	3.894E-01	2.268E-01	1.406E-01	1.157E-01
TL-208	6.186E-01	8.848E-02	3.233E-02	4.514E-02
BI-211	4.625E+00	5.897E-01	1.890E-01	3.009E-01
PB-212	1.972E+00	2.026E-01	5.096E-02	1.034E-01
PO-212	1.972E+00	2.026E-01	5.096E-02	1.034E-01
BI-214	1.343E+00	1.920E-01	5.872E-02	9.796E-02
PB-214	1.609E+00	2.210E-01	6.588E-02	1.128E-01
PO-214	1.609E+00	2.210E-01	6.588E-02	1.128E-01
PO-216	1.972E+00	2.026E-01	5.096E-02	1.034E-01
PO-218	1.609E+00	2.210E-01	6.588E-02	1.128E-01
RA-224	5.941E+00	1.626E+00	5.798E-01	8.298E-01
RA-226	1.343E+00	1.920E-01	5.872E-02	9.796E-02
AC-228	2.082E+00	3.799E-01	1.099E-01	1.938E-01
RA-228	2.082E+00	3.799E-01	1.099E-01	1.938E-01
TH-228	2.004E+00	2.059E-01	5.178E-02	1.050E-01
TH-230	1.343E+00	1.920E-01	5.872E-02	9.796E-02
TH-232	2.082E+00	3.799E-01	1.099E-01	1.938E-01
TH-234	9.211E-01	2.845E+00	1.780E+00	1.452E+00
U-234	1.343E+00	1.920E-01	5.872E-02	9.796E-02
NP-237	1.358E+00	5.049E-01	2.183E-01	2.576E-01
U-238	9.211E-01	2.845E+00	1.780E+00	1.452E+00
AM-243	5.250E-01	1.363E-01	6.007E-02	6.953E-02
ANH-511	1.472E-01	7.684E-02	2.599E-02	3.921E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-8.368E-02	3.342E-01	2.776E-01	1.705E-01 NOT IDENT.

NA-22	-4.184E-03	4.871E-02	3.993E-02	2.485E-02	NOT IDENT.
NA-24	1.844E+06	2.210E+06	0.000E+00	1.127E+06	SHORT HLIF
AL-26	7.246E-03	3.183E-02	2.745E-02	1.624E-02	NOT IDENT.
TI-44	2.526E-01	7.464E-02	4.613E-02	3.808E-02	NOT IDENT.
SC-46	-2.551E-02	4.313E-02	3.503E-02	2.200E-02	FAIL ABUN
V-48	-4.434E-02	7.600E-02	6.103E-02	3.878E-02	NOT IDENT.
CR-51	6.397E-02	3.979E-01	3.452E-01	2.030E-01	NOT IDENT.
MN-52	3.279E-02	2.688E-01	2.314E-01	1.372E-01	FAIL ABUN
MN-54	3.215E-02	3.935E-02	3.507E-02	2.007E-02	NOT IDENT.
CO-56	2.156E-02	3.995E-02	3.517E-02	2.038E-02	NOT IDENT.
CO-57	6.798E-03	2.955E-02	2.537E-02	1.507E-02	NOT IDENT.
CO-58	-8.709E-03	3.976E-02	3.339E-02	2.028E-02	NOT IDENT.
FE-59	9.745E-03	1.004E-01	8.436E-02	5.121E-02	NOT IDENT.
CO-60	-1.780E-02	4.184E-02	3.296E-02	2.135E-02	NOT IDENT.
ZN-65	-6.902E-02	1.193E-01	8.028E-02	6.089E-02	NOT IDENT.
GE-68	9.456E-01	1.486E+00	1.293E+00	7.580E-01	NOT IDENT.
AS-73	6.900E-01	1.870E+00	1.660E+00	9.539E-01	NOT IDENT.
AS-74	-5.700E-02	1.128E-01	8.786E-02	5.757E-02	NOT IDENT.
SE-75	-2.327E-02	5.489E-02	4.061E-02	2.801E-02	NOT IDENT.
BR-77	-1.277E+00	1.433E+01	1.195E+01	7.313E+00	FAIL ABUN
SR-82	-6.428E-01	4.098E-01	3.130E-01	2.091E-01	NOT IDENT.
RB-83	-2.190E-02	7.268E-02	5.982E-02	3.708E-02	NOT IDENT.
RB-84	-4.224E-02	7.630E-02	6.215E-02	3.893E-02	NOT IDENT.
KR-85	1.588E+01	8.342E+00	6.868E+00	4.256E+00	NOT IDENT.
SR-85	8.223E-02	4.320E-02	3.557E-02	2.204E-02	NOT IDENT.
RB-86	3.723E-01	9.425E-01	8.089E-01	4.809E-01	NOT IDENT.
Y-88	8.027E-03	3.245E-02	2.813E-02	1.656E-02	NOT IDENT.
ZR-88	4.176E-03	3.410E-02	2.923E-02	1.740E-02	NOT IDENT.
Y-91	-1.223E+01	2.099E+01	1.667E+01	1.071E+01	NOT IDENT.
NB-94	6.998E-03	3.420E-02	2.977E-02	1.745E-02	NOT IDENT.
NB-95	8.153E-02	5.142E-02	4.255E-02	2.623E-02	NOT IDENT.
NB-95M	2.139E+00	2.691E-01	2.023E-01	1.373E-01	NOT IDENT.
ZR-95	6.044E-02	7.409E-02	6.644E-02	3.780E-02	NOT IDENT.
NB-97	-2.031E+04	2.572E+05	0.000E+00	1.312E+05	SHORT HLIF
ZR-97	2.607E+07	6.267E+06	0.000E+00	3.198E+06	SHORT HLIF
MO-99	-9.462E+00	1.551E+01	1.276E+01	7.912E+00	NOT IDENT.
TC-99M	-2.996E+17	5.806E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.573E-05	3.918E-02	3.174E-02	1.999E-02	NOT IDENT.
RH-102	-1.174E-02	3.019E-02	2.488E-02	1.540E-02	FAIL ABUN
RU-103	-2.022E-02	4.494E-02	3.676E-02	2.293E-02	NOT IDENT.
RH-106	-3.581E-01	3.368E-01	2.572E-01	1.719E-01	NOT IDENT.
RU-106	-3.581E-01	3.349E-01	2.572E-01	1.709E-01	NOT IDENT.
AG-108M	-1.764E-02	3.429E-02	2.824E-02	1.749E-02	NOT IDENT.
AG-110M	-2.541E-03	3.657E-02	3.006E-02	1.866E-02	NOT IDENT.
IN-111	-7.911E-01	1.589E+00	1.177E+00	8.106E-01	NOT IDENT.
IN-113M	1.744E-02	4.981E-02	4.313E-02	2.542E-02	NOT IDENT.
SN-113	1.744E-02	4.981E-02	4.313E-02	2.542E-02	NOT IDENT.
IN-114M	7.256E-02	2.342E-01	1.734E-01	1.195E-01	NOT IDENT.
CD-115	-1.194E+01	1.542E+01	1.230E+01	7.868E+00	NOT IDENT.
SN-117M	-5.369E-02	6.384E-02	5.224E-02	3.257E-02	NOT IDENT.
SB-122	3.327E-01	2.865E+00	2.405E+00	1.462E+00	NOT IDENT.
I-123	-1.483E+07	2.083E+07	0.000E+00	1.063E+07	SHORT HLIF
TE-123M	-2.230E-02	3.133E-02	2.576E-02	1.599E-02	NOT IDENT.
I-124	-5.158E-01	9.944E-01	6.809E-01	5.074E-01	NOT IDENT.
SB-124	-6.687E-02	7.343E-02	5.418E-02	3.747E-02	FAIL ABUN
SB-125	9.726E-03	1.021E-01	8.701E-02	5.210E-02	NOT IDENT.
TE-125M	-9.389E+00	1.061E+01	8.814E+00	5.414E+00	NOT IDENT.
I-126	2.688E-02	2.054E-01	1.709E-01	1.048E-01	NOT IDENT.
SB-126	7.890E-02	1.843E-01	1.414E-01	9.401E-02	FAIL ABUN
SB-127	1.347E+00	1.555E+00	1.406E+00	7.933E-01	FAIL ABUN
XE-127	-3.298E-02	6.227E-02	4.519E-02	3.177E-02	NOT IDENT.
I-131	2.179E-02	1.355E-01	1.168E-01	6.911E-02	NOT IDENT.
TE-132	2.381E-01	9.223E-01	8.144E-01	4.706E-01	NOT IDENT.
BA-133	5.349E-02	5.178E-02	4.080E-02	2.642E-02	FAIL ABUN
I-133	3.122E+03	1.357E+04	0.000E+00	6.922E+03	SHORT HLIF
CS-134	9.304E-02	5.552E-02	4.638E-02	2.833E-02	NOT IDENT.
I-135	-5.282E+16	7.131E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	7.169E-03	1.134E-01	9.543E-02	5.784E-02	FAIL ABUN
BA-137M	-2.110E-02	3.744E-02	2.973E-02	1.910E-02	NOT IDENT.
CS-137	-2.231E-02	3.958E-02	3.143E-02	2.019E-02	NOT IDENT.
CE-139	3.926E-02	3.380E-02	2.943E-02	1.724E-02	NOT IDENT.
BA-140	-4.596E-01	3.220E-01	2.157E-01	1.643E-01	NOT IDENT.
LA-140	-6.805E-02	7.881E-02	5.822E-02	4.021E-02	NOT IDENT.
CE-141	-5.771E-03	7.316E-02	6.179E-02	3.733E-02	NOT IDENT.
CE-143	2.446E+03	6.630E+02	0.000E+00	3.382E+02	SHORT HLIF
CE-144	-2.248E-01	2.264E-01	1.842E-01	1.155E-01	NOT IDENT.
PM-144	7.235E-03	3.414E-02	2.976E-02	1.742E-02	NOT IDENT.
PR-144	4.905E-01	2.315E+00	2.018E+00	1.181E+00	NOT IDENT.

PM-146	2.409E-02	5.197E-02	4.103E-02	2.651E-02	NOT IDENT.
ND-147	8.351E-01	6.218E-01	5.534E-01	3.173E-01	FAIL ABUN
PM-149	1.603E+02	1.348E+02	1.204E+02	6.879E+01	NOT IDENT.
EU-152	-3.138E-02	1.531E-01	8.789E-02	7.811E-02	FAIL ABUN
GD-153	4.855E-02	1.029E-01	7.905E-02	5.248E-02	FAIL ABUN
EU-154	-1.168E-02	1.360E-01	1.115E-01	6.938E-02	NOT IDENT.
EU-155	1.582E-02	1.232E-01	1.061E-01	6.284E-02	FAIL ABUN
TB-160	-5.071E-02	1.488E-01	1.231E-01	7.590E-02	FAIL ABUN
HO-166M	4.445E-03	6.257E-02	5.402E-02	3.192E-02	FAIL ABUN
TM-171	-7.865E+01	5.305E+01	3.458E+01	2.707E+01	NOT IDENT.
LU-176	2.407E-04	2.899E-02	2.279E-02	1.479E-02	FAIL ABUN
LU-177	2.777E+00	1.787E+00	1.281E+00	9.119E-01	FAIL ABUN
LU-177M	-1.721E-01	2.004E-01	1.632E-01	1.022E-01	FAIL ABUN
HF-181	-5.175E-02	4.499E-02	3.526E-02	2.295E-02	NOT IDENT.
W-181	8.335E-02	6.353E-01	4.850E-01	3.241E-01	NOT IDENT.
TA-182	-3.263E-03	2.144E-01	1.774E-01	1.094E-01	FAIL ABUN
RE-183	-1.285E-01	1.240E-01	1.006E-01	6.326E-02	FAIL ABUN
RE-184	-3.021E-02	2.569E-01	2.231E-01	1.311E-01	NOT IDENT.
OS-185	-3.983E-02	4.677E-02	3.645E-02	2.386E-02	FAIL ABUN
RE-188	-9.601E-03	1.960E-01	1.652E-01	1.000E-01	NOT IDENT.
W-188	-1.197E+01	9.562E+00	6.679E+00	4.879E+00	FAIL ABUN
IR-192	7.964E-03	3.744E-02	3.256E-02	1.910E-02	FAIL ABUN
AU-195	1.892E-01	2.796E-01	2.277E-01	1.427E-01	FAIL ABUN
TL-200	-2.975E+02	9.192E+02	0.000E+00	4.690E+02	SHORT HLIF
TL-201	1.970E+00	9.671E+00	8.190E+00	4.934E+00	NOT IDENT.
TL-202	5.510E-02	7.411E-02	6.520E-02	3.781E-02	NOT IDENT.
HG-203	6.055E-03	5.123E-02	3.892E-02	2.614E-02	FAIL ABUN
BI-207	-6.801E-03	5.846E-02	4.851E-02	2.983E-02	FAIL ABUN
TL-207	-1.245E+00	7.538E-01	5.798E-01	3.846E-01	FAIL ABUN
PO-209	4.110E-01	7.721E+00	6.563E+00	3.939E+00	NOT IDENT.
BI-210	1.855E+00	1.277E+01	1.089E+01	6.513E+00	NOT IDENT.
PB-210	1.855E+00	1.277E+01	1.089E+01	6.513E+00	NOT IDENT.
PO-210	1.855E+00	1.277E+01	1.089E+01	6.513E+00	NOT IDENT.
PB-211	-1.302E+00	1.331E+00	8.574E-01	6.793E-01	NOT IDENT.
BI-212	1.335E+00	5.787E-01	3.519E-01	2.952E-01	FAIL ABUN
PO-215	-1.245E+00	7.538E-01	5.798E-01	3.846E-01	FAIL ABUN
RN-219	1.786E-01	4.407E-01	3.818E-01	2.248E-01	NOT IDENT.
RN-220	-6.101E+00	2.632E+01	2.166E+01	1.343E+01	NOT IDENT.
RA-223	-1.245E+00	7.538E-01	5.798E-01	3.846E-01	FAIL ABUN
AC-227	1.413E-01	4.272E-01	3.761E-01	2.180E-01	FAIL ABUN
TH-227	1.413E-01	4.274E-01	3.761E-01	2.181E-01	FAIL ABUN
TH-229	-2.497E-01	5.972E-01	4.798E-01	3.047E-01	FAIL ABUN
PA-231	-7.335E-01	1.683E+00	1.433E+00	8.587E-01	NOT IDENT.
TH-231	-1.245E+00	7.538E-01	5.798E-01	3.846E-01	FAIL ABUN
U-231	-7.722E-01	1.623E+00	1.201E+00	8.283E-01	FAIL ABUN
PA-233	2.913E-02	6.869E-02	6.029E-02	3.505E-02	FAIL ABUN
PA-234	4.156E-02	3.431E-01	2.917E-01	1.750E-01	FAIL ABUN
PA-234M	4.927E+00	5.032E+00	4.475E+00	2.568E+00	FAIL ABUN
U-235	2.424E-02	2.431E-01	2.009E-01	1.240E-01	FAIL ABUN
NP-236	-3.795E-03	8.645E-02	7.276E-02	4.411E-02	NOT IDENT.
NP-239	-2.973E-02	2.195E-01	1.868E-01	1.120E-01	FAIL ABUN
AM-241	3.865E-01	3.012E-01	2.414E-01	1.537E-01	NOT IDENT.
CM-243	2.443E-02	1.106E-01	9.556E-02	5.642E-02	FAIL ABUN
AM-246	9.824E-02	1.687E-01	1.464E-01	8.609E-02	NOT IDENT.
CM-247	7.612E-03	4.019E-02	3.451E-02	2.051E-02	FAIL ABUN
CF-249	2.099E-03	4.483E-02	3.831E-02	2.287E-02	NOT IDENT.
CF-251	3.288E-02	1.436E-01	1.214E-01	7.324E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
--------	------------

46.50	483.9510
46.50	483.9510
46.50	483.9510
48.70	501.8459
49.72	477.2065
51.35	469.9885
52.39	452.7637
52.97	442.7439
53.15	450.4776
53.44	445.9359
54.07	455.9101
56.28	500.5019
56.28	500.5039
57.37	0.0000
57.53	469.5852
57.53	469.5871
57.60	457.8958
57.98	456.6335
57.98	456.6335
59.32	440.6871
59.32	440.6871
59.40	440.7414
59.54	453.1232
59.72	453.2483
60.01	471.8935
61.10	518.8615
61.14	518.8924
61.30	519.0168
63.00	609.8855
63.29	583.8859
63.29	583.8859
63.58	565.5916
64.28	558.4373
65.12	585.4495
65.20	585.5170
65.20	585.5170
66.05	625.0067
66.72	681.1016
66.83	681.2113
66.91	681.2890
67.20	714.5807
67.20	714.5807
67.75	707.3634
67.85	707.4634
68.90	652.4524
68.90	652.4524
69.30	624.7734
69.67	598.5961
70.82	573.0052
70.82	573.0052
70.83	573.0142
72.80	631.1130
72.87	631.1721
72.87	631.1721
74.67	632.7025
74.81	632.8206
74.81	632.8206
74.81	632.8206
74.81	632.8206
74.81	632.8206
74.81	632.8206
74.81	632.8206
74.97	632.9559
75.28	633.2167
75.70	633.5686
77.11	594.3966
77.11	594.3966



77.11	594.3966
77.11	594.3966
77.11	594.3966
77.11	594.3966
77.11	594.3966
78.38	603.2663
79.62	604.2328
79.80	604.3729
79.80	604.3729
80.11	604.6133
80.18	604.6671
80.30	604.7604
80.30	604.7604
80.57	604.9682
81.00	585.5187
81.07	585.5706
81.07	585.5706
81.07	585.5706
81.07	585.5706
82.60	598.5947
83.37	572.3865
83.78	572.6815
83.78	572.6815
83.78	572.6815
83.78	572.6815
84.21	572.9874
84.90	573.4783
85.43	573.8525
86.29	574.4578
86.50	574.6052
86.54	574.6339
86.59	574.6691
86.72	574.7593
86.79	574.8077
86.94	574.9134
87.30	575.1665
87.30	575.1665
87.30	575.1665
87.30	575.1665
87.30	575.1665
87.30	575.1665
87.57	575.3536
87.88	575.5693
88.03	575.6749
88.36	575.9039
88.47	575.9809
89.95	577.0022
91.11	577.7990
92.29	578.6024
92.38	578.6640
92.38	578.6640
93.35	579.3199
94.00	554.6406
94.67	584.0281
94.67	584.0303
94.90	584.1854
94.90	584.1854
94.90	584.1854
94.90	584.1854
95.87	592.8946
95.87	592.8946
96.73	549.9363
97.43	542.3024
98.44	554.2347
98.44	554.2347
98.88	532.1454
99.55	534.9066
99.55	534.9066
99.86	535.0923
100.00	534.1633
100.10	537.2612
103.18	543.1553
103.76	539.4366
105.00	553.3903
105.31	549.5046
108.00	572.5284
109.28	574.3293

111.00	552.8478
111.00	552.8478
111.76	594.2730
112.95	547.8173
115.19	550.1126
116.30	558.9724
117.00	559.3712
117.00	559.3712
117.66	583.4543
121.11	529.6172
121.62	527.8168
121.78	527.9005
122.06	547.7188
122.32	558.2145
122.32	558.2145
122.32	558.2145
122.32	558.2145
123.07	562.7734
127.23	542.1644
129.76	514.2729
131.20	582.8706
133.02	562.9437
133.54	537.0469
135.34	509.6341
136.00	476.3689
136.25	468.0836
136.48	477.6299
140.51	557.3606
140.51	0.0000
142.18	525.4890
142.65	509.8765
143.76	523.0635
144.24	527.5150
144.24	527.5150
144.24	527.5150
144.24	527.5150
145.22	567.1241
145.44	566.1762
147.16	572.3369
152.43	536.6343
152.70	534.6312
153.22	494.3806
154.21	508.6612
154.21	508.6612
154.21	508.6612
154.21	508.6612
155.03	533.5617
156.02	516.9235
158.56	513.7537
159.00	0.0000
159.00	497.8798
160.31	469.4853
161.27	496.6780
162.32	526.0980
162.64	521.9443
163.35	486.7870
163.89	468.7286
165.85	459.7893
167.43	474.3968
171.28	449.9124
171.86	454.4499
172.10	450.2075
176.55	470.2572
176.60	470.2737
181.06	512.6697
184.41	455.6388
185.71	456.0906
186.00	456.8456
190.27	444.2695
192.34	462.7621
193.63	476.4067
197.04	435.6868
198.01	460.2805
198.60	436.1810
200.40	486.5103
201.83	498.0789
202.84	478.5018
205.31	413.6603

208.36	470.3758
208.81	453.8390
209.75	430.9886
209.75	430.9886
210.97	431.3550
215.65	432.5376
216.55	411.5546
218.09	397.4358
222.10	438.9353
223.80	415.8379
226.40	389.9933
227.00	389.2483
227.08	389.2693
227.20	389.2983
228.16	398.5662
228.18	398.5716
228.18	398.5716
231.56	0.0000
235.69	403.2622
236.00	410.8970
236.00	410.8970
238.63	368.6214
238.63	368.6214
238.63	368.6214
238.63	368.6214
239.00	368.7082
240.98	369.1790
241.98	318.4607
241.98	318.4607
241.98	318.4607
244.69	311.4163
245.39	343.4692
247.94	348.2094
248.90	336.3098
249.79	329.1833
252.40	338.8784
252.85	347.2185
252.85	347.2185
254.15	0.0000
256.20	346.1018
256.20	346.1018
260.50	343.3335
260.90	348.0211
262.80	344.9989
264.65	326.0483
268.24	306.7148
268.79	334.0542
269.46	381.7488
269.46	381.7488
269.46	381.7488
269.46	381.7488
271.23	426.1514
273.65	324.7113
276.40	316.8736
277.35	269.6306
277.60	269.6696
277.60	269.6696
278.00	280.5846
278.60	308.5974
279.20	314.9118
279.53	313.4181
280.46	296.5101
281.68	284.2919
283.67	315.4144
284.30	280.0562
285.00	264.2934
285.90	263.4937
286.10	280.3455
286.10	280.3455
287.40	307.2737
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290.80	349.8086
291.72	315.6168
293.26	0.0000
293.70	264.3513
295.21	319.3684
295.21	319.3684

295.21	319.3684
295.96	319.5012
296.50	319.6008
297.23	319.7295
298.57	319.9702
299.80	265.2521
299.80	265.2521
300.09	265.2968
300.09	265.2968
300.09	265.2968
300.09	265.2968
300.12	265.3003
301.29	257.6180
302.84	242.1164
303.76	248.5305
303.91	248.5530
304.40	240.7496
304.40	240.7496
304.84	229.7914
306.84	260.6563
308.46	257.3707
311.98	247.4339
316.51	249.9399
318.01	237.7747
319.02	225.5319
319.41	231.2890
320.08	237.0850
323.87	313.8874
323.87	313.8874
323.87	313.8874
323.87	313.8874
325.23	245.3704
328.77	252.5209
333.44	258.8862
334.20	278.1727
334.20	278.1727
334.30	278.1869
338.28	231.6565
338.28	231.6565
338.28	231.6565
338.28	231.6565
338.32	231.6624
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338.32	231.6624
340.50	226.1445
340.57	226.1531
344.27	244.2539
345.85	246.0569
350.59	0.0000
351.07	249.6068
351.92	249.7107
351.92	249.7107
351.92	249.7107
355.39	0.0000
356.01	195.5837
364.48	215.2268
366.43	234.9279
367.43	242.8449
367.94	0.0000
369.80	203.0894
374.96	237.8505
383.85	231.9754
387.95	230.4494
388.63	229.5386
391.69	217.0405
391.69	217.0405
392.90	216.1743
398.62	199.9189
400.65	198.1226
401.10	195.1916
401.81	197.2364
402.60	209.2073
404.84	264.0063
410.95	220.9458
411.60	223.9948
413.65	243.1333
414.70	227.2958
415.30	221.3740

415.76	223.4148
417.63	0.0000
418.52	210.7064
423.70	205.1827
427.08	199.4737
427.89	198.5414
432.53	171.8141
433.93	183.9807
439.47	149.1490
439.56	149.1544
439.89	163.2874
443.98	203.9603
444.90	194.9484
445.03	194.9601
445.03	194.9601
445.03	194.9601
445.03	194.9601
453.90	172.3699
463.38	183.2300
468.07	188.6833
473.00	149.2080
475.06	163.6523
475.35	165.7178
476.78	160.6969
477.59	158.7009
477.96	154.6294
482.03	175.3961
484.57	148.8799
487.03	140.8046
490.36	0.0000
492.35	150.3718
497.08	172.3227
507.63	0.0000
510.53	0.0000
510.84	167.0237
511.00	167.0346
511.85	167.0896
511.85	167.0896
513.99	136.7585
513.99	136.7585
520.41	150.9791
520.65	146.8280
527.90	160.8052
528.96	0.0000
529.64	147.3271
529.87	0.0000
531.02	116.0405
537.32	170.8038
543.00	123.9115
546.56	0.0000
549.76	133.6942
552.65	128.5676
555.20	129.7416
563.23	147.0461
563.90	154.4870
568.70	156.8742
569.32	153.7297
569.50	145.2548
569.67	136.7822
573.80	148.6646
574.00	156.1085
574.64	161.6915
578.91	170.2109
579.30	0.0000
583.14	150.9324
585.48	165.2740
591.81	146.4054
592.07	154.9652
593.00	156.0874
595.88	166.9421
600.56	163.4609
602.52	0.0000
602.71	171.6289
602.71	171.6289
603.60	168.1030
604.41	166.3620
604.70	166.3790
609.31	140.8378

609.31	140.8378
609.31	140.8378
609.31	140.8378
610.33	139.8135
612.46	152.4681
614.37	132.8242
618.01	131.5491
621.84	144.6749
621.84	144.6749
631.29	124.5543
633.02	111.6227
633.10	111.6252
634.78	107.3507
635.90	130.1689
636.97	139.9820
645.85	148.0096
646.12	144.7576
656.30	131.0420
657.75	126.7334
657.90	0.0000
661.65	137.8310
661.65	137.8310
664.57	0.0000
666.33	134.7505
666.33	134.7505
675.00	117.5459
677.61	94.5559
685.20	96.4337
692.80	127.9653
695.00	128.0529
696.49	120.7390
696.49	120.7390
697.00	136.4285
697.49	139.2154
698.33	132.7939
698.50	135.5695
699.00	141.1247
702.63	128.3555
706.10	125.7181
706.58	0.0000
706.67	116.4946
709.31	133.2451
711.68	125.0079
713.82	134.3533
717.42	128.0077
720.50	124.1493
721.93	0.0000
722.20	130.5817
722.78	143.3465
722.78	143.3465
722.89	143.3527
722.95	143.3559
723.30	148.1506
724.18	149.7830
727.18	122.8047
733.00	102.2500
735.90	113.9663
739.58	129.7978
742.81	112.1631
744.21	120.6252
747.13	119.7917
751.79	129.3273
752.31	130.2842
753.82	131.2813
755.35	115.3901
756.15	104.1573
756.87	105.1185
763.93	101.5730
765.79	109.6936
766.42	122.6200
766.84	145.8990
776.49	140.6424
778.00	122.7610
778.57	121.8351
778.89	112.4026
783.80	109.7223
785.46	116.0831
792.07	105.6454

795.84	94.3673
796.30	109.0246
798.80	136.7842
801.93	120.6062
805.60	93.2667
810.29	101.0118
810.76	101.9800
815.85	92.5794
817.79	83.0794
818.51	86.9158
819.60	85.0309
826.30	89.0172
828.27	0.0000
831.60	113.1097
831.96	109.2871
834.83	105.5353
836.80	0.0000
846.75	88.5504
848.13	89.5469
856.28	0.0000
856.80	94.3049
860.37	81.1460
867.32	84.7787
867.82	78.1388
871.10	94.9395
873.19	103.7150
874.81	101.8192
875.33	0.0000
876.40	86.3401
879.36	102.9118
880.27	99.0532
880.51	101.0018
881.50	107.8271
883.24	96.2144
884.67	96.2507
889.25	111.9397
896.60	93.6230
898.02	98.5342
899.00	108.3194
903.28	82.0603
911.07	90.0553
911.07	90.0553
911.07	90.0553
919.63	82.4038
920.93	89.3004
925.00	78.5872
925.24	78.5921
926.50	72.4395
935.52	106.3740
937.48	89.5318
944.10	117.4578
946.00	107.6384
949.00	96.8476
962.29	93.4839
964.01	147.9352
966.15	71.4551
968.20	98.7246
969.11	81.7215
969.11	81.7215
969.11	81.7215
977.42	86.5787
980.50	74.6918
983.50	92.6859
989.30	81.8365
996.32	104.9680
1001.03	76.0619
1001.68	83.0811
1004.76	103.1760
1021.30	0.0000
1024.50	0.0000
1034.80	96.8438
1036.00	87.7894
1037.82	73.6951
1038.57	71.6876
1038.76	0.0000
1045.16	93.0332
1046.59	92.0516
1048.07	77.9149

1050.47	76.9463
1050.47	76.9463
1062.04	103.5439
1063.62	99.5193
1076.63	97.7773
1077.35	100.8490
1078.86	100.8812
1085.78	89.8119
1099.22	92.1313
1112.02	72.1533
1112.84	82.7287
1115.52	121.5201
1120.29	88.4460
1120.29	88.4460
1120.29	88.4460
1120.29	88.4460
1120.51	88.4495
1121.28	88.4635
1124.00	0.0000
1129.67	96.1854
1131.51	0.0000
1147.95	0.0000
1167.94	94.5547
1173.22	96.7426
1175.09	108.2275
1177.93	82.2595
1189.05	103.3264
1204.90	116.2347
1205.75	0.0000
1213.00	118.5268
1221.42	108.2263
1230.97	142.1246
1235.34	114.8545
1236.41	0.0000
1238.25	120.1973
1246.25	89.7660
1260.41	0.0000
1271.85	83.8604
1274.45	83.9021
1274.54	83.9021
1291.56	61.8091
1298.22	0.0000
1312.09	69.5465
1325.50	45.0540
1325.50	45.0540
1332.49	61.2281
1333.61	49.4234
1360.21	55.0736
1362.66	0.0000
1365.15	56.2064
1368.21	38.9341
1368.53	0.0000
1376.25	45.4915
1384.27	47.4194
1394.10	44.7121
1395.20	45.6538
1407.95	32.6868
1434.06	40.3500
1436.60	37.5530
1457.56	0.0000
1460.81	39.6021
1489.15	44.5412
1509.49	28.5331
1596.49	31.8571
1620.62	29.0771
1678.03	0.0000
1691.02	21.5695
1691.02	21.5695
1706.46	0.0000
1750.46	0.0000
1764.49	20.8293
1764.49	20.8293
1764.49	20.8293
1764.49	20.8293
1770.23	17.3730
1771.40	47.6602
1791.20	0.0000
1808.65	20.9707



1836.01

17.0468

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229001

Total Uranium Activity	2.7515E+00	ug/g
Total Uranium Counting Unc.	8.4660E+00	ug/g
Total Uranium Tpu	4.3194E-06	ug/g
Total Uranium Mda	5.2972E+00	ug/g

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*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
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*
*  BATCH ID      : 941239                          SAMPLE ID   : G244229001
*  ANALYST       : MXR1                             DETECTOR    : GAM15
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME  : 0 03:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 12:56:54.76          SAMPLE ALQT : 118.790 GRAM
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.130E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.815E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.386E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.650E+00

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## VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 15:58:23.37

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229002.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:57:21
Sample ID          : G244229002          Sample quantity  : 1.40390E+02 GRAM
Detector name      : GAM18              Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00      Elapsed real time: 0 03:00:02.68  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941239             Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.55*	168	750	0.83	126.22	123	8	1.55E-02	30.3	
2	2	75.05*	542	697	1.03	149.21	145	13	5.02E-02	8.9	1.14E+00
3	2	77.33*	934	630	1.06	153.77	145	13	8.65E-02	5.6	
4	3	87.47	287	739	1.07	174.05	169	23	2.66E-02	15.2	4.20E+00
5	3	90.15	246	664	1.04	179.40	169	23	2.28E-02	17.6	
6	3	92.93*	602	663	1.21	184.96	169	23	5.58E-02	9.1	
7	0	129.04	120	694	1.02	257.17	253	9	1.11E-02	40.5	
8	0	185.98*	535	622	1.36	371.00	366	10	4.95E-02	10.1	
9	0	209.16	215	678	1.17	417.34	412	11	1.99E-02	24.5	
10	3	238.76*	2396	396	1.19	476.53	471	19	2.22E-01	2.5	1.28E+00
11	3	241.66	488	557	1.77	482.32	471	19	4.52E-02	13.0	
12	0	270.41	259	341	1.45	539.81	535	10	2.40E-02	14.7	
13	0	277.41	109	359	1.51	553.80	550	9	1.00E-02	33.0	
14	0	295.21*	757	427	1.20	589.39	583	13	7.01E-02	7.0	
15	0	299.98	115	307	1.18	598.92	596	8	1.07E-02	27.8	
16	0	328.03	147	347	1.20	655.01	650	11	1.36E-02	25.9	
17	0	338.35*	527	363	1.18	675.64	670	11	4.88E-02	8.4	
18	0	351.94*	1278	433	1.26	702.82	696	14	1.18E-01	4.5	
19	0	409.16	135	235	2.03	817.21	812	10	1.25E-02	23.1	
20	0	462.87	166	235	1.36	924.61	919	11	1.54E-02	19.5	
21	0	510.97*	356	353	1.75	1020.78	1011	20	3.30E-02	15.6	
22	0	582.91*	789	282	1.58	1164.61	1156	15	7.31E-02	6.0	
23	0	609.13*	940	198	1.65	1217.03	1210	12	8.71E-02	4.6	
24	0	661.59	387	194	1.36	1321.93	1317	11	3.58E-02	8.7	
25	0	727.02*	186	180	1.35	1452.75	1447	13	1.72E-02	17.1	
26	0	767.95	91	130	1.81	1534.60	1530	10	8.39E-03	25.8	
27	0	794.91	94	133	1.84	1588.52	1584	11	8.69E-03	25.9	
28	0	860.25	110	135	1.89	1719.16	1713	11	1.02E-02	22.5	
29	0	910.94*	591	260	1.95	1820.52	1813	19	5.47E-02	7.9	
30	0	968.95*	292	262	1.58	1936.53	1930	16	2.71E-02	14.4	
31	0	1120.10*	197	234	1.75	2238.77	2229	18	1.83E-02	19.8	
32	0	1460.15*	3628	113	2.32	2918.78	2906	25	3.36E-01	1.8	
33	0	1763.76*	214	32	1.90	3525.97	3518	17	1.98E-02	9.8	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229002.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 12:57:21  
 Sample ID : G244229002 Sample quantity : 140.39 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA18 Detector geometry: CAN  
 Elapsed live time: 0 03:00:00.00 Elapsed real time: 0 03:00:02.68 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.201E+01	2.702E+00	2.987E-01	2.267E-02	107.169
CD-109	+	88.03	*	2.182E+00	6.953E-01	8.784E-01	8.121E-02	2.485
SN-126	+	64.28		9.968E-01	6.215E-01	6.627E-01	9.797E-02	1.504
	+	86.94		8.905E-01	4.585E-01	3.640E-01	1.510E-01	2.447
	+	87.57	*	2.142E-01	6.824E-02	8.677E-02	7.995E-03	2.469
BA-137M	+	661.65	*	2.140E-01	4.063E-02	3.557E-02	2.711E-03	6.016
CS-137	+	661.65	*	2.262E-01	4.297E-02	3.760E-02	2.873E-03	6.016
TL-208	+	277.35		4.546E-01	3.039E-01	3.619E-01	3.801E-02	1.256
	+	510.84		6.819E-01	2.248E-01	1.265E-01	1.345E-02	5.389
	+	583.14	*	4.245E-01	6.073E-02	3.442E-02	2.698E-03	12.334
	+	860.37		5.410E-01	2.509E-01	2.657E-01	2.972E-02	2.036
BI-211		72.87		7.247E-01	2.507E+00	3.754E+00	3.100E-01	0.193
	+	351.07	*	3.230E+00	3.595E-01	1.892E-01	1.214E-02	17.070
PB-212	+	74.81		1.826E+00	3.973E-01	4.007E-01	5.022E-02	4.556
	+	77.11		1.757E+00	2.457E-01	2.242E-01	1.900E-02	7.838
	+	87.30		9.907E-01	3.308E-01	4.028E-01	5.472E-02	2.459
	+	238.63	*	1.410E+00	1.232E-01	5.475E-02	3.911E-03	25.756
	+	300.09		1.005E+00	5.644E-01	7.728E-01	6.346E-02	1.300
PO-212	+	74.81		1.826E+00	3.973E-01	4.007E-01	5.022E-02	4.556
	+	77.11		1.757E+00	2.457E-01	2.242E-01	1.900E-02	7.838
	+	87.30		9.907E-01	3.308E-01	4.028E-01	5.472E-02	2.459
	+	115.19		1.408E+00	2.500E+00	4.096E+00	2.581E-01	0.344
	+	238.63	*	1.410E+00	1.232E-01	5.475E-02	3.911E-03	25.756
	+	300.09		1.005E+00	5.644E-01	7.728E-01	6.346E-02	1.300
BI-214	+	609.31	*	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
	+	1120.29		9.975E-01	4.061E-01	2.901E-01	2.777E-02	3.439
	+	1764.49		1.422E+00	2.906E-01	1.429E-01	8.689E-03	9.952
PB-214	+	74.81		3.146E+00	6.606E-01	6.905E-01	7.708E-02	4.556
	+	77.11		3.012E+00	4.797E-01	3.843E-01	4.380E-02	7.838
	+	87.30		1.697E+00	5.563E-01	6.901E-01	8.279E-02	2.459
	+	241.98		1.721E+00	4.669E-01	3.291E-01	2.602E-02	5.229
	+	295.21		1.164E+00	1.899E-01	1.308E-01	1.109E-02	8.902
	+	351.92	*	1.124E+00	1.381E-01	6.594E-02	5.455E-03	17.039
PO-214	+	74.81		3.146E+00	6.606E-01	6.905E-01	7.708E-02	4.556

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.012E+00	4.797E-01	3.843E-01	4.380E-02	7.838
	+	87.30		1.697E+00	5.563E-01	6.901E-01	8.279E-02	2.459
	+	241.98		1.721E+00	4.669E-01	3.291E-01	2.602E-02	5.229
	+	295.21		1.164E+00	1.899E-01	1.308E-01	1.109E-02	8.902
	+	351.92	*	1.124E+00	1.381E-01	6.594E-02	5.455E-03	17.039
PO-216	+	74.81		1.826E+00	3.973E-01	4.007E-01	5.022E-02	4.556
	+	77.11		1.757E+00	2.457E-01	2.242E-01	1.900E-02	7.838
	+	87.30		9.907E-01	3.308E-01	4.028E-01	5.472E-02	2.459
	+	238.63	*	1.410E+00	1.232E-01	5.475E-02	3.911E-03	25.756
	+	300.09		1.005E+00	5.644E-01	7.728E-01	6.346E-02	1.300
PO-218	+	74.81		3.146E+00	6.606E-01	6.905E-01	7.708E-02	4.556
	+	77.11		3.012E+00	4.797E-01	3.843E-01	4.380E-02	7.838
	+	87.30		1.697E+00	5.563E-01	6.901E-01	8.279E-02	2.459
	+	241.98		1.721E+00	4.669E-01	3.291E-01	2.602E-02	5.229
	+	295.21		1.164E+00	1.899E-01	1.308E-01	1.109E-02	8.902
	+	351.92	*	1.124E+00	1.381E-01	6.594E-02	5.455E-03	17.039
RA-224	+	240.98	*	3.263E+00	8.663E-01	6.223E-01	3.466E-02	5.243
RA-226	+	609.31	*	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
	+	1120.29		9.975E-01	4.061E-01	2.901E-01	2.777E-02	3.439
	+	1764.49		1.422E+00	2.906E-01	1.429E-01	8.689E-03	9.952
AC-228	+	338.32		1.476E+00	6.508E-01	2.298E-01	9.367E-02	6.424
	+	911.07	*	1.367E+00	2.817E-01	1.313E-01	1.740E-02	10.413
	+	969.11		1.190E+00	4.454E-01	2.744E-01	6.572E-02	4.335
RA-228	+	338.32		1.476E+00	6.508E-01	2.298E-01	9.367E-02	6.424
	+	911.07	*	1.367E+00	2.817E-01	1.313E-01	1.740E-02	10.413
	+	969.11		1.190E+00	4.454E-01	2.744E-01	6.572E-02	4.335
TH-228	+	74.81		1.855E+00	3.651E-01	4.072E-01	3.431E-02	4.556
	+	77.11		1.785E+00	2.497E-01	2.278E-01	1.931E-02	7.838
	+	87.30		1.007E+00	3.207E-01	4.093E-01	3.762E-02	2.459
	+	238.63	*	1.433E+00	1.252E-01	5.563E-02	3.974E-03	25.756
	+	300.09		1.021E+00	8.270E-01	7.853E-01	4.628E-01	1.300
TH-230	+	609.31	*	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
	+	1120.29		9.975E-01	4.061E-01	2.900E-01	2.777E-02	3.439
	+	1764.49		1.422E+00	2.906E-01	1.429E-01	8.688E-03	9.952
TH-232	+	338.32		1.476E+00	2.620E-01	2.298E-01	1.329E-02	6.424
	+	911.07	*	1.367E+00	2.817E-01	1.313E-01	1.740E-02	10.413
	+	969.11		1.190E+00	4.454E-01	2.744E-01	6.572E-02	4.335
TH-234	+	63.29	*	2.518E+00	1.589E+00	1.728E+00	3.046E-01	1.458
	+	92.38		2.852E+00	7.289E-01	5.594E-01	1.008E-01	5.098
U-234	+	609.31	*	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
	+	1120.29		9.975E-01	4.061E-01	2.900E-01	2.777E-02	3.439
	+	1764.49		1.422E+00	2.906E-01	1.429E-01	8.688E-03	9.952
NP-237	+	86.50	*	6.290E-01	2.388E-01	2.588E-01	5.839E-02	2.431
	+	95.87		3.725E-02	7.289E-01	1.063E+00	2.596E-01	0.035
U-238	+	63.29	*	2.518E+00	1.589E+00	1.728E+00	3.046E-01	1.458
	+	92.38		2.852E+00	5.708E-01	5.594E-01	4.754E-02	5.098
AM-243	+	74.67	*	2.960E-01	5.816E-02	6.522E-02	5.443E-03	4.539
	+	86.72		2.359E+01	7.515E+00	9.673E+00	8.844E-01	2.439
		117.66		-4.222E-01	2.691E+00	4.305E+00	2.648E-01	-0.098

----- Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	142.18			3.148E+00	1.192E+01	1.909E+01	1.051E+00	0.165
ANH-511	+	511.00	*	1.473E-01	4.697E-02	2.734E-02	1.805E-03	5.387

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.721E-01	1.999E-01	3.419E-01	2.477E-02	0.503
NA-22		1274.54	*	-2.655E-02	2.753E-02	4.228E-02	2.877E-03	-0.628
NA-24		1368.53	*	-2.278E+00	2.753E-02	Half-Life too short		
AL-26		1129.67		-3.957E-01	1.107E+00	1.684E+00	1.125E-01	-0.235
		1808.65	*	-9.485E-03	1.861E-02	2.866E-02	1.673E-03	-0.331
TI-44		67.85		5.639E-03	4.001E-02	5.990E-02	4.817E-03	0.094
	+	78.38	*	3.243E-01	4.534E-02	5.817E-02	4.974E-03	5.574
SC-46		889.25	*	-5.402E-03	2.415E-02	3.891E-02	4.340E-03	-0.139
	+	1120.51		1.721E-01	6.913E-02	7.930E-02	5.479E-03	2.170
V-48		944.10		-6.715E-01	6.156E-01	9.275E-01	9.817E-02	-0.724
		983.50	*	-1.149E-02	4.431E-02	7.047E-02	6.970E-03	-0.163
		1312.09		4.068E-02	5.245E-02	9.026E-02	6.575E-03	0.451
CR-51		320.08	*	1.595E-03	2.312E-01	3.725E-01	2.398E-02	0.004
MN-52		744.21		-1.019E-02	1.590E-01	2.632E-01	2.321E-02	-0.039
		848.13		6.548E-01	4.732E+00	7.828E+00	8.190E-01	0.084
		935.52		2.157E-01	2.010E-01	3.263E-01	3.500E-02	0.661
		1246.25		7.874E-01	5.422E+00	8.992E+00	5.782E-01	0.088
		1333.61		-3.605E-01	3.461E+00	5.613E+00	4.240E-01	-0.064
		1434.06	*	1.618E-01	1.612E-01	2.835E-01	2.089E-02	0.571
MN-54		834.83	*	-3.603E-03	2.487E-02	4.059E-02	4.158E-03	-0.089
CO-56		846.75	*	-2.907E-03	2.507E-02	4.088E-02	4.268E-03	-0.071
		977.42		1.448E+00	2.037E+00	3.006E+00	3.007E-01	0.482
		1037.82		-7.406E-02	1.910E-01	3.124E-01	2.894E-02	-0.237
		1175.09		1.342E+00	1.490E+00	2.576E+00	1.430E-01	0.521
		1238.25		1.181E-01	6.075E-02	1.080E-01	7.195E-03	1.094
		1360.21		5.929E-01	5.735E-01	1.013E+00	7.615E-02	0.585
		1771.40		-5.326E-02	1.502E-01	1.952E-01	1.180E-02	-0.273
CO-57		122.06	*	-7.883E-03	1.734E-02	2.739E-02	1.622E-03	-0.288
		136.48		-8.418E-02	1.428E-01	2.227E-01	1.458E-02	-0.378
CO-58		810.76	*	-2.434E-02	2.363E-02	3.635E-02	3.588E-03	-0.670
FE-59		142.65		-8.993E-02	1.933E+00	3.002E+00	1.652E-01	-0.030
		192.34		2.571E-02	5.985E-01	1.003E+00	1.163E-01	0.026
		1099.22	*	-4.910E-02	5.774E-02	9.118E-02	7.505E-03	-0.539
		1291.56		1.996E-02	8.414E-02	1.399E-01	1.176E-02	0.143
CO-60		1173.22		6.087E-03	2.936E-02	4.912E-02	2.715E-03	0.124
		1332.49	*	-4.715E-03	2.365E-02	3.808E-02	2.877E-03	-0.124
ZN-65		1115.52	*	5.864E-02	6.490E-02	9.867E-02	6.950E-03	0.594
GE-68		1077.35	*	5.363E-01	8.017E-01	1.384E+00	1.099E-01	0.388
AS-73		53.44	*	2.422E-01	7.884E-01	1.338E+00	1.061E-01	0.181
AS-74		595.88	*	-7.219E-03	5.973E-02	9.604E-02	6.900E-03	-0.075
		634.78		-1.190E-01	2.328E-01	3.635E-01	2.707E-02	-0.327
SE-75		66.05		-5.328E+00	4.490E+00	6.164E+00	6.105E-01	-0.864

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		96.73		-2.165E-01	5.985E-01	8.560E-01	1.129E-01	-0.253
		121.11		5.708E-02	9.278E-02	1.518E-01	1.417E-02	0.376
		136.00		-5.676E-03	2.669E-02	4.219E-02	2.403E-03	-0.135
		198.60		1.796E-01	1.193E+00	1.954E+00	1.326E-01	0.092
		264.65	*	-1.649E-02	2.972E-02	4.374E-02	2.502E-03	-0.377
		279.53		1.851E-02	7.786E-02	1.123E-01	6.939E-03	0.165
		303.91		2.869E-01	1.530E+00	2.184E+00	2.078E-01	0.131
		400.65		-8.208E-02	1.544E-01	2.522E-01	2.298E-02	-0.325
BR-77	+	87.88		6.201E+02	1.975E+02	3.142E+02	2.903E+01	1.974
		200.40		1.212E+02	1.378E+02	2.356E+02	1.269E+01	0.514
	+	239.00		2.982E+02	2.236E+01	3.177E+01	1.767E+00	9.384
		249.79		-3.183E+01	5.236E+01	8.392E+01	4.704E+00	-0.379
		281.68		2.793E+01	8.167E+01	1.185E+02	6.760E+00	0.236
		297.23		3.875E+02	6.992E+01	9.910E+01	5.690E+00	3.910
		303.76		2.558E+01	1.705E+02	2.429E+02	1.397E+01	0.105
		439.47		-1.171E+00	1.132E+02	1.879E+02	1.146E+01	-0.006
		484.57		-1.144E+01	1.827E+02	3.000E+02	1.926E+01	-0.038
		520.65	*	5.541E+00	7.873E+00	1.304E+01	8.699E-01	0.425
		574.64		5.116E+01	1.827E+02	2.736E+02	1.926E+01	0.187
		578.91		5.195E+01	8.065E+01	1.180E+02	8.343E+00	0.440
		585.48		1.607E+03	2.374E+02	3.937E+02	2.801E+01	4.082
		755.35		4.755E+01	1.330E+02	2.246E+02	2.019E+01	0.212
		817.79		-4.340E+00	1.033E+02	1.697E+02	1.691E+01	-0.026
SR-82		698.33		-1.236E+01	2.186E+01	3.550E+01	2.890E+00	-0.348
		776.49	*	-2.936E-01	2.429E-01	3.730E-01	3.474E-02	-0.787
		1395.20		-2.623E+00	6.739E+00	1.059E+01	7.892E-01	-0.248
RB-83		520.41	*	3.001E-02	3.993E-02	6.630E-02	4.422E-03	0.453
		529.64		-5.254E-02	6.482E-02	9.924E-02	6.682E-03	-0.529
		552.65		-9.170E-02	1.189E-01	1.853E-01	1.277E-02	-0.495
RB-84		881.50	*	-1.509E-02	4.326E-02	6.918E-02	7.625E-03	-0.218
KR-85		513.99	*	1.911E+01	5.013E+00	8.499E+00	5.630E-01	2.249
SR-85		513.99	*	9.896E-02	2.596E-02	4.401E-02	2.916E-03	2.249
RB-86		1076.63	*	2.180E-01	5.268E-01	8.980E-01	7.149E-02	0.243
Y-88		898.02		-1.875E-02	2.564E-02	3.982E-02	4.514E-03	-0.471
		1836.01	*	8.415E-03	2.225E-02	3.792E-02	2.160E-03	0.222
ZR-88		392.90	*	-1.467E-02	1.869E-02	3.026E-02	1.740E-03	-0.485
Y-91		1204.90	*	2.071E+00	1.224E+01	2.039E+01	1.205E+00	0.102
NB-94		702.63	*	1.338E-02	2.175E-02	3.725E-02	3.056E-03	0.359
		871.10		4.226E-03	2.147E-02	3.555E-02	3.856E-03	0.119
NB-95		765.79	*	4.888E-02	2.997E-02	4.712E-02	4.311E-03	1.037
NB-95M		235.69	*	4.751E-02	8.725E-02	1.292E-01	9.482E-03	0.368
ZR-95		724.18		1.312E-01	6.691E-02	1.070E-01	9.923E-03	1.226
		756.15	*	1.709E-02	4.392E-02	7.426E-02	7.306E-03	0.230
NB-97		657.90	*	4.838E-02	4.392E-02	Half-Life	too short	
		1024.50		5.891E+00	4.392E-02	Half-Life	too short	
ZR-97		254.15		1.794E+00	4.392E-02	Half-Life	too short	
		355.39		4.180E+00	4.392E-02	Half-Life	too short	
		507.63	*	6.985E+00	4.392E-02	Half-Life	too short	
		602.52		-1.239E+01	4.392E-02	Half-Life	too short	



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1021.30			5.021E+00	4.392E-02	Half-Life	too short	
	1147.95			-2.320E+00	4.392E-02	Half-Life	too short	
	1362.66			2.159E+00	4.392E-02	Half-Life	too short	
	1750.46			-9.553E+00	4.392E-02	Half-Life	too short	
MO-99	140.51			-1.515E+01	2.414E+01	3.613E+01	9.715E+00	-0.419
	181.06			3.896E+00	1.546E+01	2.311E+01	3.924E+00	0.169
	366.43			-2.944E+01	6.215E+01	1.026E+02	5.927E+00	-0.287
	739.58	*		3.871E+00	8.501E+00	1.444E+01	2.204E+00	0.268
	778.00			-2.601E+01	2.587E+01	4.019E+01	3.752E+00	-0.647
TC-99M	140.51	*		-2.350E+11	2.587E+01	Half-Life	too short	
RH-101	127.23			8.268E-03	2.350E-02	3.398E-02	1.963E-03	0.243
	198.01	*		-6.449E-03	2.170E-02	3.506E-02	1.884E-03	-0.184
	325.23			-1.005E-03	1.557E-01	2.185E-01	1.263E-02	-0.005
RH-102	418.52			-8.639E-02	1.799E-01	2.938E-01	1.746E-02	-0.294
	475.06	*		-4.541E-03	1.812E-02	2.955E-02	1.877E-03	-0.154
	631.29			7.695E-03	3.419E-02	5.571E-02	4.135E-03	0.138
	697.49			-2.453E-02	4.804E-02	7.824E-02	6.361E-03	-0.313
	766.84	+		1.501E-01	7.867E-02	1.195E-01	1.095E-02	1.256
	1046.59			-3.513E-02	7.461E-02	1.215E-01	1.048E-02	-0.289
	1112.84			2.127E-01	1.512E-01	2.397E-01	1.702E-02	0.887
RU-103	497.08	*		-2.487E-02	2.395E-02	3.685E-02	4.785E-03	-0.675
	610.33	+		1.043E+01	1.926E+00	1.741E+00	2.792E-01	5.987
RH-106	511.85	+		7.370E-01	2.351E-01	2.791E-01	1.845E-02	2.640
	621.84	*		4.289E-02	2.025E-01	3.299E-01	4.151E-02	0.130
	1050.47			1.135E+00	1.466E+00	2.548E+00	2.177E-01	0.445
RU-106	511.85	+		7.370E-01	2.351E-01	2.791E-01	1.845E-02	2.640
	621.84	*		4.289E-02	2.024E-01	3.299E-01	2.428E-02	0.130
	1050.47			1.135E+00	1.466E+00	2.548E+00	2.177E-01	0.445
AG-108M	433.93	*		-9.279E-03	1.955E-02	3.178E-02	2.076E-03	-0.292
	614.37			1.163E-02	2.757E-02	3.952E-02	3.045E-03	0.294
	722.95			1.103E-02	2.761E-02	4.077E-02	3.605E-03	0.271
AG-110M	657.75	*		1.765E-03	2.504E-02	3.646E-02	2.876E-03	0.048
	677.61			-5.890E-03	1.828E-01	3.056E-01	2.479E-02	-0.019
	706.67			4.540E-02	1.378E-01	2.331E-01	1.984E-02	0.195
	763.93			1.701E-02	1.087E-01	1.569E-01	1.467E-02	0.108
	884.67			1.924E-02	2.966E-02	5.029E-02	5.679E-03	0.383
	937.48			6.666E-03	7.176E-02	1.173E-01	1.284E-02	0.057
	1384.27			-8.108E-02	1.043E-01	1.590E-01	1.233E-02	-0.510
IN-111	171.28			-2.935E-01	7.968E-01	1.328E+00	6.990E-02	-0.221
	245.39	*		5.352E-01	8.926E-01	1.326E+00	7.412E-02	0.404
IN-113M	391.69	*		5.226E-03	2.705E-02	4.569E-02	2.803E-03	0.114
SN-113	391.69	*		5.226E-03	2.705E-02	4.569E-02	2.803E-03	0.114
IN-114M	190.27	*		1.233E-01	1.281E-01	1.963E-01	1.048E-02	0.628
CD-115	260.90			9.804E+00	1.103E+02	1.811E+02	1.022E+01	0.054
	492.35			-5.396E+00	2.830E+01	4.611E+01	2.985E+00	-0.117
	527.90	*		-1.143E+00	8.753E+00	1.393E+01	9.362E-01	-0.082
SN-117M	156.02			-7.372E-01	1.480E+00	2.474E+00	1.321E-01	-0.298
	158.56	*		1.768E-02	3.626E-02	6.226E-02	3.309E-03	0.284
SB-122	563.90	*		4.276E-01	1.598E+00	2.633E+00	1.834E-01	0.162

---- Non-Identified Nuclides ----

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I-123	692.80			1.397E+01	3.279E+01	5.592E+01	4.508E+00	0.250
	159.00	*		4.036E+00	3.279E+01	Half-Life	too short	
	528.96			-9.407E+02	3.279E+01	Half-Life	too short	
TE-123M	159.00	*		6.068E-03	1.811E-02	3.097E-02	1.671E-03	0.196
I-124	602.71	*		-5.096E-01	6.055E-01	7.771E-01	5.619E-02	-0.656
	722.78			9.432E-01	3.353E+00	4.910E+00	4.173E-01	0.192
	1325.50			-2.283E+01	2.571E+01	3.919E+01	2.924E+00	-0.583
	1376.25			5.880E+01	2.301E+01	4.330E+01	3.243E+00	1.358
	1509.49			1.394E+01	1.053E+01	1.939E+01	1.389E+00	0.719
	1691.02			-4.534E-01	2.413E+00	3.893E+00	2.511E-01	-0.116
SB-124	602.71			-2.561E-02	3.042E-02	3.905E-02	2.824E-03	-0.656
	645.85			1.571E-01	2.989E-01	4.945E-01	4.008E-02	0.318
	709.31			1.283E+00	1.802E+00	3.098E+00	2.572E-01	0.414
	713.82			-8.200E-01	9.983E-01	1.585E+00	1.880E-01	-0.517
	722.78			6.870E-02	2.442E-01	3.576E-01	3.107E-02	0.192
	968.20			1.238E+01	3.779E+00	4.610E+00	4.688E-01	2.686
	1045.16			-2.446E-01	1.588E+00	2.633E+00	2.280E-01	-0.093
	1325.50			-1.776E+00	2.000E+00	3.048E+00	2.275E-01	-0.583
	1368.21			-1.967E+00	1.053E+00	1.361E+00	1.741E-01	-1.445
	1436.60			-1.716E-01	2.368E+00	3.818E+00	2.811E-01	-0.045
	1691.02	*		-7.789E-03	4.145E-02	6.688E-02	4.615E-03	-0.116
SB-125	427.89	*		6.815E-02	5.514E-02	9.635E-02	6.020E-03	0.707
	463.38			6.284E-01	2.496E-01	3.407E-01	2.443E-02	1.844
	600.56			8.444E-02	1.167E-01	1.902E-01	1.515E-02	0.444
	635.90			-6.810E-02	1.711E-01	2.690E-01	2.219E-02	-0.253
TE-125M	109.28	*		2.998E-01	6.817E+00	1.103E+01	9.701E-01	0.027
I-126	388.63			1.117E-01	1.294E-01	2.241E-01	1.288E-02	0.498
	666.33	*		2.669E-02	1.332E-01	1.955E-01	1.503E-02	0.137
	753.82			6.318E-01	9.423E-01	1.614E+00	1.447E-01	0.391
SB-126	223.80			-5.871E-01	2.716E+00	4.464E+00	2.454E-01	-0.131
	278.60			3.169E+00	2.099E+00	2.812E+00	1.602E-01	1.127
	296.50			1.222E+01	1.841E+00	2.359E+00	1.354E-01	5.180
	414.70			2.888E-02	5.347E-02	8.346E-02	4.936E-03	0.346
	415.30			1.958E+00	4.331E+00	6.968E+00	4.124E-01	0.281
	555.20			1.780E-01	2.442E+00	3.992E+00	2.758E-01	0.045
	573.80			-2.298E-01	7.219E-01	1.082E+00	7.613E-02	-0.212
	593.00			-9.803E-02	5.977E-01	9.589E-01	6.871E-02	-0.102
	656.30			-8.523E-01	2.469E+00	3.488E+00	2.647E-01	-0.244
	666.33			1.118E-02	5.580E-02	8.186E-02	6.293E-03	0.137
	675.00			-1.268E+00	1.271E+00	2.015E+00	1.574E-01	-0.629
	695.00			2.442E-02	4.911E-02	8.395E-02	6.794E-03	0.291
	697.00			-1.427E-02	1.762E-01	2.931E-01	2.381E-02	-0.049
	720.50	*		6.181E-02	9.728E-02	1.464E-01	1.239E-02	0.422
	856.80			6.016E-02	3.658E-01	5.213E-01	5.529E-02	0.115
	989.30			1.391E-01	8.364E-01	1.367E+00	1.338E-01	0.102
	1034.80			-2.154E+00	5.963E+00	9.378E+00	8.326E-01	-0.230
	1213.00			2.820E+00	3.271E+00	5.620E+00	3.379E-01	0.502
SB-127	61.10			2.134E+01	5.908E+01	8.978E+01	9.678E+00	0.238
	252.40			-4.693E-01	3.138E+00	5.110E+00	2.126E+00	-0.092

---- Non-Identified Nuclides ----

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	290.80			-5.442E+00	1.806E+01	2.521E+01	2.385E+00	-0.216
	411.60			2.529E+00	1.040E+01	1.530E+01	2.238E+00	0.165
	444.90			-1.150E+00	7.273E+00	1.139E+01	1.282E+00	-0.101
	473.00			-1.056E-01	1.234E+00	2.028E+00	2.381E-01	-0.052
	543.00			-2.333E+00	1.165E+01	1.880E+01	2.564E+00	-0.124
	603.60			-5.059E+00	1.039E+01	1.369E+01	1.625E+00	-0.370
	685.20	*		1.817E-01	9.871E-01	1.666E+00	1.862E-01	0.109
	698.50			-5.505E+00	1.130E+01	1.839E+01	2.900E+00	-0.299
	722.20			6.873E+00	2.269E+01	3.329E+01	3.778E+00	0.206
	783.80			2.635E+00	2.667E+00	4.592E+00	6.077E-01	0.574
XE-127	57.60			-2.291E+00	5.350E+00	8.846E+00	6.818E-01	-0.259
	145.22			1.987E-01	4.885E-01	7.687E-01	4.202E-02	0.258
	172.10			1.257E-02	7.637E-02	1.293E-01	6.808E-03	0.097
	202.84	*		-1.666E-02	3.190E-02	5.051E-02	2.726E-03	-0.330
	374.96			-6.561E-04	1.213E-01	2.039E-01	1.176E-02	-0.003
I-131	80.18			-1.244E+00	3.784E+00	5.502E+00	4.801E-01	-0.226
	284.30			-3.981E-01	1.021E+00	1.635E+00	1.043E-01	-0.244
	364.48	*		-2.863E-02	7.038E-02	1.165E-01	7.532E-03	-0.246
	636.97			4.412E-01	1.032E+00	1.698E+00	1.362E-01	0.260
	722.89			1.802E+00	5.034E+00	7.411E+00	6.346E-01	0.243
TE-132	49.72			-3.522E+00	2.381E+01	3.999E+01	4.189E+00	-0.088
	111.76			-1.953E+01	2.575E+01	4.046E+01	3.874E+00	-0.483
	116.30			2.240E+01	2.392E+01	3.949E+01	3.704E+00	0.567
	228.16	*		2.147E-01	5.354E-01	8.951E-01	1.293E-01	0.240
BA-133	53.15			5.578E-01	3.397E+00	5.744E+00	4.558E-01	0.097
	79.62			5.953E-02	9.995E-01	1.476E+00	2.248E-01	0.040
	81.00			-5.454E-02	7.600E-02	1.081E-01	1.722E-02	-0.505
+	276.40			4.493E-01	3.022E-01	4.118E-01	5.320E-02	1.091
	302.84			1.162E-02	1.051E-01	1.495E-01	1.739E-02	0.078
	356.01	*		8.520E-03	3.000E-02	4.248E-02	4.907E-03	0.201
	383.85			4.558E-02	1.774E-01	3.007E-01	3.262E-02	0.152
I-133	510.53	+		3.187E+00	1.774E-01	Half-Life	too short	
	529.87	*		-6.484E-03	1.774E-01	Half-Life	too short	
	706.58			1.780E-01	1.774E-01	Half-Life	too short	
	856.28			-4.117E-01	1.774E-01	Half-Life	too short	
	875.33			6.096E-02	1.774E-01	Half-Life	too short	
	1236.41			7.682E-01	1.774E-01	Half-Life	too short	
	1298.22			-1.028E-01	1.774E-01	Half-Life	too short	
CS-134	475.35			-1.739E-01	1.195E+00	1.959E+00	1.244E-01	-0.089
	563.23			2.232E-01	2.149E-01	3.669E-01	2.592E-02	0.608
	569.32			-1.359E-02	1.174E-01	1.895E-01	1.355E-02	-0.072
	604.70			4.956E-03	2.476E-02	3.431E-02	2.494E-03	0.144
+	795.84	*		7.101E-02	3.741E-02	5.508E-02	5.327E-03	1.289
	801.93			-3.914E-01	2.811E-01	3.720E-01	3.629E-02	-1.052
	1038.57			-3.083E-01	2.367E+00	3.931E+00	3.459E-01	-0.078
	1167.94			-2.512E-01	1.591E+00	2.611E+00	1.481E-01	-0.096
	1365.15			1.779E-02	6.783E-01	1.109E+00	8.822E-02	0.016
CS-135	268.24	*		1.858E-01	1.100E-01	1.694E-01	1.281E-02	1.097
I-135	288.45			1.323E+11	1.100E-01	Half-Life	too short	

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		417.63		3.786E+10	1.100E-01	Half-Life too short		
		546.56		5.852E+10	1.100E-01	Half-Life too short		
		836.80		2.358E+11	1.100E-01	Half-Life too short		
		1038.76		-1.806E+10	1.100E-01	Half-Life too short		
		1124.00		5.689E+11	1.100E-01	Half-Life too short		
		1131.51		4.768E+09	1.100E-01	Half-Life too short		
		1260.41	*	-2.602E+10	1.100E-01	Half-Life too short		
		1457.56		1.330E+13	1.100E-01	Half-Life too short		
		1678.03		6.801E+10	1.100E-01	Half-Life too short		
		1706.46		2.220E+10	1.100E-01	Half-Life too short		
		1791.20		6.512E+10	1.100E-01	Half-Life too short		
CS-136		66.91		-8.860E-01	7.697E-01	1.050E+00	1.586E-01	-0.844
	+	86.29		2.938E+00	9.770E-01	1.461E+00	1.926E-01	2.011
		153.22		1.861E-01	4.283E-01	7.358E-01	5.065E-02	0.253
		163.89		5.186E-01	7.263E-01	1.251E+00	8.544E-02	0.415
		176.55		4.251E-02	2.457E-01	4.154E-01	2.518E-02	0.102
		273.65		-1.485E-01	4.573E-01	4.546E-01	2.962E-02	-0.327
		340.57		4.007E-01	1.059E-01	1.710E-01	1.052E-02	2.343
		818.51		1.760E-03	4.556E-02	7.520E-02	7.509E-03	0.023
		1048.07	*	3.092E-02	7.357E-02	1.257E-01	1.127E-02	0.246
		1235.34		4.574E-01	4.490E-01	7.357E-01	7.564E-02	0.622
CE-139		165.85	*	-3.368E-03	1.890E-02	3.176E-02	1.667E-03	-0.106
BA-140		162.64		6.818E-01	5.112E-01	8.933E-01	5.415E-02	0.763
		304.84		-1.156E-01	9.836E-01	1.380E+00	3.764E-01	-0.084
		423.70		-1.011E+00	1.244E+00	1.927E+00	6.131E-01	-0.525
		537.32	*	-3.809E-02	1.667E-01	2.683E-01	8.775E-02	-0.142
LA-140	+	328.77		5.384E-01	2.808E-01	3.473E-01	2.251E-02	1.550
		432.53		-4.234E-01	1.289E+00	2.111E+00	1.399E-01	-0.201
		487.03		8.668E-02	8.676E-02	1.492E-01	1.065E-02	0.581
		751.79		8.621E-02	1.105E+00	1.841E+00	1.809E-01	0.047
		815.85		4.328E-02	1.989E-01	3.317E-01	3.585E-02	0.130
		867.82		-2.183E-02	9.491E-01	1.480E+00	1.651E-01	-0.015
		919.63		-3.206E-01	1.951E+00	2.677E+00	3.382E-01	-0.120
		925.24		1.370E-01	6.905E-01	1.139E+00	1.289E-01	0.120
		1596.49	*	-1.257E-02	5.104E-02	8.278E-02	5.679E-03	-0.152
CE-141		145.44	*	1.167E-02	4.423E-02	6.926E-02	3.954E-03	0.168
CE-143		57.37		-6.750E-04	4.423E-02	Half-Life too short		
		231.56		-6.664E-04	4.423E-02	Half-Life too short		
		293.26	*	8.873E-04	4.423E-02	Half-Life too short		
	+	350.59		4.120E-02	4.423E-02	Half-Life too short		
		490.36		-2.045E-03	4.423E-02	Half-Life too short		
		664.57		4.445E-03	4.423E-02	Half-Life too short		
		721.93		3.639E-04	4.423E-02	Half-Life too short		
CE-144		80.11		-4.781E-01	1.612E+00	2.347E+00	2.032E-01	-0.204
		133.54	*	4.074E-02	1.556E-01	2.231E-01	3.155E-02	0.183
PM-144		476.78		1.358E-02	4.193E-02	7.016E-02	5.206E-03	0.194
		618.01		1.037E-02	2.075E-02	3.428E-02	2.610E-03	0.302
		696.49	*	1.543E-03	2.124E-02	3.560E-02	2.890E-03	0.043
		778.57		-1.281E+00	1.406E+00	2.200E+00	2.057E-01	-0.582

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PR-144		696.49	*	1.046E-01	1.440E+00	2.413E+00	1.959E-01	0.043
		1489.15		-3.319E+00	7.454E+00	1.153E+01	8.328E-01	-0.288
PM-146		453.90	*	1.581E-02	2.680E-02	4.547E-02	4.045E-03	0.348
		633.02		-2.779E-01	8.881E-01	1.395E+00	5.178E-01	-0.199
		735.90		-1.013E-02	8.548E-02	1.380E-01	3.950E-02	-0.073
		747.13		2.409E-02	5.584E-02	9.460E-02	1.342E-02	0.255
ND-147	+	91.11		6.439E-01	2.343E-01	3.958E-01	3.723E-02	1.627
		319.41		-7.264E-01	2.148E+00	3.408E+00	1.969E-01	-0.213
		439.89		8.496E-01	3.788E+00	6.351E+00	3.875E-01	0.134
		531.02	*	-6.176E-02	3.551E-01	5.750E-01	8.022E-02	-0.107
PM-149		285.90	*	-5.375E+01	7.911E+01	1.246E+02	1.762E+01	-0.432
EU-152		121.78		-1.219E-02	5.038E-02	8.018E-02	6.179E-03	-0.152
		244.69		2.685E-01	2.205E-01	3.367E-01	1.881E-02	0.797
		344.27	*	-1.265E-02	7.157E-02	9.681E-02	6.317E-03	-0.131
		443.98		4.758E-01	6.128E-01	1.002E+00	6.143E-02	0.475
		778.89		-8.974E-02	1.611E-01	2.579E-01	2.412E-02	-0.348
		867.32		6.018E-02	5.455E-01	8.335E-01	8.987E-02	0.072
		964.01		4.237E-01	2.292E-01	3.537E-01	3.623E-02	1.198
		1085.78		-1.803E-01	2.631E-01	4.215E-01	3.266E-02	-0.428
		1112.02		2.389E-01	2.158E-01	3.350E-01	2.385E-02	0.713
		1407.95		1.090E-01	1.181E-01	2.051E-01	1.523E-02	0.531
GD-153		69.67		-3.847E-01	1.272E+00	2.092E+00	1.698E-01	-0.184
		83.37		4.291E+00	1.194E+01	1.738E+01	1.544E+00	0.247
		97.43	*	-1.646E-02	6.199E-02	8.907E-02	6.964E-03	-0.185
		103.18		-9.051E-02	7.626E-02	1.187E-01	8.557E-03	-0.763
EU-154		123.07		-9.867E-03	3.469E-02	5.506E-02	5.208E-03	-0.179
		247.94		2.197E-02	2.425E-01	3.511E-01	3.307E-02	0.063
		591.81		-4.397E-02	3.756E-01	6.043E-01	6.427E-02	-0.073
		723.30		5.491E-02	1.176E-01	1.742E-01	1.642E-02	0.315
		756.87		-4.144E-02	4.739E-01	7.823E-01	9.591E-02	-0.053
		873.19		4.525E-02	1.878E-01	3.115E-01	4.339E-02	0.145
		996.32		-2.656E-01	2.557E-01	3.805E-01	6.957E-02	-0.698
		1004.76		-1.401E-01	1.386E-01	2.080E-01	2.557E-02	-0.673
		1274.45	*	-6.121E-02	7.624E-02	1.182E-01	1.181E-02	-0.518
EU-155		48.70		8.823E-01	2.506E+00	4.278E+00	3.245E-01	0.206
		60.01		1.503E+00	4.460E+00	6.782E+00	5.175E-01	0.222
	+	86.54		2.581E-01	8.228E-02	1.296E-01	1.194E-02	1.991
		105.31	*	5.001E-02	7.786E-02	1.285E-01	9.184E-03	0.389
TB-160	+	86.79		6.954E-01	2.215E-01	3.510E-01	3.211E-02	1.981
		197.04		-2.076E-01	3.691E-01	5.911E-01	3.174E-02	-0.351
		215.65		-1.013E-01	4.885E-01	7.780E-01	4.247E-02	-0.130
	+	298.57		1.475E-01	8.243E-02	1.205E-01	6.921E-03	1.224
		879.36	*	-5.969E-02	8.732E-02	1.365E-01	1.500E-02	-0.437
		962.29		5.824E-01	4.086E-01	6.206E-01	6.376E-02	0.938
		966.15		1.108E+00	2.216E-01	3.464E-01	3.535E-02	3.199
		1177.93		2.112E-01	2.406E-01	4.155E-01	2.320E-02	0.508
		1271.85		-1.113E-01	4.468E-01	7.220E-01	4.879E-02	-0.154
HO-166M		80.57		-1.029E-01	2.078E-01	2.999E-01	2.606E-02	-0.343
		184.41		8.827E-02	2.773E-02	4.526E-02	2.404E-03	1.950

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		280.46		1.093E-02	5.765E-02	8.298E-02	4.733E-03	0.132
		410.95		7.106E-02	1.785E-01	2.648E-01	1.559E-02	0.268
		711.68	*	1.040E-02	3.749E-02	6.333E-02	5.279E-03	0.164
		752.31		9.697E-02	1.691E-01	2.884E-01	2.578E-02	0.336
		810.29		-3.048E-02	3.469E-02	5.394E-02	5.311E-03	-0.565
		51.35		-2.040E+01	3.000E+01	4.942E+01	3.917E+00	-0.413
		52.39		-3.985E+00	1.511E+01	2.523E+01	2.004E+00	-0.158
		59.40		1.815E+00	2.426E+01	3.655E+01	2.775E+00	0.050
		66.72	*	-2.811E+01	2.612E+01	3.615E+01	2.891E+00	-0.777
		88.36		5.081E-01	1.619E-01	2.603E-01	2.390E-02	1.952
LU-176	+	201.83		-1.313E-02	1.864E-02	3.041E-02	1.640E-03	-0.432
		306.84	*	-3.775E-03	1.615E-02	2.585E-02	1.488E-03	-0.146
		401.10		-1.607E+00	4.003E+00	6.583E+00	3.827E-01	-0.244
LU-177		112.95		-9.436E-01	1.264E+00	1.989E+00	1.281E-01	-0.475
	+	208.36	*	2.534E+00	1.247E+00	1.438E+00	7.797E-02	1.763
LU-177M		52.97		2.840E-01	1.543E+00	2.611E+00	2.073E-01	0.109
		54.07		3.572E-01	8.014E-01	1.364E+00	1.079E-01	0.262
		61.30		6.242E-01	1.293E+00	1.974E+00	1.525E-01	0.316
HF-181		121.62		-3.611E-02	2.602E-01	4.157E-01	2.466E-02	-0.087
		147.16		-2.943E-01	4.369E-01	6.755E-01	3.676E-02	-0.436
		171.86		5.004E-03	3.043E-01	5.131E-01	2.701E-02	0.010
		218.09		5.817E-01	5.400E-01	9.244E-01	5.056E-02	0.629
		268.79		1.489E+00	5.677E-01	9.062E-01	5.139E-02	1.643
		319.02		-4.931E-02	1.580E-01	2.510E-01	1.449E-02	-0.196
		367.43		-5.184E-02	5.325E-01	8.933E-01	5.159E-02	-0.058
		413.65	*	7.946E-02	1.219E-01	1.836E-01	1.084E-02	0.433
		56.28		-9.476E-02	8.548E-01	1.429E+00	1.113E-01	-0.066
		57.53		-2.061E-01	4.501E-01	7.435E-01	5.733E-02	-0.277
W-181		65.20		-1.066E+00	9.023E-01	1.245E+00	9.872E-02	-0.856
		133.02		9.949E-03	5.018E-02	7.182E-02	4.063E-03	0.139
		136.25		-1.260E-01	3.160E-01	4.964E-01	2.780E-02	-0.254
		345.85		-3.156E-02	1.382E-01	1.900E-01	1.099E-02	-0.166
		482.03	*	-2.631E-02	2.672E-02	4.189E-02	2.681E-03	-0.628
		56.28		-3.685E-02	3.312E-01	5.539E-01	4.314E-02	-0.067
TA-182		57.53		-7.993E-02	1.746E-01	2.884E-01	2.224E-02	-0.277
		65.20	*	-4.100E-01	3.472E-01	4.789E-01	3.798E-02	-0.856
		67.75		-7.896E-02	1.023E-01	1.435E-01	1.154E-02	-0.550
RE-183		100.10		1.178E-01	1.265E-01	2.109E-01	1.585E-02	0.558
		152.43		-4.143E-02	2.288E-01	3.592E-01	1.933E-02	-0.115
		222.10		6.836E-02	2.196E-01	3.674E-01	2.016E-02	0.186
		1001.68		1.050E+00	1.384E+00	2.225E+00	2.124E-01	0.472
	+	1121.28		4.743E-01	1.905E-01	2.168E-01	1.493E-02	2.188
		1189.05		4.999E-03	1.966E-01	3.254E-01	1.861E-02	0.015
		1221.42	*	-9.883E-03	1.328E-01	2.182E-01	1.335E-02	-0.045
		1230.97		-4.230E-01	3.448E-01	5.337E-01	3.329E-02	-0.792
		57.98		-7.519E-02	1.727E-01	2.853E-01	2.192E-02	-0.264
		59.32		9.603E-03	1.008E-01	1.520E-01	1.155E-02	0.063
RE-183		67.20		-1.228E-01	1.843E-01	2.597E-01	2.081E-02	-0.473
		162.32	*	5.817E-02	7.167E-02	1.238E-01	6.536E-03	0.470

---- Non-Identified Nuclides ----

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RE-184	+	208.81		2.086E+00	1.027E+00	1.187E+00	6.441E-02	1.757
		291.72		-4.207E-01	6.930E-01	9.507E-01	5.447E-02	-0.443
		57.98		-2.755E-01	6.328E-01	1.046E+00	8.033E-02	-0.264
		59.32		3.516E-02	3.693E-01	5.568E-01	4.230E-02	0.063
		67.20		-4.500E-01	6.751E-01	9.514E-01	7.625E-02	-0.473
		161.27		-8.279E-02	2.321E-01	3.888E-01	2.056E-02	-0.213
		216.55		-1.538E-02	1.664E-01	2.753E-01	1.504E-02	-0.056
		252.85	*	-5.536E-02	1.430E-01	2.312E-01	1.298E-02	-0.239
		318.01		-7.501E-02	2.746E-01	4.371E-01	2.523E-02	-0.172
		792.07		2.543E-01	7.303E-01	1.063E+00	1.016E-01	0.239
OS-185		903.28		2.890E-01	7.059E-01	1.021E+00	1.147E-01	0.283
		920.93		-1.462E-01	2.930E-01	4.062E-01	4.452E-02	-0.360
		59.72		-5.848E-02	2.711E-01	4.035E-01	3.069E-02	-0.145
		61.14		5.445E-02	1.427E-01	2.171E-01	1.675E-02	0.251
		69.30		-9.918E-03	2.287E-01	3.791E-01	3.071E-02	-0.026
		592.07		-3.462E-01	1.548E+00	2.476E+00	1.773E-01	-0.140
		646.12	*	1.805E-02	2.518E-02	4.209E-02	3.165E-03	0.429
		717.42		-2.508E-01	5.228E-01	8.481E-01	7.140E-02	-0.296
		874.81		8.507E-02	3.685E-01	6.112E-01	6.667E-02	0.139
		880.27		-1.505E-01	4.766E-01	7.642E-01	8.406E-02	-0.197
RE-188		155.03	*	4.896E-02	1.064E-01	1.829E-01	9.786E-03	0.268
		477.96		1.561E+00	1.913E+00	3.268E+00	2.082E-01	0.478
		633.10		-5.998E-01	1.803E+00	2.848E+00	2.117E-01	-0.211
W-188	+	63.58		1.022E+02	6.241E+01	7.835E+01	6.156E+00	1.304
		227.08		3.896E+00	8.139E+00	1.366E+01	7.530E-01	0.285
IR-192		290.67	*	-1.494E+00	5.330E+00	7.449E+00	4.266E-01	-0.201
	+	295.96		8.955E-01	1.353E-01	1.768E-01	1.031E-02	5.066
		308.46		4.456E-03	6.196E-02	1.004E-01	5.849E-03	0.044
		316.51	*	-9.331E-03	2.118E-02	3.346E-02	1.941E-03	-0.279
		468.07		-3.781E-03	4.684E-02	6.674E-02	4.756E-03	-0.057
		604.41		-1.260E-01	3.455E-01	4.595E-01	5.584E-02	-0.274
		612.46		1.882E+00	5.887E-01	9.409E-01	8.253E-02	2.000
	AU-195	65.12		-1.751E-01	1.610E-01	2.231E-01	1.769E-02	-0.785
		66.83		-1.059E-01	8.738E-02	1.203E-01	9.621E-03	-0.881
	+	75.70		9.613E-01	1.889E-01	3.198E-01	2.686E-02	3.006
TL-200		98.88	*	1.404E-01	1.669E-01	2.656E-01	2.032E-02	0.529
	+	129.76		3.403E+00	2.765E+00	3.363E+00	1.924E-01	1.012
		367.94	*	2.476E-04	2.765E+00	Half-Life	too short	
		579.30		5.004E-03	2.765E+00	Half-Life	too short	
		828.27		-2.239E-03	2.765E+00	Half-Life	too short	
TL-201		1205.75		-7.065E-04	2.765E+00	Half-Life	too short	
		68.90		2.082E+00	4.535E+00	7.617E+00	6.158E-01	0.273
		70.82		4.738E-02	2.791E+00	4.148E+00	3.387E-01	0.011
		80.30		-2.653E+00	4.764E+00	6.860E+00	5.948E-01	-0.387
		135.34		4.922E-01	2.123E+01	3.385E+01	1.901E+00	0.015
TL-202		167.43	*	-4.494E+00	5.515E+00	9.083E+00	4.768E-01	-0.495
		68.90		1.594E-01	3.471E-01	5.830E-01	4.713E-02	0.273
		70.82		3.616E-03	2.130E-01	3.166E-01	2.585E-02	0.011
		80.30		-2.025E-01	3.637E-01	5.238E-01	4.541E-02	-0.387

## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203	439.56	*		1.939E-03	4.402E-02	7.324E-02	4.465E-03	0.026
	70.83			1.752E-02	8.874E-01	1.319E+00	1.757E-01	0.013
	72.87			1.462E-01	5.060E-01	7.572E-01	9.820E-02	0.193
	82.60			8.032E-02	8.739E-01	1.289E+00	1.788E-01	0.062
BI-207	279.20	*		1.792E-02	2.972E-02	4.364E-02	2.647E-03	0.411
	72.80			1.516E-02	1.458E-01	2.170E-01	1.791E-02	0.070
	74.97		+	5.314E-01	1.044E-01	1.629E-01	1.362E-02	3.261
	84.90			4.661E-02	1.513E-01	2.197E-01	1.977E-02	0.212
	569.67			-1.025E-04	1.849E-02	3.002E-02	2.104E-03	-0.003
TL-207	1063.62	*		1.047E-02	3.332E-02	5.658E-02	4.671E-03	0.185
	1770.23			-1.193E-01	2.942E-01	3.780E-01	2.287E-02	-0.316
	81.07			-1.214E-01	1.668E-01	2.383E-01	2.078E-02	-0.510
	83.78			6.182E-02	1.018E-01	1.493E-01	1.331E-02	0.414
	94.90			5.732E-01	1.842E-01	2.902E-01	2.362E-02	1.975
	122.32			-5.815E-01	1.195E+00	1.885E+00	1.280E-01	-0.309
	144.24			3.627E-01	4.702E-01	7.483E-01	5.221E-02	0.485
	154.21			2.007E-01	2.458E-01	4.260E-01	2.835E-02	0.471
	269.46		+	5.343E-01	1.604E-01	2.175E-01	1.292E-02	2.457
	323.87	*		-3.698E-02	4.571E-01	6.387E-01	1.054E-01	-0.058
PO-209	338.28		+	6.164E+00	1.221E+00	1.566E+00	1.648E-01	3.935
	445.03			-4.804E-01	1.435E+00	2.227E+00	2.330E-01	-0.216
	260.50			1.805E+00	6.092E+00	1.008E+01	5.688E-01	0.179
	262.80			-4.739E+00	1.668E+01	2.699E+01	1.525E+00	-0.176
	896.60	*		1.068E+00	4.480E+00	7.421E+00	8.370E-01	0.144
BI-210	46.50	*		1.073E-01	3.809E+00	6.453E+00	4.993E-01	0.017
PB-210	46.50	*		1.073E-01	3.809E+00	6.453E+00	4.993E-01	0.017
PO-210	46.50	*		1.073E-01	3.809E+00	6.453E+00	4.993E-01	0.017
PB-211	404.84	*		3.249E-01	6.769E-01	9.666E-01	6.026E-01	0.336
BI-212	427.08			2.142E-01	1.254E+00	2.091E+00	1.293E+00	0.102
	831.96			-1.434E-01	7.580E-01	1.225E+00	7.703E-01	-0.117
	727.18	*	+	8.410E-01	2.991E-01	4.001E-01	3.985E-02	2.102
	785.46			6.659E-01	1.089E+00	1.854E+00	1.753E-01	0.359
	1620.62			6.095E-01	7.200E-01	1.288E+00	8.708E-02	0.473
PO-215	81.07			-1.214E-01	1.668E-01	2.383E-01	2.078E-02	-0.510
	83.78			6.182E-02	1.018E-01	1.493E-01	1.331E-02	0.414
	94.90			5.732E-01	1.842E-01	2.902E-01	2.362E-02	1.975
	122.32			-5.815E-01	1.195E+00	1.885E+00	1.280E-01	-0.309
	144.24			3.627E-01	4.702E-01	7.483E-01	5.221E-02	0.485
RN-219	154.21			2.007E-01	2.458E-01	4.260E-01	2.835E-02	0.471
	269.46		+	5.343E-01	1.604E-01	2.175E-01	1.292E-02	2.457
	323.87	*		-3.698E-02	4.571E-01	6.387E-01	1.054E-01	-0.058
	338.28		+	6.164E+00	1.221E+00	1.566E+00	1.648E-01	3.935
	445.03			-4.804E-01	1.435E+00	2.227E+00	2.330E-01	-0.216
RN-220	271.23		+	6.856E-01	2.091E-01	2.871E-01	2.302E-02	2.388
RA-223	401.81	*		2.300E-02	2.534E-01	4.146E-01	5.644E-02	0.055
RN-220	549.76	*		-3.237E-01	1.589E+01	2.586E+01	1.777E+00	-0.013
RA-223	81.07			-1.214E-01	1.668E-01	2.383E-01	2.078E-02	-0.510
	83.78			6.182E-02	1.018E-01	1.493E-01	1.331E-02	0.414
	94.90			5.732E-01	1.842E-01	2.902E-01	2.362E-02	1.975



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-5.815E-01	1.195E+00	1.885E+00	1.280E-01	-0.309
		144.24		3.627E-01	4.702E-01	7.483E-01	5.221E-02	0.485
		154.21		2.007E-01	2.458E-01	4.260E-01	2.835E-02	0.471
	+	269.46		5.343E-01	1.604E-01	2.175E-01	1.292E-02	2.457
		323.87	*	-3.698E-02	4.571E-01	6.387E-01	1.054E-01	-0.058
	+	338.28		6.164E+00	1.221E+00	1.566E+00	1.648E-01	3.935
		445.03		-4.804E-01	1.435E+00	2.227E+00	2.330E-01	-0.216
		79.80		-1.941E-01	1.252E+00	1.834E+00	3.944E-01	-0.106
		236.00		4.472E-01	1.757E-01	2.714E-01	2.800E-02	1.648
		256.20	*	-1.308E-01	2.425E-01	3.884E-01	5.395E-02	-0.337
		286.10		-6.051E-01	9.867E-01	1.561E+00	1.798E-01	-0.388
	+	299.80		1.862E+00	1.078E+00	1.544E+00	2.512E-01	1.206
TH-227		304.40		-6.698E-02	1.374E+00	1.936E+00	3.346E-01	-0.035
		334.20		1.126E+00	1.888E+00	2.312E+00	4.237E-01	0.487
		79.80		-1.941E-01	1.252E+00	1.834E+00	3.995E-01	-0.106
	+	94.00		1.102E+01	3.118E+00	2.939E+00	6.360E-01	3.750
		236.00		4.472E-01	1.742E-01	2.714E-01	2.415E-02	1.648
		256.20	*	-1.308E-01	2.428E-01	3.884E-01	6.542E-02	-0.337
		286.10		-6.051E-01	1.156E+00	1.561E+00	1.564E+00	-0.388
	+	299.80		1.862E+00	1.078E+00	1.544E+00	2.512E-01	1.206
		304.40		-6.698E-02	1.374E+00	1.936E+00	3.346E-01	-0.035
		334.20		1.126E+00	1.888E+00	2.312E+00	4.237E-01	0.487
		85.43		6.035E-02	1.506E-01	2.194E-01	1.983E-02	0.275
	+	88.47		2.925E-01	9.318E-02	1.498E-01	1.373E-02	1.952
PA-231		100.00		1.280E-01	1.308E-01	2.183E-01	1.644E-02	0.586
		193.63	*	-6.081E-02	3.141E-01	5.221E-01	2.796E-02	-0.116
		210.97		1.169E+00	5.413E-01	8.560E-01	4.654E-02	1.365
		283.67	*	-7.419E-02	9.890E-01	1.548E+00	2.127E-01	-0.048
TH-231	+	301.29		7.449E-01	4.211E-01	6.453E-01	6.727E-02	1.154
		81.07		-1.214E-01	1.668E-01	2.383E-01	2.078E-02	-0.510
		83.78		6.182E-02	1.018E-01	1.493E-01	1.331E-02	0.414
		94.90		5.732E-01	1.842E-01	2.902E-01	2.362E-02	1.975
U-231		122.32		-5.815E-01	1.195E+00	1.885E+00	1.280E-01	-0.309
		144.24		3.627E-01	4.702E-01	7.483E-01	5.221E-02	0.485
		154.21		2.007E-01	2.458E-01	4.260E-01	2.835E-02	0.471
	+	269.46		5.343E-01	1.604E-01	2.175E-01	1.292E-02	2.457
		323.87	*	-3.698E-02	4.571E-01	6.387E-01	1.054E-01	-0.058
	+	338.28		6.164E+00	1.221E+00	1.566E+00	1.648E-01	3.935
		445.03		-4.804E-01	1.435E+00	2.227E+00	2.330E-01	-0.216
		84.21		1.888E+00	5.110E+00	7.439E+00	6.655E-01	0.254
	+	92.29		1.272E+01	2.545E+00	3.624E+00	3.085E-01	3.509
		95.87	*	4.932E-02	9.651E-01	1.407E+00	1.127E-01	0.035
		108.00		-7.842E-01	1.745E+00	2.782E+00	1.892E-01	-0.282
	+	75.28		1.551E+01	3.627E+00	4.830E+00	7.347E-01	3.210
PA-233	+	86.59		4.194E+00	1.709E+00	2.110E+00	5.695E-01	1.987
	+	300.12		5.192E-01	2.968E-01	4.367E-01	5.858E-02	1.189
		311.98	*	-2.291E-03	4.054E-02	6.528E-02	3.999E-03	-0.035
		340.50		2.059E+00	6.747E-01	8.093E-01	1.858E-01	2.544
		398.62		-4.507E-01	1.255E+00	2.060E+00	5.325E-01	-0.219

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		5.528E-01	1.057E+00	1.746E+00	3.601E-01	0.317
		63.00		2.935E+00	1.832E+00	2.286E+00	3.446E-01	1.284
		94.67		5.770E-01	1.489E-01	2.210E-01	2.672E-02	2.611
		98.44		4.294E-02	7.581E-02	1.070E-01	5.956E-02	0.401
		99.86		3.460E-01	3.320E-01	5.550E-01	4.187E-02	0.623
		111.00		-2.792E-03	1.312E-01	2.117E-01	2.271E-02	-0.013
		131.20		1.857E-02	8.149E-02	1.169E-01	6.652E-03	0.159
		152.70		8.801E-02	2.148E-01	3.435E-01	5.379E-02	0.256
		186.00		6.233E+00	2.282E+00	1.791E+00	5.456E-01	3.481
		226.40		-2.506E-02	2.560E-01	4.220E-01	4.818E-02	-0.059
		227.20		7.692E-02	2.740E-01	4.572E-01	2.520E-02	0.168
		248.90		-2.898E-01	5.121E-01	7.871E-01	1.687E-01	-0.368
		293.70		4.291E+00	9.215E-01	1.065E+00	1.711E-01	4.029
		369.80		1.683E-01	5.102E-01	8.681E-01	1.807E-01	0.194
		568.70		1.440E-01	5.890E-01	9.691E-01	6.785E-02	0.149
		569.50		-1.605E-02	1.633E-01	2.639E-01	1.849E-02	-0.061
		574.00		-2.218E-01	9.782E-01	1.475E+00	1.038E-01	-0.150
		699.00		-3.724E-01	4.587E-01	7.280E-01	1.374E-01	-0.512
		706.10		2.160E-01	6.864E-01	1.150E+00	5.121E-01	0.188
		733.00		-1.793E-01	2.494E-01	3.311E-01	7.353E-02	-0.542
		742.81		-1.426E-01	8.231E-01	1.345E+00	9.046E-01	-0.106
	+	796.30		1.379E+00	8.077E-01	1.080E+00	2.957E-01	1.277
		805.60		7.094E-01	6.086E-01	1.003E+00	3.108E-01	0.707
		819.60		-7.414E-02	7.210E-01	1.179E+00	4.523E-01	-0.063
		826.30		-3.407E-01	5.041E-01	7.557E-01	3.404E-01	-0.451
		831.60		-2.313E-01	4.010E-01	6.285E-01	1.907E-01	-0.368
		876.40		2.680E-01	5.843E-01	8.686E-01	8.948E-01	0.309
		880.51		-7.601E-02	1.718E-01	2.731E-01	3.005E-02	-0.278
		883.24		6.422E-03	1.743E-01	2.856E-01	1.930E-01	0.022
		899.00		-4.353E-01	5.494E-01	7.958E-01	3.527E-01	-0.547
		925.00		1.087E-01	6.828E-01	1.123E+00	1.224E-01	0.097
	*	926.50		-3.140E-04	1.048E-01	1.706E-01	4.458E-02	-0.002
		946.00		-1.155E-01	2.058E-01	3.215E-01	6.343E-02	-0.359
		949.00		3.832E-01	3.033E-01	5.224E-01	5.486E-02	0.733
		980.50		6.176E-02	4.461E-01	7.287E-01	7.248E-02	0.085
		1394.10		-5.181E-01	7.708E-01	1.052E+00	6.832E-01	-0.493
		766.42		1.088E+01	9.799E+00	1.259E+01	6.398E+00	0.864
		1001.03	*	3.013E+00	3.117E+00	5.056E+00	5.454E-01	0.596
U-235	+	89.95		2.416E+00	1.130E+00	1.379E+00	4.267E-01	1.752
		93.35		3.428E+00	1.143E+00	9.715E-01	2.715E-01	3.529
	*	105.00		1.107E+00	8.165E-01	1.268E+00	3.731E-01	0.873
		143.76		5.728E-02	1.461E-01	2.295E-01	3.718E-02	0.250
		163.35		3.833E-01	3.120E-01	5.324E-01	9.487E-02	0.720
NP-236	+	185.71		2.308E-01	4.842E-02	6.651E-02	3.537E-03	3.471
		205.31		8.481E-02	3.728E-01	5.510E-01	9.840E-02	0.154
	*	94.67		4.413E-01	1.062E-01	1.679E-01	1.372E-02	2.628
		98.44		3.246E-02	5.444E-02	8.090E-02	6.230E-03	0.401
		111.00		-2.112E-03	9.926E-02	1.602E-01	1.053E-02	-0.013
		160.31		-1.387E-02	5.140E-02	8.637E-02	4.576E-03	-0.161

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.509E-01	1.106E-01	1.863E-01	1.412E-02	0.810
		117.00	*	1.897E-02	1.339E-01	2.165E-01	1.340E-02	0.088
	+	209.75		1.630E+00	8.024E-01	9.082E-01	4.932E-02	1.795
		228.18		5.822E-02	1.431E-01	2.396E-01	1.322E-02	0.243
	+	277.60		2.193E-01	1.453E-01	1.981E-01	1.129E-02	1.107
AM-241		334.30		6.446E-01	1.064E+00	1.311E+00	7.581E-02	0.492
		59.54	*	5.467E-03	1.403E-01	2.110E-01	1.750E-02	0.026
CM-243		99.55		1.553E-01	1.138E-01	1.918E-01	1.453E-02	0.810
		103.76	*	-2.693E-02	6.997E-02	1.121E-01	8.022E-03	-0.240
		117.00		1.952E-02	1.378E-01	2.227E-01	1.379E-02	0.088
	+	209.75		1.607E+00	7.911E-01	8.954E-01	4.863E-02	1.795
		228.18		5.883E-02	1.446E-01	2.421E-01	1.336E-02	0.243
AM-246	+	277.60		2.211E-01	1.465E-01	1.998E-01	1.138E-02	1.107
		798.80		-8.602E-03	9.542E-02	1.343E-01	1.298E-02	-0.064
		1036.00		-2.085E-01	1.850E-01	2.877E-01	2.547E-02	-0.725
		1062.04		7.890E-02	1.444E-01	2.482E-01	2.058E-02	0.318
		1078.86	*	1.008E-01	9.196E-02	1.618E-01	1.279E-02	0.623
CM-247	+	278.00		9.093E-01	6.024E-01	8.223E-01	4.685E-02	1.106
		287.40		6.555E-01	7.792E-01	1.305E+00	7.467E-02	0.502
		402.60	*	1.368E-02	2.396E-02	3.757E-02	2.188E-03	0.364
CF-249		252.85		-2.069E-01	5.346E-01	8.640E-01	4.853E-02	-0.239
		333.44		3.315E-02	1.672E-01	1.709E-01	9.885E-03	0.194
		387.95	*	2.156E-02	2.378E-02	4.128E-02	2.373E-03	0.522
CF-251		176.60	*	1.356E-02	8.060E-02	1.363E-01	7.196E-03	0.100
		227.00		1.158E-01	2.419E-01	4.062E-01	2.238E-02	0.285
		285.00		-1.402E+00	1.122E+00	1.730E+00	9.886E-02	-0.810

## VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229002
* Acquisition date   : 22-JAN-2010 12:57:21 Detector SN#      :
* Detector ID        : GAM18                               Sensitivity      : 5.000
* Geometry           : CAN                               Energy tolerance: 1.500
* Elapsed live time  : 0 03:00:00.00                     Abundance limit : 75.000
* Elapsed real time  : 0 03:00:02.68                     Half life ratio  : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244229002                     Analyst initials: MXR1
* Batch Number       : 941239                           Sample Quantity : 1.4039E+02 GRAM
* Recovery           : 1.00000                           Carrier Weight  : 0.00000
*****
*                               QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope      :
* MSD DPM             : 0.000                           MSD Isotope      :
* LCS DPM             : 0.000                           LCS Isotope      :
* LCSD DPM            : 0.000                           LCSD Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.201E+01	2.648E+00	2.998E-01	0.000E+00
CD-109	2.182E+00	6.814E-01	9.336E-01	0.000E+00
SN-126	2.142E-01	6.688E-02	9.223E-02	0.000E+00
BA-137M	2.140E-01	3.982E-02	3.631E-02	0.000E+00
CS-137	2.262E-01	4.211E-02	3.838E-02	0.000E+00
TL-208	4.245E-01	5.952E-02	3.523E-02	0.000E+00
BI-211	3.230E+00	3.523E-01	1.957E-01	0.000E+00
PB-212	1.410E+00	1.207E-01	5.706E-02	0.000E+00
PO-212	1.410E+00	1.207E-01	5.706E-02	0.000E+00
BI-214	9.496E-01	1.192E-01	7.123E-02	0.000E+00
PB-214	1.124E+00	1.353E-01	6.819E-02	0.000E+00
PO-214	1.124E+00	1.353E-01	6.819E-02	0.000E+00
PO-216	1.410E+00	1.207E-01	5.706E-02	0.000E+00
PO-218	1.124E+00	1.353E-01	6.819E-02	0.000E+00
RA-224	3.263E+00	8.489E-01	6.484E-01	0.000E+00
RA-226	9.496E-01	1.192E-01	7.123E-02	0.000E+00
AC-228	1.367E+00	2.761E-01	1.331E-01	0.000E+00
RA-228	1.367E+00	2.761E-01	1.331E-01	0.000E+00
TH-228	1.433E+00	1.227E-01	5.798E-02	0.000E+00
TH-230	9.496E-01	1.192E-01	7.123E-02	0.000E+00
TH-232	1.367E+00	2.761E-01	1.331E-01	0.000E+00
TH-234	2.518E+00	1.557E+00	1.848E+00	0.000E+00
U-234	9.496E-01	1.192E-01	7.123E-02	0.000E+00
NP-237	6.290E-01	2.340E-01	2.751E-01	0.000E+00
U-238	2.518E+00	1.557E+00	1.848E+00	0.000E+00
AM-243	2.960E-01	5.700E-02	6.953E-02	0.000E+00
ANH-511	1.473E-01	4.604E-02	2.806E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	1.721E-01	1.959E-01	3.514E-01	0.000E+00	NOT IDENT.
NA-22	-2.655E-02	2.698E-02	4.257E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.234E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-9.485E-03	1.823E-02	2.864E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.444E-02	6.196E-02	0.000E+00	FAIL ABUN
SC-46	-5.402E-03	2.367E-02	3.948E-02	0.000E+00	FAIL ABUN
V-48	-1.149E-02	4.342E-02	7.134E-02	0.000E+00	NOT IDENT.
CR-51	1.595E-03	2.266E-01	3.859E-01	0.000E+00	NOT IDENT.
MN-52	1.618E-01	1.580E-01	2.847E-01	0.000E+00	NOT IDENT.
MN-54	-3.603E-03	2.438E-02	4.124E-02	0.000E+00	NOT IDENT.
CO-56	-2.907E-03	2.457E-02	4.152E-02	0.000E+00	NOT IDENT.
CO-57	-7.883E-03	1.700E-02	2.893E-02	0.000E+00	NOT IDENT.
CO-58	-2.434E-02	2.315E-02	3.695E-02	0.000E+00	NOT IDENT.
FE-59	-4.910E-02	5.658E-02	9.209E-02	0.000E+00	NOT IDENT.
CO-60	-4.715E-03	2.318E-02	3.830E-02	0.000E+00	NOT IDENT.
ZN-65	5.864E-02	6.361E-02	9.962E-02	0.000E+00	NOT IDENT.
GE-68	5.363E-01	7.857E-01	1.398E+00	0.000E+00	NOT IDENT.
AS-73	2.422E-01	7.727E-01	1.436E+00	0.000E+00	NOT IDENT.
AS-74	-7.219E-03	5.853E-02	9.825E-02	0.000E+00	NOT IDENT.
SE-75	-1.649E-02	2.912E-02	4.550E-02	0.000E+00	NOT IDENT.
BR-77	5.541E+00	7.715E+00	1.338E+01	0.000E+00	FAIL ABUN
SR-82	-2.936E-01	2.381E-01	3.795E-01	0.000E+00	NOT IDENT.
RB-83	3.001E-02	3.914E-02	6.802E-02	0.000E+00	NOT IDENT.
RB-84	-1.509E-02	4.239E-02	7.020E-02	0.000E+00	NOT IDENT.
KR-85	0.000E+00	4.913E+00	8.721E+00	0.000E+00	NOT IDENT.
SR-85	0.000E+00	2.544E-02	4.516E-02	0.000E+00	NOT IDENT.
RB-86	2.180E-01	5.162E-01	9.074E-01	0.000E+00	NOT IDENT.
Y-88	8.415E-03	2.181E-02	3.788E-02	0.000E+00	NOT IDENT.
ZR-88	-1.467E-02	1.831E-02	3.123E-02	0.000E+00	NOT IDENT.
Y-91	2.071E+00	1.200E+01	2.055E+01	0.000E+00	NOT IDENT.
NB-94	1.338E-02	2.132E-02	3.798E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	2.937E-02	4.796E-02	0.000E+00	NOT IDENT.
NB-95M	4.751E-02	8.550E-02	1.347E-01	0.000E+00	NOT IDENT.
ZR-95	1.709E-02	4.304E-02	7.559E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.743E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.300E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	3.871E+00	8.331E+00	1.471E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.682E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-6.449E-03	2.127E-02	3.668E-02	0.000E+00	NOT IDENT.
RH-102	-4.541E-03	1.775E-02	3.037E-02	0.000E+00	FAIL ABUN
RU-103	-2.487E-02	2.347E-02	3.785E-02	0.000E+00	FAIL ABUN
RH-106	4.289E-02	1.984E-01	3.372E-01	0.000E+00	FAIL ABUN
RU-106	4.289E-02	1.984E-01	3.372E-01	0.000E+00	FAIL ABUN
AG-108M	-9.279E-03	1.916E-02	3.273E-02	0.000E+00	NOT IDENT.
AG-110M	1.765E-03	2.454E-02	3.723E-02	0.000E+00	NOT IDENT.
IN-111	5.352E-01	8.747E-01	1.382E+00	0.000E+00	NOT IDENT.
IN-113M	5.226E-03	2.651E-02	4.714E-02	0.000E+00	NOT IDENT.
SN-113	5.226E-03	2.651E-02	4.714E-02	0.000E+00	NOT IDENT.
IN-114M	1.233E-01	1.255E-01	2.055E-01	0.000E+00	NOT IDENT.
CD-115	-1.143E+00	8.578E+00	1.429E+01	0.000E+00	NOT IDENT.
SN-117M	1.768E-02	3.553E-02	6.541E-02	0.000E+00	NOT IDENT.
SB-122	4.276E-01	1.566E+00	2.696E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.181E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	6.068E-03	1.775E-02	3.254E-02	0.000E+00	NOT IDENT.
I-124	-5.096E-01	5.934E-01	7.948E-01	0.000E+00	NOT IDENT.
SB-124	-7.789E-03	4.062E-02	6.693E-02	0.000E+00	FAIL ABUN
SB-125	6.815E-02	5.404E-02	9.924E-02	0.000E+00	FAIL ABUN
TE-125M	2.998E-01	6.681E+00	1.168E+01	0.000E+00	NOT IDENT.
I-126	2.669E-02	1.306E-01	1.995E-01	0.000E+00	NOT IDENT.
SB-126	6.181E-02	9.534E-02	1.492E-01	0.000E+00	FAIL ABUN
SB-127	1.817E-01	9.673E-01	1.699E+00	0.000E+00	NOT IDENT.
XE-127	-1.666E-02	3.126E-02	5.281E-02	0.000E+00	NOT IDENT.
I-131	-2.863E-02	6.898E-02	1.204E-01	0.000E+00	NOT IDENT.
TE-132	2.147E-01	5.247E-01	9.338E-01	0.000E+00	NOT IDENT.
BA-133	8.520E-03	2.940E-02	4.392E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	7.711E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	3.666E-02	5.601E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.078E-01	1.762E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.690E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.092E-02	7.210E-02	1.271E-01	0.000E+00	FAIL ABUN
CE-139	-3.368E-03	1.852E-02	3.334E-02	0.000E+00	NOT IDENT.
BA-140	-3.809E-02	1.634E-01	2.750E-01	0.000E+00	NOT IDENT.
LA-140	-1.257E-02	5.002E-02	8.294E-02	0.000E+00	FAIL ABUN
CE-141	1.167E-02	4.335E-02	7.290E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.621E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	4.074E-02	1.525E-01	2.352E-01	0.000E+00	NOT IDENT.
PM-144	1.543E-03	2.081E-02	3.630E-02	0.000E+00	NOT IDENT.
PR-144	1.046E-01	1.411E+00	2.461E+00	0.000E+00	NOT IDENT.

PM-146	1.581E-02	2.626E-02	4.678E-02	0.000E+00	NOT IDENT.
ND-147	-6.176E-02	3.480E-01	5.896E-01	0.000E+00	FAIL ABUN
PM-149	-5.375E+01	7.753E+01	1.294E+02	0.000E+00	NOT IDENT.
EU-152	-1.265E-02	7.013E-02	1.002E-01	0.000E+00	NOT IDENT.
GD-153	-1.646E-02	6.075E-02	9.448E-02	0.000E+00	NOT IDENT.
EU-154	-6.121E-02	7.471E-02	1.190E-01	0.000E+00	NOT IDENT.
EU-155	5.001E-02	7.631E-02	1.360E-01	0.000E+00	FAIL ABUN
TB-160	-5.969E-02	8.558E-02	1.385E-01	0.000E+00	FAIL ABUN
HO-166M	1.040E-02	3.674E-02	6.455E-02	0.000E+00	NOT IDENT.
TM-171	-2.811E+01	2.560E+01	3.863E+01	0.000E+00	NOT IDENT.
LU-176	-3.775E-03	1.582E-02	2.680E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.222E+00	1.502E+00	0.000E+00	FAIL ABUN
LU-177M	7.946E-02	1.195E-01	1.892E-01	0.000E+00	NOT IDENT.
HF-181	-2.631E-02	2.619E-02	4.304E-02	0.000E+00	NOT IDENT.
W-181	-4.100E-01	3.402E-01	5.119E-01	0.000E+00	NOT IDENT.
TA-182	-9.883E-03	1.302E-01	2.199E-01	0.000E+00	FAIL ABUN
RE-183	5.817E-02	7.024E-02	1.301E-01	0.000E+00	FAIL ABUN
RE-184	-5.536E-02	1.402E-01	2.406E-01	0.000E+00	NOT IDENT.
OS-185	1.805E-02	2.468E-02	4.298E-02	0.000E+00	NOT IDENT.
RE-188	4.896E-02	1.043E-01	1.922E-01	0.000E+00	NOT IDENT.
W-188	-1.494E+00	5.224E+00	7.733E+00	0.000E+00	FAIL ABUN
IR-192	-9.331E-03	2.075E-02	3.468E-02	0.000E+00	FAIL ABUN
AU-195	1.404E-01	1.636E-01	2.816E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	4.754E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-4.494E+00	5.405E+00	9.534E+00	0.000E+00	NOT IDENT.
TL-202	1.939E-03	4.314E-02	7.540E-02	0.000E+00	NOT IDENT.
HG-203	1.792E-02	2.913E-02	4.534E-02	0.000E+00	NOT IDENT.
BI-207	1.047E-02	3.265E-02	5.719E-02	0.000E+00	FAIL ABUN
TL-207	-3.698E-02	4.479E-01	6.616E-01	0.000E+00	FAIL ABUN
PO-209	1.068E+00	4.390E+00	7.527E+00	0.000E+00	NOT IDENT.
BI-210	1.073E-01	3.732E+00	6.942E+00	0.000E+00	NOT IDENT.
PB-210	1.073E-01	3.732E+00	6.942E+00	0.000E+00	NOT IDENT.
PO-210	1.073E-01	3.732E+00	6.942E+00	0.000E+00	NOT IDENT.
PB-211	3.249E-01	6.634E-01	9.968E-01	0.000E+00	NOT IDENT.
BI-212	0.000E+00	2.931E-01	4.077E-01	0.000E+00	FAIL ABUN
PO-215	-3.698E-02	4.479E-01	6.616E-01	0.000E+00	FAIL ABUN
RN-219	2.300E-02	2.484E-01	4.276E-01	0.000E+00	FAIL ABUN
RN-220	-3.237E-01	1.557E+01	2.650E+01	0.000E+00	NOT IDENT.
RA-223	-3.698E-02	4.479E-01	6.616E-01	0.000E+00	FAIL ABUN
AC-227	-1.308E-01	2.376E-01	4.043E-01	0.000E+00	FAIL ABUN
TH-227	-1.308E-01	2.379E-01	4.043E-01	0.000E+00	FAIL ABUN
TH-229	-6.081E-02	3.078E-01	5.464E-01	0.000E+00	FAIL ABUN
PA-231	-7.419E-02	9.692E-01	1.607E+00	0.000E+00	FAIL ABUN
TH-231	-3.698E-02	4.479E-01	6.616E-01	0.000E+00	FAIL ABUN
U-231	4.932E-02	9.458E-01	1.493E+00	0.000E+00	FAIL ABUN
PA-233	-2.291E-03	3.973E-02	6.767E-02	0.000E+00	FAIL ABUN
PA-234	-1.155E-01	2.017E-01	3.258E-01	0.000E+00	FAIL ABUN
PA-234M	3.013E+00	3.054E+00	5.117E+00	0.000E+00	NOT IDENT.
U-235	5.728E-02	1.432E-01	2.417E-01	0.000E+00	FAIL ABUN
NP-236	-1.387E-02	5.037E-02	9.073E-02	0.000E+00	NOT IDENT.
NP-239	1.897E-02	1.313E-01	2.288E-01	0.000E+00	FAIL ABUN
AM-241	5.467E-03	1.375E-01	2.259E-01	0.000E+00	NOT IDENT.
CM-243	-2.693E-02	6.857E-02	1.187E-01	0.000E+00	FAIL ABUN
AM-246	1.008E-01	9.012E-02	1.634E-01	0.000E+00	NOT IDENT.
CM-247	1.368E-02	2.348E-02	3.875E-02	0.000E+00	FAIL ABUN
CF-249	2.156E-02	2.331E-02	4.261E-02	0.000E+00	NOT IDENT.
CF-251	1.356E-02	7.898E-02	1.429E-01	0.000E+00	NOT IDENT.

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*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229002.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:57:21
Sample ID          : G244229002      Sample quantity   : 1.40390E+02 GRAM
Detector name      : GAM18           Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00   Elapsed real time: 0 03:00:02.68  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials  : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 941239          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	3628	10.67*	1.893E+00	3.201E+01	3.201E+01	8.44
CD-109	88.03	287	3.72*	6.464E+00	2.131E+00	2.182E+00	31.86
SN-126	64.28	168	9.60	3.123E+00	9.968E-01	9.968E-01	62.34
	86.94	287	8.90	6.464E+00	8.905E-01	8.905E-01	51.49
	87.57	287	37.00*	6.464E+00	2.142E-01	2.142E-01	31.86
BA-137M	661.65	387	89.98*	3.587E+00	2.138E-01	2.140E-01	18.99
CS-137	661.65	387	85.12*	3.587E+00	2.260E-01	2.262E-01	19.00
TL-208	277.35	109	6.80	6.258E+00	4.546E-01	4.546E-01	66.84
	510.84	356	21.60	4.309E+00	6.819E-01	6.819E-01	32.96
	583.14	789	84.20*	3.935E+00	4.245E-01	4.245E-01	14.31
	860.37	110	12.46	2.915E+00	5.410E-01	5.410E-01	46.38
BI-211	72.87	-----	1.27	4.622E+00	-----	Line Not Found	-----
	351.07	1278	12.94*	5.451E+00	3.230E+00	3.230E+00	11.13
PB-212	74.81	542	10.70	4.943E+00	1.826E+00	1.826E+00	21.76
	77.11	934	18.00	5.263E+00	1.757E+00	1.757E+00	13.98
	87.30	287	8.00	6.464E+00	9.907E-01	9.907E-01	33.39
	238.63	2396	44.60*	6.792E+00	1.410E+00	1.410E+00	8.74
	300.09	115	3.41	5.986E+00	1.005E+00	1.005E+00	56.17
PO-212	74.81	542	10.70	4.943E+00	1.826E+00	1.826E+00	21.76
	77.11	934	18.00	5.263E+00	1.757E+00	1.757E+00	13.98
	87.30	287	8.00	6.464E+00	9.907E-01	9.907E-01	33.39
	115.19	-----	0.60	8.058E+00	-----	Line Not Found	-----
	238.63	2396	44.60*	6.792E+00	1.410E+00	1.410E+00	8.74
	300.09	115	3.41	5.986E+00	1.005E+00	1.005E+00	56.17
BI-214	609.31	940	46.30*	3.813E+00	9.496E-01	9.496E-01	12.81
	1120.29	197	15.10	2.334E+00	9.975E-01	9.975E-01	40.71
	1764.49	214	15.80	1.695E+00	1.422E+00	1.422E+00	20.43
PB-214	74.81	542	6.21	4.943E+00	3.146E+00	3.146E+00	21.00
	77.11	934	10.50	5.263E+00	3.012E+00	3.012E+00	15.92
	87.30	287	4.67	6.464E+00	1.697E+00	1.697E+00	32.78
	241.98	488	7.49	6.748E+00	1.721E+00	1.721E+00	27.14
	295.21	757	19.20	6.041E+00	1.164E+00	1.164E+00	16.31

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	1278	37.20*	5.451E+00	1.123E+00	1.124E+00	12.29
	74.81	542	6.21	4.943E+00	3.146E+00	3.146E+00	21.00
	77.11	934	10.50	5.263E+00	3.012E+00	3.012E+00	15.92
	87.30	287	4.67	6.464E+00	1.697E+00	1.697E+00	32.78
	241.98	488	7.49	6.748E+00	1.721E+00	1.721E+00	27.14
PO-216	295.21	757	19.20	6.041E+00	1.164E+00	1.164E+00	16.31
	351.92	1278	37.20*	5.451E+00	1.123E+00	1.124E+00	12.29
	74.81	542	10.70	4.943E+00	1.826E+00	1.826E+00	21.76
	77.11	934	18.00	5.263E+00	1.757E+00	1.757E+00	13.98
	87.30	287	8.00	6.464E+00	9.907E-01	9.907E-01	33.39
PO-218	238.63	2396	44.60*	6.792E+00	1.410E+00	1.410E+00	8.74
	300.09	115	3.41	5.986E+00	1.005E+00	1.005E+00	56.17
	74.81	542	6.21	4.943E+00	3.146E+00	3.146E+00	21.00
	77.11	934	10.50	5.263E+00	3.012E+00	3.012E+00	15.92
	87.30	287	4.67	6.464E+00	1.697E+00	1.697E+00	32.78
RA-224	241.98	488	7.49	6.748E+00	1.721E+00	1.721E+00	27.14
	295.21	757	19.20	6.041E+00	1.164E+00	1.164E+00	16.31
	351.92	1278	37.20*	5.451E+00	1.123E+00	1.124E+00	12.29
	240.98	488	3.95*	6.748E+00	3.263E+00	3.263E+00	26.55
	609.31	940	46.30*	3.813E+00	9.496E-01	9.496E-01	12.81
AC-228	1120.29	197	15.10	2.334E+00	9.975E-01	9.975E-01	40.71
	1764.49	214	15.80	1.695E+00	1.422E+00	1.422E+00	20.43
	338.32	527	11.40	5.580E+00	1.476E+00	1.476E+00	44.08
	911.07	591	27.70*	2.780E+00	1.367E+00	1.367E+00	20.60
	969.11	292	16.60	2.639E+00	1.190E+00	1.190E+00	37.44
RA-228	338.32	527	11.40	5.580E+00	1.476E+00	1.476E+00	44.08
	911.07	591	27.70*	2.780E+00	1.367E+00	1.367E+00	20.60
	969.11	292	16.60	2.639E+00	1.190E+00	1.190E+00	37.44
	74.81	542	10.70	4.943E+00	1.826E+00	1.855E+00	19.68
	77.11	934	18.00	5.263E+00	1.757E+00	1.785E+00	13.98
TH-228	87.30	287	8.00	6.464E+00	9.907E-01	1.007E+00	31.86
	238.63	2396	44.60*	6.792E+00	1.410E+00	1.433E+00	8.74
	300.09	115	3.41	5.986E+00	1.005E+00	1.021E+00	81.00
	609.31	940	46.30*	3.813E+00	9.496E-01	9.496E-01	12.81
	1120.29	197	15.10	2.334E+00	9.975E-01	9.975E-01	40.71
TH-232	1764.49	214	15.80	1.695E+00	1.422E+00	1.422E+00	20.43
	338.32	527	11.40	5.580E+00	1.476E+00	1.476E+00	17.75
	911.07	591	27.70*	2.780E+00	1.367E+00	1.367E+00	20.60
	969.11	292	16.60	2.639E+00	1.190E+00	1.190E+00	37.44
	63.29	168	3.80*	3.123E+00	2.518E+00	2.518E+00	63.09
TH-234	92.38	602	5.41	6.957E+00	2.852E+00	2.852E+00	25.56
	609.31	940	46.30*	3.813E+00	9.496E-01	9.496E-01	12.81
	1120.29	197	15.10	2.334E+00	9.975E-01	9.975E-01	40.71
U-234	1764.49	214	15.80	1.695E+00	1.422E+00	1.422E+00	20.43
	86.50	287	12.60*	6.464E+00	6.290E-01	6.290E-01	37.96
	95.87	-----	2.60	7.180E+00	-----	Line Not Found	-----
NP-237	63.29	168	3.80*	3.123E+00	2.518E+00	2.518E+00	63.09
	92.38	602	5.41	6.957E+00	2.852E+00	2.852E+00	20.02
	74.67	542	66.00*	4.943E+00	2.960E-01	2.960E-01	19.65
AM-243							



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	287	0.34	6.464E+00	2.359E+01	2.359E+01	31.86
	117.66	-----	0.55	8.112E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.232E+00	-----	Line Not Found	-----
ANH-511	511.00	356	100.00*	4.309E+00	1.473E-01	1.473E-01	31.89

Flag: "\*" = Keyline

Total number of lines in spectrum 33  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 32 96.97%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.201E+01	3.201E+01	0.270E+01	8.44	
CD-109	464.00D	1.02	2.131E+00	2.182E+00	0.695E+00	31.86	
SN-126	1.00E+05Y	1.00	2.142E-01	2.142E-01	0.682E-01	31.86	
BA-137M	30.17Y	1.00	2.138E-01	2.140E-01	0.406E-01	18.99	
CS-137	30.17Y	1.00	2.260E-01	2.262E-01	0.430E-01	19.00	
TL-208	1.41E+10Y	1.00	4.245E-01	4.245E-01	0.607E-01	14.31	
BI-211	7.04E+08Y	1.00	3.230E+00	3.230E+00	0.359E+00	11.13	
PB-212	1.41E+10Y	1.00	1.410E+00	1.410E+00	0.123E+00	8.74	
PO-212	1.41E+10Y	1.00	1.410E+00	1.410E+00	0.123E+00	8.74	
BI-214	1600.00Y	1.00	9.496E-01	9.496E-01	1.216E-01	12.81	
PB-214	1600.00Y	1.00	1.123E+00	1.124E+00	0.138E+00	12.29	
PO-214	1600.00Y	1.00	1.123E+00	1.124E+00	0.138E+00	12.29	
PO-216	1.41E+10Y	1.00	1.410E+00	1.410E+00	0.123E+00	8.74	
PO-218	1600.00Y	1.00	1.123E+00	1.124E+00	0.138E+00	12.29	
RA-224	1.41E+10Y	1.00	3.263E+00	3.263E+00	0.866E+00	26.55	
RA-226	1600.00Y	1.00	9.496E-01	9.496E-01	1.216E-01	12.81	
AC-228	1.41E+10Y	1.00	1.367E+00	1.367E+00	0.282E+00	20.60	
RA-228	1.41E+10Y	1.00	1.367E+00	1.367E+00	0.282E+00	20.60	
TH-228	1.91Y	1.02	1.410E+00	1.433E+00	0.125E+00	8.74	
TH-230	4.47E+09Y	1.00	9.496E-01	9.496E-01	1.216E-01	12.81	
TH-232	1.41E+10Y	1.00	1.367E+00	1.367E+00	0.282E+00	20.60	
TH-234	4.47E+09Y	1.00	2.518E+00	2.518E+00	1.589E+00	63.09	
U-234	4.47E+09Y	1.00	9.496E-01	9.496E-01	1.216E-01	12.81	
NP-237	2.14E+06Y	1.00	6.290E-01	6.290E-01	2.388E-01	37.96	
U-238	4.47E+09Y	1.00	2.518E+00	2.518E+00	1.589E+00	63.09	
AM-243	7380.00Y	1.00	2.960E-01	2.960E-01	0.582E-01	19.65	
ANH-511	1.00E+09Y	1.00	1.473E-01	1.473E-01	0.470E-01	31.89	
Total Activity :			6.473E+01	6.481E+01			

Grand Total Activity : 6.473E+01 6.481E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229002

Page : 5  
Acquisition date : 22-JAN-2010 12:57:21

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	90.15	246	664	1.04	179.40	169	23	2.28E-02	35.1	6.72E+00	T
0	129.04	120	694	1.02	257.17	253	9	1.11E-02	81.0	8.25E+00	T
0	185.98	535	622	1.36	371.00	366	10	4.95E-02	20.3	7.65E+00	T
0	209.16	215	678	1.17	417.34	412	11	1.99E-02	48.9	7.26E+00	T
0	270.41	259	341	1.45	539.81	535	10	2.40E-02	29.4	6.35E+00	T
0	328.03	147	347	1.20	655.01	650	11	1.36E-02	51.7	5.68E+00	T
0	409.16	135	235	2.03	817.21	812	10	1.25E-02	46.2	4.97E+00	
0	462.87	166	235	1.36	924.61	919	11	1.54E-02	39.1	4.60E+00	T
0	727.02	186	180	1.35	1452.75	1447	13	1.72E-02	34.1	3.34E+00	T
0	767.95	91	130	1.81	1534.60	1530	10	8.39E-03	51.6	3.20E+00	T
0	794.91	94	133	1.84	1588.52	1584	11	8.69E-03	51.8	3.11E+00	T

Flags: "T" = Tentatively associated

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229002.CNF;1
* Acquisition date   : 22-JAN-2010 12:57:21   Detector SN#      :
* Detector ID        : GAM18                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 03:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 03:00:02.68          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229002             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity : 1.40390E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23.2MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope     :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.201E+01	2.702E+00	2.987E-01	2.267E-02	107.169
CD-109	2.182E+00	6.953E-01	8.784E-01	8.121E-02	2.485
SN-126	2.142E-01	6.824E-02	8.677E-02	7.995E-03	2.469
BA-137M	2.140E-01	4.063E-02	3.557E-02	2.711E-03	6.016
CS-137	2.262E-01	4.297E-02	3.760E-02	2.873E-03	6.016
TL-208	4.245E-01	6.073E-02	3.442E-02	2.698E-03	12.334
BI-211	3.230E+00	3.595E-01	1.892E-01	1.214E-02	17.070
PB-212	1.410E+00	1.232E-01	5.475E-02	3.911E-03	25.756
PO-212	1.410E+00	1.232E-01	5.475E-02	3.911E-03	25.756
BI-214	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
PB-214	1.124E+00	1.381E-01	6.594E-02	5.455E-03	17.039
PO-214	1.124E+00	1.381E-01	6.594E-02	5.455E-03	17.039
PO-216	1.410E+00	1.232E-01	5.475E-02	3.911E-03	25.756
PO-218	1.124E+00	1.381E-01	6.594E-02	5.455E-03	17.039
RA-224	3.263E+00	8.663E-01	6.223E-01	3.466E-02	5.243
RA-226	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
AC-228	1.367E+00	2.817E-01	1.313E-01	1.740E-02	10.413
RA-228	1.367E+00	2.817E-01	1.313E-01	1.740E-02	10.413

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.433E+00	1.252E-01	5.563E-02	3.974E-03	25.756
TH-230	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
TH-232	1.367E+00	2.817E-01	1.313E-01	1.740E-02	10.413
TH-234	2.518E+00	1.589E+00	1.728E+00	3.046E-01	1.458
U-234	9.496E-01	1.216E-01	6.965E-02	6.222E-03	13.633
NP-237	6.290E-01	2.388E-01	2.588E-01	5.839E-02	2.431
U-238	2.518E+00	1.589E+00	1.728E+00	3.046E-01	1.458
AM-243	2.960E-01	5.816E-02	6.522E-02	5.443E-03	4.539
ANH-511	1.473E-01	4.697E-02	2.734E-02	1.805E-03	5.387

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.721E-01		1.999E-01	3.419E-01	2.477E-02	0.503
NA-22	-2.655E-02		2.753E-02	4.228E-02	2.877E-03	-0.628
NA-24	-2.278E+00		6.295E-01	Half-Life too short		
AL-26	-9.485E-03		1.861E-02	2.866E-02	1.673E-03	-0.331
TI-44	3.243E-01	+	4.534E-02	5.817E-02	4.974E-03	5.574
SC-46	-5.402E-03		2.415E-02	3.891E-02	4.340E-03	-0.139
V-48	-1.149E-02		4.431E-02	7.047E-02	6.970E-03	-0.163
CR-51	1.595E-03		2.312E-01	3.725E-01	2.398E-02	0.004
MN-52	1.618E-01		1.612E-01	2.835E-01	2.089E-02	0.571
MN-54	-3.603E-03		2.487E-02	4.059E-02	4.158E-03	-0.089
CO-56	-2.907E-03		2.507E-02	4.088E-02	4.268E-03	-0.071
CO-57	-7.883E-03		1.734E-02	2.739E-02	1.622E-03	-0.288
CO-58	-2.434E-02		2.363E-02	3.635E-02	3.588E-03	-0.670
FE-59	-4.910E-02		5.774E-02	9.118E-02	7.505E-03	-0.539
CO-60	-4.715E-03		2.365E-02	3.808E-02	2.877E-03	-0.124
ZN-65	5.864E-02		6.490E-02	9.867E-02	6.950E-03	0.594
GE-68	5.363E-01		8.017E-01	1.384E+00	1.099E-01	0.388
AS-73	2.422E-01		7.884E-01	1.338E+00	1.061E-01	0.181
AS-74	-7.219E-03		5.973E-02	9.604E-02	6.900E-03	-0.075
SE-75	-1.649E-02		2.972E-02	4.374E-02	2.502E-03	-0.377
BR-77	5.541E+00		7.873E+00	1.304E+01	8.699E-01	0.425
SR-82	-2.936E-01		2.429E-01	3.730E-01	3.474E-02	-0.787
RB-83	3.001E-02		3.993E-02	6.630E-02	4.422E-03	0.453
RB-84	-1.509E-02		4.326E-02	6.918E-02	7.625E-03	-0.218
KR-85	1.911E+01		5.013E+00	8.499E+00	5.630E-01	2.249
SR-85	9.896E-02		2.596E-02	4.401E-02	2.916E-03	2.249
RB-86	2.180E-01		5.268E-01	8.980E-01	7.149E-02	0.243
Y-88	8.415E-03		2.225E-02	3.792E-02	2.160E-03	0.222
ZR-88	-1.467E-02		1.869E-02	3.026E-02	1.740E-03	-0.485
Y-91	2.071E+00		1.224E+01	2.039E+01	1.205E+00	0.102
NB-94	1.338E-02		2.175E-02	3.725E-02	3.056E-03	0.359
NB-95	4.888E-02		2.997E-02	4.712E-02	4.311E-03	1.037
NB-95M	4.751E-02		8.725E-02	1.292E-01	9.482E-03	0.368
ZR-95	1.709E-02		4.392E-02	7.426E-02	7.306E-03	0.230

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	4.838E-02		8.893E-02	Half-Life too short		
ZR-97	6.985E+00		1.684E+00	Half-Life too short		
MO-99	3.871E+00		8.501E+00	1.444E+01	2.204E+00	0.268
TC-99M	-2.350E+11		1.878E+11	Half-Life too short		
RH-101	-6.449E-03		2.170E-02	3.506E-02	1.884E-03	-0.184
RH-102	-4.541E-03		1.812E-02	2.955E-02	1.877E-03	-0.154
RU-103	-2.487E-02		2.395E-02	3.685E-02	4.785E-03	-0.675
RH-106	4.289E-02		2.025E-01	3.299E-01	4.151E-02	0.130
RU-106	4.289E-02		2.024E-01	3.299E-01	2.428E-02	0.130
AG-108M	-9.279E-03		1.955E-02	3.178E-02	2.076E-03	-0.292
AG-110M	1.765E-03		2.504E-02	3.646E-02	2.876E-03	0.048
IN-111	5.352E-01		8.926E-01	1.326E+00	7.412E-02	0.404
IN-113M	5.226E-03		2.705E-02	4.569E-02	2.803E-03	0.114
SN-113	5.226E-03		2.705E-02	4.569E-02	2.803E-03	0.114
IN-114M	1.233E-01		1.281E-01	1.963E-01	1.048E-02	0.628
CD-115	-1.143E+00		8.753E+00	1.393E+01	9.362E-01	-0.082
SN-117M	1.768E-02		3.626E-02	6.226E-02	3.309E-03	0.284
SB-122	4.276E-01		1.598E+00	2.633E+00	1.834E-01	0.162
I-123	4.036E+00		6.024E+00	Half-Life too short		
TE-123M	6.068E-03		1.811E-02	3.097E-02	1.671E-03	0.196
I-124	-5.096E-01		6.055E-01	7.771E-01	5.619E-02	-0.656
SB-124	-7.789E-03		4.145E-02	6.688E-02	4.615E-03	-0.116
SB-125	6.815E-02		5.514E-02	9.635E-02	6.020E-03	0.707
TE-125M	2.998E-01		6.817E+00	1.103E+01	9.701E-01	0.027
I-126	2.669E-02		1.332E-01	1.955E-01	1.503E-02	0.137
SB-126	6.181E-02		9.728E-02	1.464E-01	1.239E-02	0.422
SB-127	1.817E-01		9.871E-01	1.666E+00	1.862E-01	0.109
XE-127	-1.666E-02		3.190E-02	5.051E-02	2.726E-03	-0.330
I-131	-2.863E-02		7.038E-02	1.165E-01	7.532E-03	-0.246
TE-132	2.147E-01		5.354E-01	8.951E-01	1.293E-01	0.240
BA-133	8.520E-03		3.000E-02	4.248E-02	4.907E-03	0.201
I-133	-6.484E-03		3.934E-03	Half-Life too short		
CS-134	7.101E-02	+	3.741E-02	5.508E-02	5.327E-03	1.289
CS-135	1.858E-01		1.100E-01	1.694E-01	1.281E-02	1.097
I-135	-2.602E+10		1.883E+10	Half-Life too short		
CS-136	3.092E-02		7.357E-02	1.257E-01	1.127E-02	0.246
CE-139	-3.368E-03		1.890E-02	3.176E-02	1.667E-03	-0.106
BA-140	-3.809E-02		1.667E-01	2.683E-01	8.775E-02	-0.142
LA-140	-1.257E-02		5.104E-02	8.278E-02	5.679E-03	-0.152
CE-141	1.167E-02		4.423E-02	6.926E-02	3.954E-03	0.168
CE-143	8.873E-04		1.337E-04	Half-Life too short		
CE-144	4.074E-02		1.556E-01	2.231E-01	3.155E-02	0.183
PM-144	1.543E-03		2.124E-02	3.560E-02	2.890E-03	0.043
PR-144	1.046E-01		1.440E+00	2.413E+00	1.959E-01	0.043
PM-146	1.581E-02		2.680E-02	4.547E-02	4.045E-03	0.348
ND-147	-6.176E-02		3.551E-01	5.750E-01	8.022E-02	-0.107
PM-149	-5.375E+01		7.911E+01	1.246E+02	1.762E+01	-0.432
EU-152	-1.265E-02		7.157E-02	9.681E-02	6.317E-03	-0.131

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-1.646E-02		6.199E-02	8.907E-02	6.964E-03	-0.185
EU-154	-6.121E-02		7.624E-02	1.182E-01	1.181E-02	-0.518
EU-155	5.001E-02		7.786E-02	1.285E-01	9.184E-03	0.389
TB-160	-5.969E-02		8.732E-02	1.365E-01	1.500E-02	-0.437
HO-166M	1.040E-02		3.749E-02	6.333E-02	5.279E-03	0.164
TM-171	-2.811E+01		2.612E+01	3.615E+01	2.891E+00	-0.777
LU-176	-3.775E-03		1.615E-02	2.585E-02	1.488E-03	-0.146
LU-177	2.534E+00	+	1.247E+00	1.438E+00	7.797E-02	1.763
LU-177M	7.946E-02		1.219E-01	1.836E-01	1.084E-02	0.433
HF-181	-2.631E-02		2.672E-02	4.189E-02	2.681E-03	-0.628
W-181	-4.100E-01		3.472E-01	4.789E-01	3.798E-02	-0.856
TA-182	-9.883E-03		1.328E-01	2.182E-01	1.335E-02	-0.045
RE-183	5.817E-02		7.167E-02	1.238E-01	6.536E-03	0.470
RE-184	-5.536E-02		1.430E-01	2.312E-01	1.298E-02	-0.239
OS-185	1.805E-02		2.518E-02	4.209E-02	3.165E-03	0.429
RE-188	4.896E-02		1.064E-01	1.829E-01	9.786E-03	0.268
W-188	-1.494E+00		5.330E+00	7.449E+00	4.266E-01	-0.201
IR-192	-9.331E-03		2.118E-02	3.346E-02	1.941E-03	-0.279
AU-195	1.404E-01		1.669E-01	2.656E-01	2.032E-02	0.529
TL-200	2.476E-04		2.425E-04	Half-Life	too short	
TL-201	-4.494E+00		5.515E+00	9.083E+00	4.768E-01	-0.495
TL-202	1.939E-03		4.402E-02	7.324E-02	4.465E-03	0.026
HG-203	1.792E-02		2.972E-02	4.364E-02	2.647E-03	0.411
BI-207	1.047E-02		3.332E-02	5.658E-02	4.671E-03	0.185
TL-207	-3.698E-02		4.571E-01	6.387E-01	1.054E-01	-0.058
PO-209	1.068E+00		4.480E+00	7.421E+00	8.370E-01	0.144
BI-210	1.073E-01		3.809E+00	6.453E+00	4.993E-01	0.017
PB-210	1.073E-01		3.809E+00	6.453E+00	4.993E-01	0.017
PO-210	1.073E-01		3.809E+00	6.453E+00	4.292E-01	0.017
PB-211	3.249E-01		6.769E-01	9.666E-01	6.026E-01	0.336
BI-212	8.410E-01	+	2.991E-01	4.001E-01	3.985E-02	2.102
PO-215	-3.698E-02		4.571E-01	6.387E-01	1.054E-01	-0.058
RN-219	2.300E-02		2.534E-01	4.146E-01	5.644E-02	0.055
RN-220	-3.237E-01		1.589E+01	2.586E+01	1.777E+00	-0.013
RA-223	-3.698E-02		4.571E-01	6.387E-01	1.054E-01	-0.058
AC-227	-1.308E-01		2.425E-01	3.884E-01	5.395E-02	-0.337
TH-227	-1.308E-01		2.428E-01	3.884E-01	6.542E-02	-0.337
TH-229	-6.081E-02		3.141E-01	5.221E-01	2.796E-02	-0.116
PA-231	-7.419E-02		9.890E-01	1.548E+00	2.127E-01	-0.048
TH-231	-3.698E-02		4.571E-01	6.387E-01	1.054E-01	-0.058
U-231	4.932E-02		9.651E-01	1.407E+00	1.127E-01	0.035
PA-233	-2.291E-03		4.054E-02	6.528E-02	3.999E-03	-0.035
PA-234	-1.155E-01		2.058E-01	3.215E-01	6.343E-02	-0.359
PA-234M	3.013E+00		3.117E+00	5.056E+00	5.454E-01	0.596
U-235	5.728E-02		1.461E-01	2.295E-01	3.718E-02	0.250
NP-236	-1.387E-02		5.140E-02	8.637E-02	4.576E-03	-0.161
NP-239	1.897E-02		1.339E-01	2.165E-01	1.340E-02	0.088
AM-241	5.467E-03		1.403E-01	2.110E-01	1.750E-02	0.026

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-2.693E-02		6.997E-02	1.121E-01	8.022E-03	-0.240
AM-246	1.008E-01		9.196E-02	1.618E-01	1.279E-02	0.623
CM-247	1.368E-02		2.396E-02	3.757E-02	2.188E-03	0.364
CF-249	2.156E-02		2.378E-02	4.128E-02	2.373E-03	0.522
CF-251	1.356E-02		8.060E-02	1.363E-01	7.196E-03	0.100



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229002          *
* Acquisition date   : 22-JAN-2010 12:57:21 Detector SN# :                *
* Detector ID        : GAM18 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 03:00:02.68 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229002 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.4039E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME  : 23-APR-2009 11:59:23 MS Isotope :                  *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.201E+01	2.648E+00	1.500E-01	1.351E+00
CD-109	2.182E+00	6.814E-01	4.671E-01	3.476E-01
SN-126	2.142E-01	6.688E-02	4.614E-02	3.412E-02
BA-137M	2.140E-01	3.982E-02	1.816E-02	2.032E-02
CS-137	2.262E-01	4.211E-02	1.920E-02	2.148E-02
TL-208	4.245E-01	5.952E-02	1.762E-02	3.037E-02
BI-211	3.230E+00	3.523E-01	9.790E-02	1.797E-01
PB-212	1.410E+00	1.207E-01	2.855E-02	6.160E-02
PO-212	1.410E+00	1.207E-01	2.855E-02	6.160E-02
BI-214	9.496E-01	1.192E-01	3.564E-02	6.081E-02
PB-214	1.124E+00	1.353E-01	3.411E-02	6.905E-02
PO-214	1.124E+00	1.353E-01	3.411E-02	6.905E-02
PO-216	1.410E+00	1.207E-01	2.855E-02	6.160E-02
PO-218	1.124E+00	1.353E-01	3.411E-02	6.905E-02
RA-224	3.263E+00	8.489E-01	3.244E-01	4.331E-01
RA-226	9.496E-01	1.192E-01	3.564E-02	6.081E-02
AC-228	1.367E+00	2.761E-01	6.661E-02	1.409E-01
RA-228	1.367E+00	2.761E-01	6.661E-02	1.409E-01
TH-228	1.433E+00	1.227E-01	2.901E-02	6.260E-02
TH-230	9.496E-01	1.192E-01	3.563E-02	6.081E-02
TH-232	1.367E+00	2.761E-01	6.661E-02	1.409E-01
TH-234	2.518E+00	1.557E+00	9.244E-01	7.944E-01
U-234	9.496E-01	1.192E-01	3.563E-02	6.081E-02
NP-237	6.290E-01	2.340E-01	1.376E-01	1.194E-01
U-238	2.518E+00	1.557E+00	9.244E-01	7.944E-01
AM-243	2.960E-01	5.700E-02	3.479E-02	2.908E-02
ANH-511	1.473E-01	4.604E-02	1.404E-02	2.349E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	1.721E-01	1.959E-01	1.758E-01	9.993E-02	NOT IDENT.
NA-22	-2.655E-02	2.698E-02	2.130E-02	1.377E-02	NOT IDENT.
NA-24	-2.278E+06	1.234E+06	0.000E+00	6.295E+05	SHORT HLIF
AL-26	-9.485E-03	1.823E-02	1.433E-02	9.303E-03	NOT IDENT.
TI-44	3.243E-01	4.444E-02	3.100E-02	2.267E-02	FAIL ABUN
SC-46	-5.402E-03	2.367E-02	1.975E-02	1.207E-02	FAIL ABUN
V-48	-1.149E-02	4.342E-02	3.569E-02	2.215E-02	NOT IDENT.
CR-51	1.595E-03	2.266E-01	1.931E-01	1.156E-01	NOT IDENT.
MN-52	1.618E-01	1.580E-01	1.424E-01	8.060E-02	NOT IDENT.
MN-54	-3.603E-03	2.438E-02	2.063E-02	1.244E-02	NOT IDENT.
CO-56	-2.907E-03	2.457E-02	2.077E-02	1.253E-02	NOT IDENT.
CO-57	-7.883E-03	1.700E-02	1.447E-02	8.672E-03	NOT IDENT.
CO-58	-2.434E-02	2.315E-02	1.848E-02	1.181E-02	NOT IDENT.
FE-59	-4.910E-02	5.658E-02	4.607E-02	2.887E-02	NOT IDENT.
CO-60	-4.715E-03	2.318E-02	1.916E-02	1.183E-02	NOT IDENT.
ZN-65	5.864E-02	6.361E-02	4.984E-02	3.245E-02	NOT IDENT.
GE-68	5.363E-01	7.857E-01	6.996E-01	4.009E-01	NOT IDENT.
AS-73	2.422E-01	7.727E-01	7.182E-01	3.942E-01	NOT IDENT.
AS-74	-7.219E-03	5.853E-02	4.916E-02	2.986E-02	NOT IDENT.
SE-75	-1.649E-02	2.912E-02	2.276E-02	1.486E-02	NOT IDENT.
BR-77	5.541E+00	7.715E+00	6.693E+00	3.936E+00	FAIL ABUN
SR-82	-2.936E-01	2.381E-01	1.899E-01	1.215E-01	NOT IDENT.
RB-83	3.001E-02	3.914E-02	3.403E-02	1.997E-02	NOT IDENT.
RB-84	-1.509E-02	4.239E-02	3.512E-02	2.163E-02	NOT IDENT.
KR-85	1.911E+01	4.913E+00	4.363E+00	2.506E+00	NOT IDENT.
SR-85	9.896E-02	2.544E-02	2.259E-02	1.298E-02	NOT IDENT.
RB-86	2.180E-01	5.162E-01	4.540E-01	2.634E-01	NOT IDENT.
Y-88	8.415E-03	2.181E-02	1.895E-02	1.113E-02	NOT IDENT.
ZR-88	-1.467E-02	1.831E-02	1.562E-02	9.344E-03	NOT IDENT.
Y-91	2.071E+00	1.200E+01	1.028E+01	6.121E+00	NOT IDENT.
NB-94	1.338E-02	2.132E-02	1.900E-02	1.088E-02	NOT IDENT.
NB-95	4.888E-02	2.937E-02	2.399E-02	1.498E-02	NOT IDENT.
NB-95M	4.751E-02	8.550E-02	6.741E-02	4.362E-02	NOT IDENT.
ZR-95	1.709E-02	4.304E-02	3.782E-02	2.196E-02	NOT IDENT.
NB-97	4.838E+04	1.743E+05	0.000E+00	8.893E+04	SHORT HLIF
ZR-97	6.985E+06	3.300E+06	0.000E+00	1.684E+06	SHORT HLIF
MO-99	3.871E+00	8.331E+00	7.359E+00	4.250E+00	NOT IDENT.
TC-99M	-2.350E+17	3.682E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-6.449E-03	2.127E-02	1.835E-02	1.085E-02	NOT IDENT.
RH-102	-4.541E-03	1.775E-02	1.519E-02	9.058E-03	FAIL ABUN
RU-103	-2.487E-02	2.347E-02	1.893E-02	1.197E-02	FAIL ABUN
RH-106	4.289E-02	1.984E-01	1.687E-01	1.012E-01	FAIL ABUN
RU-106	4.289E-02	1.984E-01	1.687E-01	1.012E-01	FAIL ABUN
AG-108M	-9.279E-03	1.916E-02	1.637E-02	9.773E-03	NOT IDENT.
AG-110M	1.765E-03	2.454E-02	1.862E-02	1.252E-02	NOT IDENT.
IN-111	5.352E-01	8.747E-01	6.912E-01	4.463E-01	NOT IDENT.
IN-113M	5.226E-03	2.651E-02	2.359E-02	1.353E-02	NOT IDENT.
SN-113	5.226E-03	2.651E-02	2.359E-02	1.353E-02	NOT IDENT.
IN-114M	1.233E-01	1.255E-01	1.028E-01	6.403E-02	NOT IDENT.
CD-115	-1.143E+00	8.578E+00	7.147E+00	4.376E+00	NOT IDENT.
SN-117M	1.768E-02	3.553E-02	3.273E-02	1.813E-02	NOT IDENT.
SB-122	4.276E-01	1.566E+00	1.349E+00	7.988E-01	NOT IDENT.
I-123	4.036E+06	1.181E+07	0.000E+00	6.024E+06	SHORT HLIF
TE-123M	6.068E-03	1.775E-02	1.628E-02	9.057E-03	NOT IDENT.
I-124	-5.096E-01	5.934E-01	3.977E-01	3.027E-01	NOT IDENT.
SB-124	-7.789E-03	4.062E-02	3.349E-02	2.072E-02	FAIL ABUN
SB-125	6.815E-02	5.404E-02	4.965E-02	2.757E-02	FAIL ABUN
TE-125M	2.998E-01	6.681E+00	5.841E+00	3.408E+00	NOT IDENT.
I-126	2.669E-02	1.306E-01	9.981E-02	6.662E-02	NOT IDENT.
SB-126	6.181E-02	9.534E-02	7.464E-02	4.864E-02	FAIL ABUN
SB-127	1.817E-01	9.673E-01	8.501E-01	4.935E-01	NOT IDENT.
XE-127	-1.666E-02	3.126E-02	2.642E-02	1.595E-02	NOT IDENT.
I-131	-2.863E-02	6.898E-02	6.024E-02	3.519E-02	NOT IDENT.
TE-132	2.147E-01	5.247E-01	4.672E-01	2.677E-01	NOT IDENT.
BA-133	8.520E-03	2.940E-02	2.197E-02	1.500E-02	FAIL ABUN
I-133	-6.484E+03	7.711E+03	0.000E+00	3.934E+03	SHORT HLIF
CS-134	7.101E-02	3.666E-02	2.802E-02	1.870E-02	FAIL ABUN
CS-135	1.858E-01	1.078E-01	8.813E-02	5.499E-02	NOT IDENT.
I-135	-2.602E+16	3.690E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.092E-02	7.210E-02	6.358E-02	3.679E-02	FAIL ABUN
CE-139	-3.368E-03	1.852E-02	1.668E-02	9.449E-03	NOT IDENT.
BA-140	-3.809E-02	1.634E-01	1.376E-01	8.334E-02	NOT IDENT.
LA-140	-1.257E-02	5.002E-02	4.149E-02	2.552E-02	FAIL ABUN
CE-141	1.167E-02	4.335E-02	3.647E-02	2.211E-02	NOT IDENT.
CE-143	8.873E+02	2.621E+02	0.000E+00	1.337E+02	SHORT HLIF
CE-144	4.074E-02	1.525E-01	1.177E-01	7.780E-02	NOT IDENT.
PM-144	1.543E-03	2.081E-02	1.816E-02	1.062E-02	NOT IDENT.
PR-144	1.046E-01	1.411E+00	1.231E+00	7.199E-01	NOT IDENT.

PM-146	1.581E-02	2.626E-02	2.340E-02	1.340E-02	NOT IDENT.
ND-147	-6.176E-02	3.480E-01	2.950E-01	1.775E-01	FAIL ABUN
PM-149	-5.375E+01	7.753E+01	6.471E+01	3.956E+01	NOT IDENT.
EU-152	-1.265E-02	7.013E-02	5.011E-02	3.578E-02	NOT IDENT.
GD-153	-1.646E-02	6.075E-02	4.727E-02	3.100E-02	NOT IDENT.
EU-154	-6.121E-02	7.471E-02	5.956E-02	3.812E-02	NOT IDENT.
EU-155	5.001E-02	7.631E-02	6.806E-02	3.893E-02	FAIL ABUN
TB-160	-5.969E-02	8.558E-02	6.930E-02	4.366E-02	FAIL ABUN
HO-166M	1.040E-02	3.674E-02	3.230E-02	1.874E-02	NOT IDENT.
TM-171	-2.811E+01	2.560E+01	1.933E+01	1.306E+01	NOT IDENT.
LU-176	-3.775E-03	1.582E-02	1.341E-02	8.073E-03	FAIL ABUN
LU-177	2.534E+00	1.222E+00	7.516E-01	6.236E-01	FAIL ABUN
LU-177M	7.946E-02	1.195E-01	9.466E-02	6.095E-02	NOT IDENT.
HF-181	-2.631E-02	2.619E-02	2.153E-02	1.336E-02	NOT IDENT.
W-181	-4.100E-01	3.402E-01	2.561E-01	1.736E-01	NOT IDENT.
TA-182	-9.883E-03	1.302E-01	1.100E-01	6.642E-02	FAIL ABUN
RE-183	5.817E-02	7.024E-02	6.506E-02	3.584E-02	FAIL ABUN
RE-184	-5.536E-02	1.402E-01	1.204E-01	7.151E-02	NOT IDENT.
OS-185	1.805E-02	2.468E-02	2.150E-02	1.259E-02	NOT IDENT.
RE-188	4.896E-02	1.043E-01	9.617E-02	5.322E-02	NOT IDENT.
W-188	-1.494E+00	5.224E+00	3.869E+00	2.665E+00	FAIL ABUN
IR-192	-9.331E-03	2.075E-02	1.735E-02	1.059E-02	FAIL ABUN
AU-195	1.404E-01	1.636E-01	1.409E-01	8.345E-02	FAIL ABUN
TL-200	2.476E+02	4.754E+02	0.000E+00	2.425E+02	SHORT HLIF
TL-201	-4.494E+00	5.405E+00	4.770E+00	2.757E+00	NOT IDENT.
TL-202	1.939E-03	4.314E-02	3.772E-02	2.201E-02	NOT IDENT.
HG-203	1.792E-02	2.913E-02	2.269E-02	1.486E-02	NOT IDENT.
BI-207	1.047E-02	3.265E-02	2.861E-02	1.666E-02	FAIL ABUN
TL-207	-3.698E-02	4.479E-01	3.310E-01	2.285E-01	FAIL ABUN
PO-209	1.068E+00	4.390E+00	3.766E+00	2.240E+00	NOT IDENT.
BI-210	1.073E-01	3.732E+00	3.473E+00	1.904E+00	NOT IDENT.
PB-210	1.073E-01	3.732E+00	3.473E+00	1.904E+00	NOT IDENT.
PO-210	1.073E-01	3.732E+00	3.473E+00	1.904E+00	NOT IDENT.
PB-211	3.249E-01	6.634E-01	4.987E-01	3.385E-01	NOT IDENT.
BI-212	8.410E-01	2.931E-01	2.039E-01	1.495E-01	FAIL ABUN
PO-215	-3.698E-02	4.479E-01	3.310E-01	2.285E-01	FAIL ABUN
RN-219	2.300E-02	2.484E-01	2.139E-01	1.267E-01	FAIL ABUN
RN-220	-3.237E-01	1.557E+01	1.326E+01	7.944E+00	NOT IDENT.
RA-223	-3.698E-02	4.479E-01	3.310E-01	2.285E-01	FAIL ABUN
AC-227	-1.308E-01	2.376E-01	2.022E-01	1.212E-01	FAIL ABUN
TH-227	-1.308E-01	2.379E-01	2.022E-01	1.214E-01	FAIL ABUN
TH-229	-6.081E-02	3.078E-01	2.734E-01	1.571E-01	FAIL ABUN
PA-231	-7.419E-02	9.692E-01	8.041E-01	4.945E-01	FAIL ABUN
TH-231	-3.698E-02	4.479E-01	3.310E-01	2.285E-01	FAIL ABUN
U-231	4.932E-02	9.458E-01	7.469E-01	4.826E-01	FAIL ABUN
PA-233	-2.291E-03	3.973E-02	3.386E-02	2.027E-02	FAIL ABUN
PA-234	-1.155E-01	2.017E-01	1.630E-01	1.029E-01	FAIL ABUN
PA-234M	3.013E+00	3.054E+00	2.560E+00	1.558E+00	NOT IDENT.
U-235	5.728E-02	1.432E-01	1.209E-01	7.304E-02	FAIL ABUN
NP-236	-1.387E-02	5.037E-02	4.539E-02	2.570E-02	NOT IDENT.
NP-239	1.897E-02	1.313E-01	1.145E-01	6.697E-02	FAIL ABUN
AM-241	5.467E-03	1.375E-01	1.130E-01	7.015E-02	NOT IDENT.
CM-243	-2.693E-02	6.857E-02	5.940E-02	3.499E-02	FAIL ABUN
AM-246	1.008E-01	9.012E-02	8.177E-02	4.598E-02	NOT IDENT.
CM-247	1.368E-02	2.348E-02	1.938E-02	1.198E-02	FAIL ABUN
CF-249	2.156E-02	2.331E-02	2.132E-02	1.189E-02	NOT IDENT.
CF-251	1.356E-02	7.898E-02	7.148E-02	4.030E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON , SC 29417 *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
--------	------------

46.50	454.5397
46.50	454.5397
46.50	454.5397
48.70	439.8942
49.72	456.0652
51.35	480.6909
52.39	472.6518
52.97	462.7919
53.15	467.6582
53.44	464.5312
54.07	467.4636
56.28	496.1587
56.28	496.1642
57.37	0.0000
57.53	516.9132
57.53	516.9161
57.60	515.1927
57.98	518.6754
57.98	518.6754
59.32	502.5366
59.32	502.5366
59.40	502.6781
59.54	502.9253
59.72	525.6088
60.01	500.9547
61.10	504.2590
61.14	504.3288
61.30	504.6068
63.00	547.1241
63.29	595.3015
63.29	595.3015
63.58	595.8808
64.28	620.4675
65.12	646.3998
65.20	646.5704
65.20	646.5704
66.05	634.0936
66.72	639.7661
66.83	658.6108
66.91	658.7793
67.20	627.8606
67.20	627.8606
67.75	646.2021
67.85	636.3562
68.90	631.2791
68.90	631.2791
69.30	658.0536
69.67	675.2003
70.82	655.3883
70.82	655.3883
70.83	655.4090
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72.87	682.8761
72.87	682.8761
74.67	644.5334
74.81	644.8033
74.81	644.8033
74.81	644.8033
74.81	644.8033
74.81	644.8033
74.81	644.8033
74.81	644.8033
74.97	645.1100
75.28	645.7066
75.70	646.5110
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77.11	649.1925

77.11	649.1925
77.11	649.1925
77.11	649.1925
77.11	649.1925
77.11	649.1925
78.38	609.5670
79.62	631.0895
79.80	623.9670
79.80	623.9670
80.11	624.5169
80.18	624.6415
80.30	645.7307
80.30	645.7307
80.57	646.2262
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81.07	665.0725
81.07	665.0725
81.07	665.0725
81.07	665.0725
82.60	657.4144
83.37	655.8029
83.78	659.5630
83.78	659.5630
83.78	659.5630
83.78	659.5630
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84.90	670.6476
85.43	692.7900
86.29	626.6791
86.50	627.0323
86.54	627.0985
86.59	627.1837
86.72	627.4012
86.79	627.5148
86.94	627.7702
87.30	628.3757
87.30	628.3757
87.30	628.3757
87.30	628.3757
87.30	628.3757
87.30	628.3757
87.30	628.3757
87.57	628.8266
87.88	629.3438
88.03	629.5961
88.36	630.1448
88.47	630.3277
89.95	632.7811
91.11	634.6890
92.29	636.6189
92.38	636.7671
92.38	636.7671
93.35	638.3407
94.00	639.3939
94.67	520.6344
94.67	520.6421
94.90	520.9420
94.90	520.9420
94.90	520.9420
94.90	520.9420
95.87	568.8314
95.87	568.8314
96.73	566.9366
97.43	567.9113
98.44	536.4714
98.44	536.4714
98.88	528.5921
99.55	509.1692
99.55	509.1692
99.86	525.2452
100.00	525.4240
100.10	525.5542
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103.76	591.3969
105.00	512.6179
105.31	561.7448
108.00	615.3516
109.28	596.8200

111.00	574.4349
111.00	574.4349
111.76	600.1435
112.95	593.0974
115.19	536.4086
116.30	526.8364
117.00	541.7721
117.00	541.7721
117.66	555.6128
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121.62	518.5283
121.78	518.7011
122.06	522.3024
122.32	522.5826
122.32	522.5826
122.32	522.5826
122.32	522.5826
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133.54	513.1021
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140.51	0.0000
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142.65	556.3757
143.76	525.3927
144.24	505.1872
144.24	505.1872
144.24	505.1872
144.24	505.1872
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145.44	517.8040
147.16	548.2717
152.43	539.4554
152.70	498.9110
153.22	504.9102
154.21	491.7567
154.21	491.7567
154.21	491.7567
154.21	491.7567
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162.64	498.8702
163.35	503.0221
163.89	521.2968
165.85	522.9883
167.43	546.7531
171.28	510.4847
171.86	495.6129
172.10	488.5766
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176.60	504.8022
181.06	515.8184
184.41	524.3525
185.71	517.4501
186.00	517.6769
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193.63	484.3649
197.04	502.7045
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198.60	493.4893
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201.83	554.3073
202.84	540.3704
205.31	507.1035

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208.81	495.8353
209.75	496.4740
209.75	496.4740
210.97	439.1570
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216.55	459.6264
218.09	427.7435
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223.80	469.8777
226.40	460.7250
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227.08	434.7502
227.20	446.5436
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228.18	438.2998
228.18	438.2998
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236.00	464.7870
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238.63	400.4862
238.63	400.4862
238.63	400.4862
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241.98	402.1383
241.98	402.1383
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249.79	365.7551
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252.85	372.1277
252.85	372.1277
254.15	0.0000
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256.20	402.9571
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260.90	372.5844
262.80	372.3795
264.65	373.5056
268.24	328.4912
268.79	318.8354
269.46	343.7427
269.46	343.7427
269.46	343.7427
269.46	343.7427
271.23	362.5542
273.65	380.0559
276.40	362.5664
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277.60	345.4082
277.60	345.4082
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278.60	363.8576
279.20	360.7678
279.53	360.8950
280.46	322.9749
281.68	323.4012
283.67	344.8607
284.30	358.3768
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286.10	376.8640
286.10	376.8640
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290.80	363.6035
291.72	394.2866
293.26	0.0000
293.70	349.5146
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295.21	334.8501

295.21	334.8501
295.96	335.1111
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297.23	249.9686
298.57	250.3179
299.80	363.6328
299.80	363.6328
300.09	362.0428
300.09	362.0428
300.09	362.0428
300.09	362.0428
300.12	362.0532
301.29	345.4667
302.84	356.2440
303.76	342.9317
303.91	342.9808
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304.40	353.3959
304.84	351.8496
306.84	351.9170
308.46	327.8518
311.98	319.3330
316.51	300.2490
318.01	297.4495
319.02	297.7432
319.41	300.0228
320.08	289.3790
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323.87	297.6302
323.87	297.6302
323.87	297.6302
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334.20	284.1718
334.30	284.1994
338.28	310.9935
338.28	310.9935
338.28	310.9935
338.28	310.9935
338.32	311.0064
338.32	311.0064
338.32	311.0064
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340.57	307.6818
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345.85	291.4123
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351.92	260.1980
351.92	260.1980
355.39	0.0000
356.01	260.0336
364.48	248.4433
366.43	264.2543
367.43	260.8629
367.94	0.0000
369.80	261.4008
374.96	273.5083
383.85	253.5346
387.95	244.2678
388.63	250.8629
391.69	266.2945
391.69	266.2945
392.90	286.9241
398.62	270.6066
400.65	277.5707
401.10	273.9490
401.81	263.1243
402.60	245.2253
404.84	260.1357
410.95	292.7163
411.60	285.0378
413.65	246.2835
414.70	255.6836
415.30	261.5282



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423.70	265.6240
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427.89	212.2365
432.53	239.7338
433.93	244.7719
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439.56	236.2135
439.89	240.1154
443.98	216.7657
444.90	228.4828
445.03	234.2909
445.03	234.2909
445.03	234.2909
453.90	228.0665
463.38	242.6707
468.07	235.3184
473.00	237.1285
475.06	240.4288
475.35	242.4505
476.78	227.8954
477.59	210.2569
477.96	212.2863
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487.03	190.7789
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492.35	201.4501
497.08	212.1061
507.63	0.0000
510.53	0.0000
510.84	201.9580
511.00	201.9788
511.85	202.0935
511.85	202.0935
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513.99	163.5888
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520.65	160.3548
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529.87	0.0000
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543.00	193.8291
546.56	0.0000
549.76	198.7969
552.65	203.3022
555.20	178.6894
563.23	175.3992
563.90	198.4470
568.70	187.5086
569.32	198.0578
569.50	200.1723
569.67	200.1956
573.80	214.0917
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574.64	190.7348
578.91	200.2561
579.30	0.0000
583.14	189.1387
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591.81	191.1709
592.07	194.3884
593.00	194.4911
595.88	210.7907
600.56	209.9378
602.52	0.0000
602.71	252.9548
602.71	252.9548
603.60	237.0415
604.41	235.3721
604.70	214.0088
609.31	219.9396

609.31	219.9396
609.31	219.9396
609.31	219.9396
610.33	209.3346
612.46	207.7956
614.37	199.0557
618.01	201.6231
621.84	193.4126
621.84	193.4126
631.29	182.4908
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633.10	200.0686
634.78	198.0805
635.90	196.0225
636.97	171.0786
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646.12	147.8441
656.30	198.2109
657.75	201.5134
657.90	0.0000
661.65	191.4199
661.65	191.4199
664.57	0.0000
666.33	194.5298
666.33	194.5298
675.00	204.8225
677.61	177.2594
685.20	183.5532
692.80	175.8522
695.00	181.6698
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696.49	201.4881
697.00	209.9772
697.49	221.2836
698.33	223.2509
698.50	223.2703
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717.42	173.3198
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722.78	166.0488
722.89	166.0559
722.95	166.0595
723.30	170.9766
724.18	161.2755
727.18	156.0756
733.00	165.2487
735.90	149.0969
739.58	145.5337
742.81	169.7366
744.21	164.0907
747.13	163.3628
751.79	173.3569
752.31	165.6942
753.82	160.0290
755.35	165.9356
756.15	166.9637
756.87	176.6744
763.93	161.0757
765.79	159.5558
766.42	179.5530
766.84	184.5754
776.49	196.8259
778.00	178.4354
778.57	184.3358
778.89	176.5590
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785.46	168.2907
792.07	183.3825

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798.80	158.6316
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805.60	118.4937
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836.80	0.0000
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848.13	152.9308
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867.82	148.5386
871.10	146.3057
873.19	145.4177
874.81	143.4814
875.33	0.0000
876.40	134.4116
879.36	155.9883
880.27	144.8283
880.51	147.9028
881.50	143.8830
883.24	137.8592
884.67	122.6147
889.25	143.3240
896.60	132.4617
898.02	154.1168
899.00	157.2614
903.28	135.9128
911.07	148.7402
911.07	148.7402
911.07	148.7402
919.63	120.8238
920.93	127.5544
925.00	119.4524
925.24	118.4253
926.50	129.9184
935.52	137.6853
937.48	154.4949
944.10	174.7840
946.00	178.0552
949.00	143.6616
962.29	168.0435
964.01	173.5815
966.15	184.5833
968.20	298.8208
969.11	210.3079
969.11	210.3079
969.11	210.3079
977.42	110.8646
980.50	127.3706
983.50	129.6399
989.30	134.1852
996.32	186.8596
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1037.82	143.1128
1038.57	139.4322
1038.76	0.0000
1045.16	152.8120
1046.59	165.0115
1048.07	148.3083

1050.47	135.3660
1050.47	135.3660
1062.04	137.7971
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1077.35	139.4830
1078.86	132.9596
1085.78	172.0342
1099.22	160.4887
1112.02	116.8390
1112.84	110.1947
1115.52	145.3894
1120.29	152.0792
1120.29	152.0792
1120.29	152.0792
1120.29	152.0792
1120.51	152.0903
1121.28	142.3221
1124.00	0.0000
1129.67	151.4277
1131.51	0.0000
1147.95	0.0000
1167.94	164.2198
1173.22	167.4229
1175.09	156.8110
1177.93	158.9068
1189.05	165.3456
1204.90	173.0658
1205.75	0.0000
1213.00	173.5139
1221.42	200.6565
1230.97	263.7178
1235.34	207.4911
1236.41	0.0000
1238.25	181.8384
1246.25	170.3380
1260.41	0.0000
1271.85	128.5045
1274.45	137.6451
1274.54	142.6736
1291.56	131.2831
1298.22	0.0000
1312.09	94.4921
1325.50	112.2021
1325.50	112.2021
1332.49	90.9680
1333.61	92.0183
1360.21	57.6953
1362.66	0.0000
1365.15	62.9360
1368.21	91.9023
1368.53	0.0000
1376.25	61.0639
1384.27	97.5080
1394.10	76.9732
1395.20	75.9560
1407.95	74.1350
1434.06	55.7376
1436.60	71.5622
1457.56	0.0000
1460.81	52.9628
1489.15	66.1691
1509.49	46.9406
1596.49	55.6636
1620.62	40.5478
1678.03	0.0000
1691.02	35.3452
1691.02	35.3452
1706.46	0.0000
1750.46	0.0000
1764.49	21.3021
1764.49	21.3021
1764.49	21.3021
1764.49	21.3021
1770.23	35.5490
1771.40	35.5588
1791.20	0.0000
1808.65	42.3538

1836.01

39.5653

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229002

Total Uranium Activity	7.5185E+00	ug/g
Total Uranium Counting Unc.	4.6324E+00	ug/g
Total Uranium Tpu	2.3635E-06	ug/g
Total Uranium Mda	2.7507E+00	ug/g

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*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
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*
*  BATCH ID      : 941239          SAMPLE ID   : G244229002
*  ANALYST       : MXR1            DETECTOR    : GAM18
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 03:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 12:57:21.03  SAMPLE ALQT: 140.390 GRAM
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.748E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 9.469E-01
GROSS GAMMA MDA     (pCi/GRAM ) : 1.528E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 7.451E-01

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 15:59:22.66

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229003.CNF;1
Sample date       : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:57:46
Sample ID        : G244229003      Sample quantity   : 1.20650E+02 GRAM
Detector name    : GAM21           Detector geometry: CAN
Elapsed live time: 0 03:00:00.00   Elapsed real time: 0 03:00:38.23 0.4%
Energy tolerance : 1.50000 keV     Analyst Initials : MXR1
Abundance limit  : 75.00000        Sensitivity      : 5.00000
Batch ID        : 941239           Detector SN#     :
Matrix Spike ID  :                  LCS ID           : 1032-A
*****
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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.59*	222	602	0.67	93.15	89	8	2.06E-02	20.4	
2	0	63.27*	314	1051	0.85	126.51	122	10	2.90E-02	20.3	
3	2	73.16	107	547	0.82	146.28	144	14	9.95E-03	34.4	1.57E+01
4	2	74.90*	1095	529	0.82	149.75	144	14	1.01E-01	4.4	
5	2	77.10*	1825	488	0.78	154.14	144	14	1.69E-01	3.0	
6	3	84.07*	241	475	0.92	168.09	165	19	2.23E-02	15.4	7.14E+00
7	3	87.20	609	599	0.94	174.35	165	19	5.64E-02	7.5	
8	3	89.94	345	515	0.87	179.82	165	19	3.19E-02	10.9	
9	0	93.18*	759	670	1.59	186.29	183	10	7.03E-02	7.4	
10	0	99.02	170	473	0.62	197.97	194	8	1.57E-02	23.5	
11	0	105.32	202	584	1.65	210.56	206	10	1.87E-02	23.4	
12	0	128.87	159	340	0.83	257.65	255	6	1.47E-02	20.0	
13	0	154.06	103	302	1.13	308.00	305	6	9.54E-03	28.5	
14	0	185.68*	262	469	1.06	371.22	367	9	2.42E-02	16.6	
15	0	209.19	169	303	0.85	418.23	414	8	1.57E-02	19.4	
16	6	238.51*	1835	178	0.85	476.83	474	14	1.70E-01	2.6	3.73E+00
17	6	241.34	500	295	1.71	482.49	474	14	4.63E-02	10.8	
18	0	270.06	185	241	1.24	539.92	536	9	1.71E-02	16.8	
19	0	277.13	105	194	1.05	554.06	551	8	9.75E-03	24.9	
20	0	295.09*	518	232	0.87	589.95	585	10	4.80E-02	7.2	
21	0	299.93	106	277	0.91	599.64	595	11	9.79E-03	31.9	
22	0	328.27	76	255	1.05	656.31	651	11	7.03E-03	42.3	
23	0	338.20*	343	255	1.12	676.15	671	11	3.18E-02	10.7	
24	0	351.72*	906	175	1.03	703.19	698	11	8.39E-02	4.4	
25	0	409.64	67	177	0.97	819.01	815	10	6.24E-03	38.7	
26	0	463.33	102	160	1.29	926.37	921	12	9.46E-03	26.8	
27	0	510.87*	122	164	1.48	1021.44	1014	15	1.13E-02	28.0	
28	0	583.00*	477	139	1.21	1165.68	1159	12	4.41E-02	6.8	
29	0	609.02*	565	78	1.28	1217.74	1212	10	5.24E-02	5.2	
30	0	727.48	100	94	1.51	1454.66	1449	13	9.22E-03	22.7	
31	0	768.18	55	65	1.07	1536.07	1534	8	5.05E-03	29.6	
32	0	794.72	52	49	1.26	1589.17	1585	9	4.82E-03	28.0	
33	0	910.97	293	81	1.20	1821.72	1815	14	2.71E-02	8.7	
34	1	964.26	48	63	1.78	1928.32	1920	25	4.46E-03	35.9	1.69E+00
35	1	968.74	203	64	1.70	1937.30	1920	25	1.88E-02	10.1	
36	0	1120.45	122	80	1.69	2240.83	2233	17	1.13E-02	19.2	
37	0	1407.64	26	19	0.74	2815.56	2809	11	2.38E-03	38.5	
38	0	1460.41	1311	29	1.79	2921.19	2914	15	1.21E-01	2.9	



Peak Search Report (continued)  
Sample ID : G244229003

Page : 2  
Acquisition date : 22-JAN-2010 12:57:46

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1764.09	94	6	1.80	3529.11	3522	13	8.71E-03	11.7	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 15:59:25

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 12:57:46
Sample ID        : G244229003             Sample quantity  : 120.65 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA21                 Detector geometry: CAN
Elapsed live time: 0 03:00:00.00           Elapsed real time: 0 03:00:38.23   0.4%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                Half life ratio   : 8.00
Errors propagated: Yes                     Systematic Error  : 0.00 %
Efficiency type  : Empirical                Efficiencies at   : Peak Energy
Abundance limit  : 75.00                   WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.537E+01	3.653E+00	5.889E-01	5.027E-02	60.061
CD-109	+	88.03	*	4.277E+00	7.547E-01	7.230E-01	6.802E-02	5.916
SN-126	+	64.28		8.283E-01	3.573E-01	2.605E-01	3.860E-02	3.179
	+	86.94		1.745E+00	7.701E-01	2.938E-01	1.219E-01	5.940
	+	87.57	*	4.198E-01	7.407E-02	7.083E-02	6.640E-03	5.926
EU-155		48.70		-3.109E-01	3.159E-01	4.685E-01	3.964E-02	-0.664
		60.01		2.549E-02	1.431E+00	2.205E+00	1.722E-01	0.012
	+	86.54		5.057E-01	8.946E-02	8.501E-02	7.969E-03	5.949
	+	105.31	*	2.643E-01	1.267E-01	1.049E-01	1.094E-02	2.520
RE-188	+	155.03	*	2.667E-01	1.542E-01	1.996E-01	1.818E-02	1.336
		477.96		1.793E-01	3.143E+00	5.290E+00	4.852E-01	0.034
		633.10		-4.804E-01	2.996E+00	4.829E+00	5.227E-01	-0.099
TL-208	+	277.35		8.445E-01	4.335E-01	4.966E-01	6.232E-02	1.701
	+	510.84		5.759E-01	3.307E-01	2.011E-01	2.554E-02	2.864
	+	583.14	*	6.604E-01	1.151E-01	5.891E-02	6.417E-03	11.211
		860.37		6.457E-01	3.354E-01	6.303E-01	6.257E-02	1.025
BI-210	+	46.50	*	1.548E+00	6.495E-01	5.338E-01	5.090E-02	2.901
PB-210	+	46.50	*	1.548E+00	6.495E-01	5.338E-01	5.090E-02	2.901
PO-210	+	46.50	*	1.548E+00	6.466E-01	5.338E-01	4.632E-02	2.901
BI-211	+	72.87		2.120E+00	1.468E+00	1.977E+00	1.655E-01	1.072
	+	351.07	*	4.847E+00	6.083E-01	2.717E-01	2.452E-02	17.838
PB-212	+	74.81		2.566E+00	3.950E-01	2.355E-01	2.973E-02	10.895
	+	77.11		2.544E+00	2.669E-01	1.408E-01	1.214E-02	18.073
	+	87.30		1.941E+00	3.938E-01	3.273E-01	4.481E-02	5.932
	+	238.63	*	1.945E+00	2.182E-01	7.240E-02	7.199E-03	26.869
	+	300.09		1.827E+00	1.183E+00	1.034E+00	1.104E-01	1.767
PO-212	+	74.81		2.566E+00	3.950E-01	2.355E-01	2.973E-02	10.895
	+	77.11		2.544E+00	2.669E-01	1.408E-01	1.214E-02	18.073
	+	87.30		1.941E+00	3.938E-01	3.273E-01	4.481E-02	5.932
		115.19		2.831E+00	2.435E+00	4.025E+00	4.423E-01	0.703
	+	238.63	*	1.945E+00	2.182E-01	7.240E-02	7.199E-03	26.869
	+	300.09		1.827E+00	1.183E+00	1.034E+00	1.104E-01	1.767
BI-214	+	609.31	*	1.490E+00	2.356E-01	1.092E-01	1.290E-02	13.650
	+	1120.29		1.799E+00	7.168E-01	5.028E-01	5.399E-02	3.578

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PB-214	+	1764.49		2.065E+00	5.125E-01	3.332E-01	2.770E-02	6.198
	+	74.81		4.422E+00	6.323E-01	4.059E-01	4.571E-02	10.895
	+	77.11		4.361E+00	5.655E-01	2.413E-01	2.777E-02	18.073
	+	87.30		3.326E+00	6.404E-01	5.606E-01	6.795E-02	5.932
	+	241.98		3.191E+00	7.658E-01	4.377E-01	4.601E-02	7.291
	+	295.21		1.565E+00	2.821E-01	1.724E-01	1.878E-02	9.079
PO-214	+	351.92	*	1.686E+00	2.292E-01	9.479E-02	9.875E-03	17.786
	+	74.81		4.422E+00	6.323E-01	4.059E-01	4.571E-02	10.895
	+	77.11		4.361E+00	5.655E-01	2.413E-01	2.777E-02	18.073
	+	87.30		3.326E+00	6.404E-01	5.606E-01	6.795E-02	5.932
	+	241.98		3.191E+00	7.658E-01	4.377E-01	4.601E-02	7.291
	+	295.21		1.565E+00	2.821E-01	1.724E-01	1.878E-02	9.079
PO-216	+	351.92	*	1.686E+00	2.292E-01	9.479E-02	9.875E-03	17.786
	+	74.81		2.566E+00	3.950E-01	2.355E-01	2.973E-02	10.895
	+	77.11		2.544E+00	2.669E-01	1.408E-01	1.214E-02	18.073
	+	87.30		1.941E+00	3.938E-01	3.273E-01	4.481E-02	5.932
	+	238.63	*	1.945E+00	2.182E-01	7.240E-02	7.199E-03	26.869
	+	300.09		1.827E+00	1.183E+00	1.034E+00	1.104E-01	1.767
PO-218	+	74.81		4.422E+00	6.323E-01	4.059E-01	4.571E-02	10.895
	+	77.11		4.361E+00	5.655E-01	2.413E-01	2.777E-02	18.073
	+	87.30		3.326E+00	6.404E-01	5.606E-01	6.795E-02	5.932
	+	241.98		3.191E+00	7.658E-01	4.377E-01	4.601E-02	7.291
	+	295.21		1.565E+00	2.821E-01	1.724E-01	1.878E-02	9.079
	+	351.92	*	1.686E+00	2.292E-01	9.479E-02	9.875E-03	17.786
RA-224	+	240.98	*	6.052E+00	1.412E+00	8.262E-01	7.342E-02	7.324
RA-226	+	609.31	*	1.490E+00	2.356E-01	1.092E-01	1.290E-02	13.650
	+	1120.29		1.799E+00	7.168E-01	5.028E-01	5.399E-02	3.578
	+	1764.49		2.065E+00	5.125E-01	3.332E-01	2.770E-02	6.198
AC-228	+	338.32		2.001E+00	9.300E-01	3.461E-01	1.429E-01	5.781
	+	911.07	*	1.932E+00	4.026E-01	2.292E-01	2.601E-02	8.428
	+	969.11		2.377E+00	7.349E-01	4.606E-01	1.077E-01	5.161
RA-228	+	338.32		2.001E+00	9.300E-01	3.461E-01	1.429E-01	5.781
	+	911.07	*	1.932E+00	4.026E-01	2.292E-01	2.601E-02	8.428
	+	969.11		2.377E+00	7.349E-01	4.606E-01	1.077E-01	5.161
TH-228	+	74.81		2.608E+00	3.203E-01	2.393E-01	2.048E-02	10.895
	+	77.11		2.585E+00	2.712E-01	1.430E-01	1.234E-02	18.073
	+	87.30		1.973E+00	3.481E-01	3.325E-01	3.110E-02	5.932
	+	238.63	*	1.977E+00	2.217E-01	7.356E-02	7.315E-03	26.869
TH-229	+	300.09		1.857E+00	1.618E+00	1.051E+00	6.234E-01	1.767
	+	85.43		3.700E-01	1.186E-01	1.576E-01	1.451E-02	2.348
	+	88.47		5.731E-01	1.011E-01	9.705E-02	9.151E-03	5.906
	+	100.00		3.602E-01	1.732E-01	1.611E-01	1.614E-02	2.236
	+	193.63	*	3.822E-01	3.795E-01	6.639E-01	5.637E-02	0.576
TH-230	+	210.97		4.646E-01	6.196E-01	9.706E-01	8.420E-02	0.479
	+	609.31	*	1.490E+00	2.355E-01	1.092E-01	1.290E-02	13.650
	+	1120.29		1.799E+00	7.168E-01	5.028E-01	5.398E-02	3.578
	+	1764.49		2.065E+00	5.125E-01	3.331E-01	2.770E-02	6.198
TH-232	+	338.32		2.001E+00	4.616E-01	3.461E-01	3.018E-02	5.781
	+	911.07	*	1.932E+00	4.026E-01	2.292E-01	2.601E-02	8.428

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	969.11		2.377E+00	7.349E-01	4.606E-01	1.077E-01	5.161
TH-234	+	63.29	*	2.093E+00	9.250E-01	6.584E-01	1.163E-01	3.178
	+	92.38		3.630E+00	8.639E-01	4.675E-01	8.685E-02	7.766
U-234	+	609.31	*	1.490E+00	2.355E-01	1.092E-01	1.290E-02	13.650
	+	1120.29		1.799E+00	7.168E-01	5.028E-01	5.398E-02	3.578
	+	1764.49		2.065E+00	5.125E-01	3.331E-01	2.770E-02	6.198
U-235	+	89.95		3.274E+00	1.243E+00	9.798E-01	3.049E-01	3.342
	+	93.35		4.364E+00	1.397E+00	4.702E-01	1.334E-01	9.282
	+	105.00		2.589E+00	1.445E+00	1.026E+00	3.116E-01	2.524
		143.76	*	6.324E-02	1.624E-01	2.569E-01	4.685E-02	0.246
		163.35		-3.530E-02	3.389E-01	5.769E-01	1.094E-01	-0.061
	+	185.71		1.843E-01	6.316E-02	5.499E-02	4.615E-03	3.352
		205.31		1.237E-01	4.296E-01	6.578E-01	1.255E-01	0.188
NP-237	+	86.50	*	1.233E+00	3.347E-01	2.072E-01	4.688E-02	5.950
		95.87		5.129E-01	6.091E-01	8.243E-01	2.066E-01	0.622
U-238	+	63.29	*	2.093E+00	9.250E-01	6.584E-01	1.163E-01	3.178
	+	92.38		3.630E+00	6.429E-01	4.675E-01	4.495E-02	7.766
AM-243	+	74.67	*	4.160E-01	5.089E-02	3.818E-02	3.235E-03	10.898
	+	86.72		4.622E+01	8.157E+00	7.775E+00	7.236E-01	5.945
		117.66		4.542E-01	2.524E+00	4.030E+00	4.498E-01	0.113
		142.18		-1.480E+01	1.314E+01	1.925E+01	1.951E+00	-0.769
ANH-511	+	511.00	*	1.244E-01	7.068E-02	4.345E-02	4.165E-03	2.863

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	9.132E-02	3.216E-01	5.489E-01	5.378E-02	0.166
NA-22		1274.54	*	-4.543E-02	5.515E-02	8.088E-02	6.635E-03	-0.562
NA-24		1368.53	*	-1.545E+00	5.515E-02	Half-Life too short		
AL-26		1129.67		8.938E-01	2.039E+00	3.374E+00	2.840E-01	0.265
		1808.65	*	9.567E-03	2.999E-02	5.244E-02	4.339E-03	0.182
TI-44		67.85		3.731E-03	1.692E-02	2.808E-02	2.277E-03	0.133
	+	78.38	*	4.695E-01	4.925E-02	3.422E-02	2.980E-03	13.720
SC-46		889.25	*	-4.355E-02	4.318E-02	6.504E-02	5.783E-03	-0.670
	+	1120.51		3.104E-01	1.219E-01	1.562E-01	1.320E-02	1.987
V-48		944.10		9.292E-02	1.068E+00	1.787E+00	1.567E-01	0.052
		983.50	*	4.370E-02	8.071E-02	1.401E-01	1.226E-02	0.312
		1312.09		-8.026E-03	9.943E-02	1.580E-01	1.288E-02	-0.051
CR-51		320.08	*	1.715E-01	3.241E-01	5.410E-01	5.030E-02	0.317
MN-52		744.21		-2.445E-01	3.306E-01	4.956E-01	5.267E-02	-0.493
		848.13		3.983E+00	8.524E+00	1.482E+01	1.410E+00	0.269
		935.52		4.173E-01	3.487E-01	6.297E-01	5.520E-02	0.663
		1246.25		6.438E+00	1.024E+01	1.742E+01	1.432E+00	0.370
		1333.61		3.499E+00	6.304E+00	1.120E+01	9.093E-01	0.312
		1434.06	*	1.150E-02	2.736E-01	4.583E-01	3.785E-02	0.025
MN-54		834.83	*	3.317E-03	4.316E-02	7.293E-02	7.069E-03	0.045
CO-56		846.75	*	1.831E-02	4.492E-02	7.774E-02	7.410E-03	0.235
		977.42		-1.999E+00	3.341E+00	5.206E+00	4.557E-01	-0.384

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1037.82			2.034E-01	3.505E-01	6.073E-01	5.545E-02	0.335
	1175.09			2.483E+00	2.838E+00	4.937E+00	4.068E-01	0.503
	1238.25			1.775E-01	1.143E-01	2.046E-01	1.736E-02	0.867
	1360.21			-3.255E-01	1.168E+00	1.891E+00	1.543E-01	-0.172
	1771.40			-4.622E-01	2.895E-01	2.945E-01	2.447E-02	-1.569
CO-57	122.06	*		1.490E-04	1.664E-02	2.630E-02	3.021E-03	0.006
	136.48			5.129E-02	1.538E-01	2.444E-01	2.707E-02	0.210
CO-58	810.76	*		2.541E-02	3.993E-02	7.077E-02	7.082E-03	0.359
FE-59	142.65			2.038E-01	2.031E+00	3.182E+00	3.214E-01	0.064
	192.34			1.936E-01	6.993E-01	1.194E+00	1.591E-01	0.162
	1099.22	*		-3.221E-02	1.126E-01	1.793E-01	1.654E-02	-0.180
	1291.56			-3.961E-02	1.430E-01	2.223E-01	2.089E-02	-0.178
CO-60	1173.22			1.717E-02	5.856E-02	9.740E-02	8.026E-03	0.176
	1332.49	*		3.592E-02	4.395E-02	8.000E-02	6.493E-03	0.449
ZN-65	1115.52	*		-4.224E-02	1.170E-01	1.569E-01	1.330E-02	-0.269
GE-68	1077.35	*		5.315E-02	1.495E+00	2.457E+00	2.109E-01	0.022
AS-73	53.44	*		6.108E-02	1.519E-01	2.576E-01	2.086E-02	0.237
AS-74	595.88	*		1.493E-02	1.004E-01	1.667E-01	1.750E-02	0.090
	634.78			-3.954E-02	3.892E-01	6.303E-01	6.830E-02	-0.063
SE-75	66.05			-6.817E-01	1.795E+00	2.701E+00	2.689E-01	-0.252
	96.73			2.521E-01	4.959E-01	6.685E-01	9.649E-02	0.377
	121.11			-2.943E-02	8.865E-02	1.376E-01	1.856E-02	-0.214
	136.00			2.299E-02	2.877E-02	4.656E-02	4.948E-03	0.494
	198.60			-5.960E-01	1.439E+00	2.337E+00	2.219E-01	-0.255
	264.65	*		-2.631E-02	3.672E-02	5.799E-02	5.207E-03	-0.454
	279.53			-1.559E-02	9.725E-02	1.406E-01	1.298E-02	-0.111
	303.91			-8.875E-01	2.040E+00	2.855E+00	3.340E-01	-0.311
	400.65			-5.854E-03	2.514E-01	3.977E-01	4.258E-02	-0.015
BR-77	87.88	+		1.215E+03	2.144E+02	2.813E+02	2.643E+01	4.321
	200.40			5.700E+01	1.709E+02	2.912E+02	2.495E+01	0.196
	239.00	+		4.114E+02	4.230E+01	4.752E+01	4.219E+00	8.657
	249.79			-4.953E+01	6.926E+01	1.100E+02	9.812E+00	-0.450
	281.68			1.034E+01	1.051E+02	1.549E+02	1.382E+01	0.067
	297.23			9.035E+01	7.787E+01	1.008E+02	8.997E+00	0.896
	303.76			2.065E+01	2.199E+02	3.215E+02	2.865E+01	0.064
	439.47			2.181E+01	1.693E+02	2.884E+02	2.495E+01	0.076
	484.57			1.728E+02	2.967E+02	5.150E+02	4.768E+01	0.336
	520.65	*		8.561E+00	1.288E+01	2.243E+01	2.176E+00	0.382
	574.64			-7.467E+01	2.776E+02	4.481E+02	4.611E+01	-0.167
	578.91			-2.089E+01	1.309E+02	1.861E+02	1.923E+01	-0.112
	585.48			6.647E+02	2.840E+02	4.800E+02	4.990E+01	1.385
	755.35			3.233E+02	2.536E+02	4.462E+02	4.703E+01	0.724
	817.79			9.458E+01	1.664E+02	2.944E+02	2.916E+01	0.321
SR-82	698.33			-1.345E+01	3.803E+01	5.967E+01	6.511E+00	-0.225
	776.49	*		-1.727E-01	4.391E-01	6.763E-01	7.001E-02	-0.255
	1395.20			-9.224E+00	1.208E+01	1.799E+01	1.477E+00	-0.513
RB-83	520.41	*		3.309E-02	6.613E-02	1.139E-01	1.105E-02	0.291
	529.64			2.765E-02	1.076E-01	1.819E-01	1.784E-02	0.152
	552.65			9.524E-02	1.979E-01	3.388E-01	3.409E-02	0.281

---- Non-Identified Nuclides ----

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RB-84	881.50	*		2.098E-02	8.145E-02	1.390E-01	1.254E-02	0.151
KR-85	513.99	*		6.583E+00	7.091E+00	1.129E+01	1.086E+00	0.583
SR-85	513.99	*		3.409E-02	3.672E-02	5.846E-02	5.625E-03	0.583
RB-86	1076.63	*		3.065E-02	9.621E-01	1.581E+00	1.358E-01	0.019
Y-88	898.02			-8.221E-03	4.629E-02	7.602E-02	6.682E-03	-0.108
	1836.01	*		3.596E-02	3.968E-02	7.569E-02	6.249E-03	0.475
ZR-88	392.90	*		1.704E-02	2.951E-02	4.867E-02	3.877E-03	0.350
Y-91	1204.90	*		1.451E+01	2.423E+01	4.113E+01	3.389E+00	0.353
NB-94	702.63	*		3.482E-03	3.538E-02	5.768E-02	6.281E-03	0.060
	871.10			9.679E-03	3.662E-02	6.269E-02	5.754E-03	0.154
NB-95	765.79	*		3.473E-02	5.687E-02	8.468E-02	8.850E-03	0.410
NB-95M	235.69	*		1.170E-01	1.058E-01	1.668E-01	1.681E-02	0.701
ZR-95	724.18			2.792E-02	1.123E-01	1.627E-01	1.851E-02	0.172
	756.15	*		5.861E-02	8.675E-02	1.464E-01	1.648E-02	0.400
NB-97	657.90	*		-3.321E-01	8.675E-02	Half-Life	too short	
	1024.50			2.588E+00	8.675E-02	Half-Life	too short	
ZR-97	254.15			-9.091E-01	8.675E-02	Half-Life	too short	
	355.39			9.221E+00	8.675E-02	Half-Life	too short	
	507.63	*		9.008E-01	8.675E-02	Half-Life	too short	
	602.52			8.151E-01	8.675E-02	Half-Life	too short	
	1021.30			-1.022E+01	8.675E-02	Half-Life	too short	
	1147.95			3.223E+00	8.675E-02	Half-Life	too short	
	1362.66			1.757E+01	8.675E-02	Half-Life	too short	
	1750.46			-1.121E+01	8.675E-02	Half-Life	too short	
MO-99	140.51			5.887E+00	2.401E+01	3.783E+01	1.069E+01	0.156
	181.06			2.177E+01	1.779E+01	2.819E+01	5.117E+00	0.772
	366.43			3.819E+01	9.616E+01	1.578E+02	1.324E+01	0.242
	739.58	*		-9.069E+00	1.654E+01	2.516E+01	4.134E+00	-0.360
	778.00			-6.259E+00	4.834E+01	7.641E+01	7.899E+00	-0.082
TC-99M	140.51	*		9.140E+10	4.834E+01	Half-Life	too short	
RH-101	127.23			4.123E-05	2.376E-02	3.443E-02	3.844E-03	0.001
	198.01	*		-3.045E-02	2.620E-02	4.103E-02	3.505E-03	-0.742
	325.23			1.407E-01	2.055E-01	3.123E-01	2.754E-02	0.450
RH-102	418.52			1.446E-01	2.496E-01	4.380E-01	3.657E-02	0.330
	475.06	*		-1.008E-02	2.845E-02	4.659E-02	4.256E-03	-0.216
	631.29			1.328E-02	5.845E-02	9.719E-02	1.050E-02	0.137
	697.49			2.748E-02	8.265E-02	1.373E-01	1.498E-02	0.200
+	766.84			2.502E-01	1.502E-01	2.396E-01	2.502E-02	1.044
	1046.59			-4.325E-03	1.312E-01	2.150E-01	1.861E-02	-0.020
	1112.84			1.369E-01	2.854E-01	4.291E-01	3.638E-02	0.319
RU-103	497.08	*		5.376E-03	3.917E-02	6.607E-02	9.686E-03	0.081
+	610.33			1.636E+01	3.381E+00	3.253E+00	5.792E-01	5.030
RH-106	511.85	+		6.225E-01	3.537E-01	4.296E-01	4.123E-02	1.449
	621.84	*		2.364E-01	3.419E-01	5.861E-01	8.679E-02	0.403
	1050.47			3.297E-01	2.611E+00	4.341E+00	3.754E-01	0.076
RU-106	511.85	+		6.225E-01	3.537E-01	4.296E-01	4.123E-02	1.449
	621.84	*		2.364E-01	3.411E-01	5.861E-01	6.289E-02	0.403
	1050.47			3.297E-01	2.611E+00	4.341E+00	3.754E-01	0.076
AG-108M	433.93	*		-2.005E-02	3.096E-02	5.017E-02	4.474E-03	-0.400

## ---- Non-Identified Nuclides ----

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AG-110M	614.37			2.634E-02	4.380E-02	6.986E-02	7.642E-03	0.377
	722.95			-6.294E-03	5.055E-02	7.007E-02	7.741E-03	-0.090
	657.75	*		-2.154E-02	3.893E-02	6.043E-02	6.778E-03	-0.357
	677.61			-1.908E-01	3.453E-01	5.334E-01	5.968E-02	-0.358
	706.67			-6.097E-02	2.310E-01	3.648E-01	4.034E-02	-0.167
	763.93			5.062E-02	2.026E-01	2.918E-01	3.113E-02	0.173
	884.67			5.286E-02	5.629E-02	1.010E-01	9.323E-03	0.524
	937.48			-1.209E-01	1.418E-01	2.187E-01	1.984E-02	-0.553
IN-111	1384.27			-5.223E-02	1.725E-01	2.768E-01	2.339E-02	-0.189
	171.28			-6.154E-01	9.073E-01	1.502E+00	1.231E-01	-0.410
	245.39	*		-3.583E-01	1.102E+00	1.596E+00	1.421E-01	-0.224
IN-113M	391.69	*		4.315E-03	4.257E-02	6.809E-02	5.607E-03	0.063
SN-113	391.69	*		4.315E-03	4.257E-02	6.809E-02	5.607E-03	0.063
IN-114M	190.27	*		-1.141E-01	1.380E-01	2.134E-01	1.803E-02	-0.535
CD-115	260.90			-4.604E+01	1.470E+02	2.382E+02	2.129E+01	-0.193
SN-117M	492.35			1.785E+01	4.476E+01	7.692E+01	7.197E+00	0.232
	527.90	*		1.034E+01	1.491E+01	2.590E+01	2.534E+00	0.399
	156.02			-2.750E-02	1.762E+00	2.724E+00	2.458E-01	-0.010
	158.56	*		-1.027E-02	3.997E-02	6.779E-02	5.967E-03	-0.151
SB-122	563.90	*		1.631E-03	2.696E+00	4.454E+00	4.534E-01	0.000
I-123	692.80			-5.534E+01	6.519E+01	9.795E+01	1.071E+01	-0.565
	159.00	*		-9.213E+00	6.519E+01	Half-Life	too short	
TE-123M	528.96			-6.470E+01	6.519E+01	Half-Life	too short	
	159.00	*		-1.384E-02	1.969E-02	3.274E-02	2.886E-03	-0.423
I-124	602.71	*		-4.225E-02	8.157E-01	1.233E+00	1.302E-01	-0.034
	722.78			-7.685E-01	6.175E+00	8.559E+00	9.224E-01	-0.090
	1325.50			-2.311E+01	4.501E+01	7.106E+01	5.775E+00	-0.325
	1376.25			4.243E+01	4.523E+01	7.923E+01	6.485E+00	0.536
SB-124	1509.49			8.295E+00	1.998E+01	3.498E+01	2.912E+00	0.237
	1691.02			1.726E+00	5.236E+00	9.074E+00	7.580E-01	0.190
	602.71			-2.123E-03	4.098E-02	6.194E-02	6.541E-03	-0.034
	645.85			1.469E-02	5.113E-01	8.356E-01	9.473E-02	0.018
	709.31			2.568E+00	3.038E+00	5.228E+00	5.676E-01	0.491
	713.82			-1.818E+00	1.826E+00	2.655E+00	3.640E-01	-0.685
	722.78			-5.597E-02	4.497E-01	6.234E-01	6.811E-02	-0.090
	+ 968.20			2.474E+01	5.452E+00	9.159E+00	8.023E-01	2.701
	1045.16			1.933E+00	2.712E+00	4.756E+00	4.119E-01	0.406
	1325.50			-1.798E+00	3.501E+00	5.527E+00	4.492E-01	-0.325
SB-125	1368.21			-9.076E-01	1.974E+00	3.105E+00	4.097E-01	-0.292
	1436.60			7.733E-01	3.942E+00	6.744E+00	5.571E-01	0.115
	1691.02	*		2.965E-02	8.996E-02	1.559E-01	1.357E-02	0.190
	427.89	*		-5.149E-02	8.892E-02	1.452E-01	1.257E-02	-0.355
	+ 463.38			9.178E-01	4.995E-01	5.905E-01	5.687E-02	1.554
	600.56			-3.535E-02	1.825E-01	2.952E-01	3.267E-02	-0.120
	635.90			1.151E-01	2.868E-01	4.828E-01	5.508E-02	0.238
	109.28	*		4.317E+00	6.604E+00	1.000E+01	1.203E+00	0.432
TE-125M	388.63			-4.981E-02	2.127E-01	3.326E-01	2.664E-02	-0.150
I-126	666.33	*		1.154E-01	2.143E-01	3.618E-01	3.992E-02	0.319
	753.82			2.958E-01	1.824E+00	2.968E+00	3.132E-01	0.100

---- Non-Identified Nuclides ----

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SB-126		223.80		1.449E+00	3.324E+00	5.650E+00	4.963E-01	0.256
	+	278.60		5.886E+00	2.976E+00	3.870E+00	3.451E-01	1.521
	+	296.50		1.642E+01	2.778E+00	3.280E+00	2.927E-01	5.008
		414.70		-6.997E-02	7.837E-02	1.078E-01	8.938E-03	-0.649
		415.30		-5.697E+00	6.247E+00	9.129E+00	7.580E-01	-0.624
		555.20		-2.166E+00	4.239E+00	6.729E+00	6.789E-01	-0.322
		573.80		-4.357E-01	1.157E+00	1.854E+00	1.906E-01	-0.235
		593.00		1.378E-01	9.658E-01	1.605E+00	1.681E-01	0.086
		656.30		-1.185E-01	3.895E+00	6.324E+00	6.959E-01	-0.019
		666.33		4.833E-02	8.973E-02	1.515E-01	1.672E-02	0.319
		675.00		7.177E-01	2.304E+00	3.833E+00	4.218E-01	0.187
		695.00		3.518E-02	8.834E-02	1.475E-01	1.612E-02	0.238
		697.00		4.446E-02	3.085E-01	5.049E-01	5.512E-02	0.088
		720.50	*	3.084E-03	1.718E-01	2.677E-01	2.889E-02	0.012
		856.80		-9.099E-01	6.017E-01	8.527E-01	8.007E-02	-1.067
		989.30		-5.800E-01	1.516E+00	2.414E+00	2.111E-01	-0.240
		1034.80		6.057E+00	1.036E+01	1.797E+01	1.560E+00	0.337
		1213.00		1.222E+00	6.621E+00	1.087E+01	8.953E-01	0.112
SB-127		61.10		-7.412E-01	2.017E+01	3.098E+01	3.368E+00	-0.024
		252.40		4.140E+00	4.464E+00	7.131E+00	3.007E+00	0.580
		290.80		2.188E+00	2.337E+01	3.431E+01	4.007E+00	0.064
		411.60		9.918E+00	1.661E+01	2.443E+01	3.843E+00	0.406
		444.90		-5.540E+00	1.079E+01	1.757E+01	2.259E+00	-0.315
		473.00		-1.077E+00	1.933E+00	3.116E+00	4.188E-01	-0.346
		543.00		8.974E+00	2.067E+01	3.520E+01	5.436E+00	0.255
		603.60		-1.920E+00	1.456E+01	2.062E+01	2.918E+00	-0.093
		685.20	*	-1.641E+00	1.805E+00	2.674E+00	3.608E-01	-0.614
		698.50		-5.897E+00	1.965E+01	3.095E+01	5.374E+00	-0.191
		722.20		-2.038E+01	4.399E+01	5.831E+01	7.668E+00	-0.349
		783.80		2.889E+00	5.060E+00	8.452E+00	1.171E+00	0.342
XE-127		57.60		-3.194E-01	1.456E+00	2.404E+00	1.893E-01	-0.133
		145.22		2.368E-01	5.555E-01	8.806E-01	8.722E-02	0.269
		172.10		-4.290E-02	8.744E-02	1.459E-01	1.198E-02	-0.294
		202.84	*	-1.527E-02	3.733E-02	6.170E-02	5.302E-03	-0.247
		374.96		-4.689E-02	1.886E-01	2.956E-01	2.439E-02	-0.159
I-131		80.18		2.080E+00	2.440E+00	3.801E+00	3.378E-01	0.547
		284.30		8.264E-02	1.338E+00	2.195E+00	2.056E-01	0.038
		364.48	*	-4.908E-02	1.147E-01	1.778E-01	1.582E-02	-0.276
		636.97		1.011E+00	1.743E+00	2.974E+00	3.344E-01	0.340
TE-132		722.89		-1.150E+00	9.236E+00	1.280E+01	1.386E+00	-0.090
		49.72		-4.649E-01	3.420E+00	5.301E+00	5.787E-01	-0.088
		111.76		1.137E+01	2.378E+01	3.853E+01	4.946E+00	0.295
		116.30		-9.645E+00	2.299E+01	3.571E+01	4.677E+00	-0.270
BA-133		228.16	*	2.674E-01	6.801E-01	1.150E+00	1.840E-01	0.232
		53.15		3.852E-03	6.442E-01	1.078E+00	8.750E-02	0.004
		79.62		-1.128E-01	6.357E-01	9.507E-01	1.457E-01	-0.119
		81.00		7.401E-03	4.879E-02	7.392E-02	1.184E-02	0.100
	+	276.40		8.347E-01	4.330E-01	5.817E-01	8.510E-02	1.435
		302.84		8.237E-02	1.336E-01	2.024E-01	2.729E-02	0.407



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	356.01	*	2.122E-02	4.409E-02	6.537E-02	8.590E-03	0.325
		383.85		-6.078E-02	3.053E-01	4.792E-01	5.872E-02	-0.127
		510.53		2.693E+00	3.053E-01	Half-Life	too short	
		529.87	*	3.870E-03	3.053E-01	Half-Life	too short	
		706.58		-2.758E-01	3.053E-01	Half-Life	too short	
		856.28		-1.432E+00	3.053E-01	Half-Life	too short	
		875.33		6.439E-02	3.053E-01	Half-Life	too short	
CS-134		1236.41		1.058E+00	3.053E-01	Half-Life	too short	
		1298.22		5.048E-01	3.053E-01	Half-Life	too short	
		475.35		-5.999E-01	1.889E+00	3.103E+00	2.835E-01	-0.193
		563.23		1.539E-01	3.668E-01	6.235E-01	6.387E-02	0.247
		569.32		-1.122E-01	2.193E-01	3.417E-01	3.531E-02	-0.328
		604.70		-1.562E-02	3.664E-02	5.008E-02	5.307E-03	-0.312
		795.84	*	1.098E-01	6.246E-02	9.639E-02	9.841E-03	1.139
CS-135		801.93		3.156E-01	4.358E-01	7.308E-01	7.403E-02	0.432
		1038.57		-4.268E-01	4.288E+00	6.984E+00	6.057E-01	-0.061
		1167.94		6.928E-02	3.414E+00	5.556E+00	4.592E-01	0.012
		1365.15		6.232E-01	1.406E+00	2.472E+00	2.121E-01	0.252
		268.24	*	2.265E-01	1.417E-01	2.278E-01	2.333E-02	0.994
		288.45		3.389E+10	1.417E-01	Half-Life	too short	
		417.63		-8.324E+10	1.417E-01	Half-Life	too short	
I-135		546.56		-6.377E+10	1.417E-01	Half-Life	too short	
		836.80		1.673E+11	1.417E-01	Half-Life	too short	
		1038.76		-4.490E+10	1.417E-01	Half-Life	too short	
		1124.00		-3.953E+11	1.417E-01	Half-Life	too short	
		1131.51		7.724E+09	1.417E-01	Half-Life	too short	
		1260.41	*	5.585E+10	1.417E-01	Half-Life	too short	
		1457.56		8.966E+12	1.417E-01	Half-Life	too short	
CS-136		1678.03		-8.978E+09	1.417E-01	Half-Life	too short	
		1706.46		2.665E+11	1.417E-01	Half-Life	too short	
		1791.20		-4.440E+10	1.417E-01	Half-Life	too short	
		66.91		3.313E-01	3.104E-01	4.880E-01	7.385E-02	0.679
		86.29		5.757E+00	1.155E+00	1.228E+00	1.633E-01	4.690
		153.22		1.066E+00	6.182E-01	8.998E-01	9.192E-02	1.185
		163.89		1.856E-01	8.080E-01	1.392E+00	1.307E-01	0.133
BA-137M		176.55		-1.851E-02	2.782E-01	4.715E-01	4.145E-02	-0.039
		273.65		2.224E-01	5.089E-01	6.191E-01	5.869E-02	0.359
		340.57		9.382E-02	1.255E-01	1.904E-01	1.703E-02	0.493
		818.51		7.977E-03	7.527E-02	1.280E-01	1.267E-02	0.062
		1048.07	*	-9.818E-02	1.316E-01	2.001E-01	1.805E-02	-0.491
		1235.34		1.711E-01	8.108E-01	1.330E+00	1.539E-01	0.129
		661.65	*	7.010E-03	4.077E-02	6.715E-02	7.416E-03	0.104
CS-137		661.65	*	7.411E-03	4.310E-02	7.098E-02	7.848E-03	0.104
CE-139		165.85	*	-3.176E-03	2.177E-02	3.697E-02	3.005E-03	-0.086
BA-140		162.64		4.083E-01	5.603E-01	9.816E-01	8.780E-02	0.416
		304.84		7.512E-02	1.211E+00	1.765E+00	4.962E-01	0.043
		423.70		4.625E-01	1.852E+00	3.175E+00	1.028E+00	0.146
		537.32	*	-1.515E-01	2.687E-01	4.186E-01	1.402E-01	-0.362
LA-140	+	328.77		5.722E-01	4.873E-01	5.293E-01	4.906E-02	1.081

---- Non-Identified Nuclides ----

	Line Energy Nuclide Ided (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA	
	432.53	2.624E-01	2.110E+00	3.595E+00	3.226E-01	0.073	
	487.03	7.346E-02	1.414E-01	2.444E-01	2.392E-02	0.301	
	751.79	-2.718E+00	2.160E+00	3.043E+00	3.449E-01	-0.893	
	815.85	-2.166E-01	3.276E-01	5.154E-01	5.568E-02	-0.420	
	867.82	4.206E-01	1.473E+00	2.529E+00	2.442E-01	0.166	
	919.63	1.116E+00	3.338E+00	5.713E+00	6.148E-01	0.195	
	925.24	-5.725E-01	1.357E+00	2.171E+00	2.019E-01	-0.264	
	1596.49	*	-2.413E-02	1.118E-01	1.784E-01	1.492E-02	-0.135
CE-141	145.44	*	1.624E-02	5.034E-02	7.947E-02	7.967E-03	0.204
CE-143	57.37		-7.060E-05	5.034E-02	Half-Life	too short	
	231.56		-1.994E-03	5.034E-02	Half-Life	too short	
	293.26	*	4.711E-04	5.034E-02	Half-Life	too short	
	350.59		6.184E-02	5.034E-02	Half-Life	too short	
	490.36		-2.429E-03	5.034E-02	Half-Life	too short	
	664.57		-8.120E-04	5.034E-02	Half-Life	too short	
	721.93		2.942E-05	5.034E-02	Half-Life	too short	
CE-144	80.11		8.310E-01	1.034E+00	1.609E+00	1.420E-01	0.517
	133.54	*	-1.300E-01	1.512E-01	2.248E-01	3.786E-02	-0.578
PM-144	476.78		2.427E-02	6.758E-02	1.158E-01	1.149E-02	0.210
	618.01		-4.030E-02	3.677E-02	5.480E-02	5.968E-03	-0.735
	696.49	*	7.271E-03	3.731E-02	6.132E-02	6.698E-03	0.119
	778.57		-6.328E-01	2.505E+00	3.908E+00	4.039E-01	-0.162
PR-144	696.49	*	4.929E-01	2.530E+00	4.158E+00	4.540E-01	0.119
	1489.15		-9.047E+00	1.325E+01	1.959E+01	1.628E+00	-0.462
PM-146	453.90	*	-1.201E-02	4.073E-02	6.726E-02	7.339E-03	-0.179
	633.02		-2.448E-01	1.471E+00	2.365E+00	8.973E-01	-0.104
	735.90		2.045E-02	1.733E-01	2.815E-01	8.246E-02	0.073
	747.13		1.372E-02	1.070E-01	1.738E-01	2.665E-02	0.079
ND-147	+	91.11	8.726E-01	2.093E-01	2.708E-01	2.762E-02	3.222
	319.41		6.911E-01	3.019E+00	4.954E+00	4.387E-01	0.139
	439.89		1.001E+00	5.606E+00	9.575E+00	8.291E-01	0.105
	531.02	*	-4.198E-01	6.137E-01	9.631E-01	1.510E-01	-0.436
PM-149	285.90	*	4.060E+01	1.015E+02	1.693E+02	2.662E+01	0.240
EU-152	121.78		-2.115E-03	4.713E-02	7.428E-02	9.267E-03	-0.028
	244.69		-9.211E-02	2.707E-01	3.918E-01	3.488E-02	-0.235
	344.27	*	-2.792E-02	8.526E-02	1.340E-01	1.229E-02	-0.208
	443.98		-5.339E-01	8.725E-01	1.411E+00	1.230E-01	-0.378
	778.89		-1.068E-02	2.840E-01	4.527E-01	4.675E-02	-0.024
	867.32		-2.502E-02	8.373E-01	1.398E+00	1.291E-01	-0.018
	+	964.01	6.479E-01	4.690E-01	6.277E-01	5.499E-02	1.032
	1085.78		-1.683E-01	4.743E-01	7.502E-01	6.422E-02	-0.224
	1112.02		1.672E-01	3.896E-01	6.268E-01	5.315E-02	0.267
	+	1407.95	3.454E-01	2.678E-01	4.299E-01	3.537E-02	0.804
GD-153	69.67		-2.377E-01	6.329E-01	1.028E+00	8.428E-02	-0.231
	+	83.37	2.906E+01	9.316E+00	1.353E+01	1.225E+00	2.148
	97.43	*	2.621E-02	5.289E-02	7.125E-02	7.038E-03	0.368
	103.18		3.052E-02	6.464E-02	9.787E-02	9.991E-03	0.312
EU-154	123.07		2.881E-02	3.409E-02	5.566E-02	7.578E-03	0.518
	247.94		5.639E-02	2.759E-01	4.612E-01	5.395E-02	0.122

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	+	591.81		-5.309E-01	6.352E-01	9.675E-01	1.266E-01	-0.549
		723.30		-5.699E-02	2.118E-01	2.881E-01	3.317E-02	-0.198
		756.87		7.477E-01	9.093E-01	1.549E+00	2.079E-01	0.483
		873.19		-2.374E-03	3.226E-01	5.394E-01	6.808E-02	-0.004
		996.32		2.482E-01	4.571E-01	7.850E-01	1.399E-01	0.316
		1004.76		-6.146E-02	2.525E-01	4.075E-01	4.775E-02	-0.151
		1274.45	*	-1.104E-01	1.526E-01	2.261E-01	2.485E-02	-0.488
		86.79		1.363E+00	2.405E-01	3.271E-01	3.046E-02	4.166
		197.04		-4.628E-01	4.455E-01	7.019E-01	5.987E-02	-0.659
		215.65		-4.548E-01	5.736E-01	9.234E-01	8.050E-02	-0.493
		298.57		2.683E-01	1.730E-01	1.712E-01	1.528E-02	1.567
		879.36	*	-9.191E-02	1.591E-01	2.522E-01	2.283E-02	-0.364
		962.29		3.173E-01	6.200E-01	1.067E+00	9.347E-02	0.297
		966.15		9.857E-01	3.056E-01	5.777E-01	5.061E-02	1.706
		1177.93		-2.153E-01	4.884E-01	7.633E-01	6.290E-02	-0.282
HO-166M	+	1271.85		1.988E-01	8.763E-01	1.444E+00	1.183E-01	0.138
		80.57		5.196E-02	1.522E-01	2.056E-01	1.821E-02	0.253
		184.41		1.382E-01	4.737E-02	4.950E-02	4.146E-03	2.793
		280.46		-2.695E-02	7.603E-02	1.082E-01	9.648E-03	-0.249
		410.95		4.875E-01	3.795E-01	4.560E-01	3.757E-02	1.069
TM-171	+	711.68	*	1.864E-02	6.514E-02	1.077E-01	1.168E-02	0.173
		752.31		-3.399E-01	3.195E-01	4.602E-01	4.862E-02	-0.739
		810.29		4.250E-02	6.001E-02	1.069E-01	1.068E-02	0.398
		51.35		-2.597E+00	4.871E+00	8.001E+00	6.594E-01	-0.325
		52.39		-2.138E+00	2.626E+00	4.253E+00	3.473E-01	-0.503
LU-176	+	59.40		3.795E+00	7.307E+00	1.150E+01	8.968E-01	0.330
		66.72	*	5.146E+00	1.075E+01	1.672E+01	1.347E+00	0.308
		88.36		9.956E-01	1.757E-01	1.996E-01	1.881E-02	4.989
		201.83		1.191E-02	2.237E-02	3.839E-02	3.295E-03	0.310
		306.84	*	-1.513E-02	2.119E-02	3.286E-02	2.926E-03	-0.460
LU-177	+	401.10		-4.135E+00	6.454E+00	9.735E+00	7.877E-01	-0.425
		112.95		-7.730E-01	1.225E+00	1.889E+00	2.046E-01	-0.409
		208.36	*	3.417E+00	1.361E+00	1.794E+00	1.552E-01	1.905
LU-177M	+	52.97		-8.114E-03	2.888E-01	4.828E-01	3.924E-02	-0.017
		54.07		1.293E-01	1.633E-01	2.800E-01	2.257E-02	0.462
		61.30		-9.082E-02	4.510E-01	6.875E-01	5.397E-02	-0.132
		121.62		-1.060E-01	2.449E-01	3.780E-01	4.327E-02	-0.281
		147.16		-5.516E-02	4.987E-01	7.715E-01	7.526E-02	-0.072
		171.86		-2.332E-01	3.493E-01	5.783E-01	4.746E-02	-0.403
		218.09		4.047E-01	6.622E-01	1.135E+00	9.918E-02	0.357
		268.79		3.102E+00	1.079E+00	1.295E+00	1.157E-01	2.395
		319.02		-6.715E-03	2.233E-01	3.608E-01	3.195E-02	-0.019
		367.43		-1.051E-01	8.432E-01	1.336E+00	1.118E-01	-0.079
		413.65	*	6.574E-02	1.826E-01	2.652E-01	2.195E-02	0.248
		56.28		-5.752E-02	2.097E-01	3.462E-01	2.748E-02	-0.166
		57.53		-2.519E-02	1.218E-01	2.013E-01	1.586E-02	-0.125
		65.20		-2.669E-01	3.447E-01	5.102E-01	4.078E-02	-0.523
		133.02		1.912E-02	4.736E-02	7.562E-02	8.154E-03	0.253
		136.25		1.475E-01	3.426E-01	5.465E-01	5.771E-02	0.270

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
W-181		345.85		1.120E-02	1.736E-01	2.667E-01	2.305E-02	0.042
		482.03	*	-1.537E-02	4.377E-02	7.163E-02	6.608E-03	-0.215
		56.28		-2.237E-02	8.129E-02	1.342E-01	1.065E-02	-0.167
		57.53		-9.751E-03	4.723E-02	7.807E-02	6.150E-03	-0.125
TA-182		65.20	*	-1.027E-01	1.326E-01	1.963E-01	1.569E-02	-0.523
		67.75		8.695E-03	4.389E-02	6.750E-02	5.471E-03	0.129
	+	100.10		3.491E-01	1.679E-01	1.826E-01	1.831E-02	1.912
		152.43		1.498E-01	2.829E-01	4.150E-01	3.872E-02	0.361
		222.10		-2.170E-01	2.668E-01	4.276E-01	3.751E-02	-0.508
		1001.68		2.372E-01	2.454E+00	4.084E+00	3.566E-01	0.058
	+	1121.28		8.555E-01	3.361E-01	4.282E-01	3.617E-02	1.998
		1189.05		1.110E-01	4.054E-01	6.721E-01	5.538E-02	0.165
RE-183		1221.42	*	-2.087E-01	2.647E-01	3.995E-01	3.288E-02	-0.522
		1230.97		1.858E-02	6.207E-01	1.006E+00	8.273E-02	0.018
		57.98		-2.169E-02	4.880E-02	7.991E-02	6.279E-03	-0.271
		59.32		1.439E-02	3.015E-02	4.737E-02	3.696E-03	0.304
		67.20		8.832E-02	7.656E-02	1.217E-01	9.835E-03	0.726
		162.32	*	3.165E-02	7.830E-02	1.358E-01	1.149E-02	0.233
	+	208.81		2.813E+00	1.120E+00	1.509E+00	1.306E-01	1.864
		291.72		-1.134E-02	8.450E-01	1.230E+00	1.098E-01	-0.009
RE-184		57.98		-7.948E-02	1.788E-01	2.928E-01	2.301E-02	-0.271
		59.32		5.269E-02	1.104E-01	1.735E-01	1.354E-02	0.304
		67.20		3.236E-01	2.805E-01	4.460E-01	3.603E-02	0.726
		161.27		-6.017E-02	2.483E-01	4.207E-01	3.600E-02	-0.143
OS-185		216.55		9.937E-03	2.008E-01	3.367E-01	2.938E-02	0.030
		252.85	*	1.428E-01	1.875E-01	3.209E-01	2.864E-02	0.445
		318.01		-1.517E-01	3.832E-01	6.045E-01	5.356E-02	-0.251
		792.07		1.308E+00	1.247E+00	1.948E+00	1.986E-01	0.672
		903.28		4.564E-01	1.166E+00	1.908E+00	1.670E-01	0.239
		920.93		-1.893E-01	5.128E-01	8.249E-01	7.228E-02	-0.229
		59.72		5.675E-02	8.269E-02	1.309E-01	1.021E-02	0.434
		61.14		-9.686E-04	4.886E-02	7.507E-02	5.889E-03	-0.013
		69.30		-5.178E-02	1.125E-01	1.823E-01	1.491E-02	-0.284
		592.07		-1.214E+00	2.531E+00	3.993E+00	4.176E-01	-0.304
		646.12	*	1.020E-02	4.282E-02	7.123E-02	7.783E-03	0.143
		717.42		2.959E-01	9.627E-01	1.594E+00	1.723E-01	0.186
W-188		874.81		1.308E-01	6.307E-01	1.074E+00	9.799E-02	0.122
		880.27		-4.984E-01	8.865E-01	1.408E+00	1.272E-01	-0.354
	+	63.58		8.490E+01	3.506E+01	3.327E+01	2.638E+00	2.552
		227.08		3.479E+00	1.034E+01	1.747E+01	1.539E+00	0.199
IR-192		290.67	*	6.020E-01	6.890E+00	1.011E+01	9.027E-01	0.060
	+	295.96		1.204E+00	2.040E-01	2.739E-01	2.461E-02	4.395
		308.46		3.381E-02	8.298E-02	1.379E-01	1.233E-02	0.245
		316.51	*	-4.231E-03	2.916E-02	4.679E-02	4.158E-03	-0.090
AU-195		468.07		1.725E-02	7.103E-02	1.075E-01	1.036E-02	0.160
		604.41		-3.158E-01	5.134E-01	6.847E-01	9.851E-02	-0.461
		612.46		-4.678E-01	8.327E-01	1.121E+00	1.313E-01	-0.417
		65.12		-4.558E-02	6.121E-02	9.073E-02	7.249E-03	-0.502
		66.83		3.714E-02	3.516E-02	5.578E-02	4.497E-03	0.666

## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	75.70		1.351E+00	1.653E-01	2.093E-01	1.787E-02	6.456
	+	98.88	*	4.355E-01	2.094E-01	2.405E-01	2.395E-02	1.811
	+	129.76		6.156E+00	2.552E+00	3.777E+00	4.155E-01	1.630
TL-200		367.94	*	1.728E-04	2.552E+00	Half-Life	too short	
		579.30		-1.728E-03	2.552E+00	Half-Life	too short	
		828.27		7.114E-03	2.552E+00	Half-Life	too short	
		1205.75		3.558E-03	2.552E+00	Half-Life	too short	
TL-201		68.90		-1.378E+00	2.244E+00	3.616E+00	2.951E-01	-0.381
		70.82		7.335E-02	1.392E+00	2.122E+00	1.753E-01	0.035
		80.30		2.851E+00	3.432E+00	4.756E+00	4.202E-01	0.600
		135.34		2.125E+00	2.299E+01	3.616E+01	3.841E+00	0.059
		167.43	*	-5.452E-01	6.252E+00	1.063E+01	8.658E-01	-0.051
TL-202		68.90		-1.054E-01	1.717E-01	2.767E-01	2.258E-02	-0.381
		70.82		5.598E-03	1.062E-01	1.620E-01	1.338E-02	0.035
		80.30		2.177E-01	2.620E-01	3.631E-01	3.208E-02	0.600
		439.56	*	9.743E-03	6.575E-02	1.121E-01	9.701E-03	0.087
HG-203		70.83		2.400E-02	4.427E-01	6.749E-01	9.030E-02	0.036
	+	72.87		4.276E-01	2.991E-01	4.486E-01	5.850E-02	0.953
	+	82.60		2.185E+00	7.385E-01	8.744E-01	1.223E-01	2.499
		279.20	*	1.122E-02	3.699E-02	5.533E-02	5.065E-03	0.203
BI-207	+	72.80		1.236E-01	8.558E-02	1.292E-01	1.081E-02	0.957
	+	74.97		7.468E-01	9.135E-02	1.234E-01	1.048E-02	6.050
	+	84.90		3.749E-01	1.202E-01	1.747E-01	1.602E-02	2.146
		569.67		-1.031E-02	3.402E-02	5.386E-02	5.515E-03	-0.191
		1063.62	*	4.581E-02	6.315E-02	1.100E-01	9.482E-03	0.416
		1770.23		-3.468E+00	9.884E-01	6.539E-01	5.434E-02	-5.303
TL-207		81.07		1.564E-02	1.077E-01	1.632E-01	1.451E-02	0.096
	+	83.78		2.472E-01	7.923E-02	1.208E-01	1.098E-02	2.046
		94.90		1.506E-01	1.535E-01	2.113E-01	2.058E-02	0.713
		122.32		-2.023E-01	1.171E+00	1.834E+00	2.192E-01	-0.110
		144.24		5.584E-01	5.244E-01	8.505E-01	9.250E-02	0.657
	+	154.21		6.105E-01	3.538E-01	5.192E-01	5.188E-02	1.176
	+	269.46		7.233E-01	2.520E-01	3.334E-01	3.037E-02	2.169
		323.87	*	-1.697E-01	6.521E-01	9.188E-01	1.636E-01	-0.185
	+	338.28		8.355E+00	2.063E+00	2.545E+00	3.151E-01	3.283
		445.03		-1.030E+00	2.125E+00	3.467E+00	4.218E-01	-0.297
PO-209		260.50		-3.091E+00	8.033E+00	1.297E+01	1.159E+00	-0.238
		262.80		1.458E+01	2.201E+01	3.741E+01	3.344E+00	0.390
		896.60	*	-3.355E+00	8.357E+00	1.345E+01	1.179E+00	-0.249
PB-211		404.84	*	1.045E+00	1.206E+00	1.556E+00	9.743E-01	0.672
		427.08		-2.612E-01	1.963E+00	3.286E+00	2.042E+00	-0.079
		831.96		-9.054E-01	1.452E+00	2.123E+00	1.334E+00	-0.426
BI-212	+	727.18	*	1.233E+00	5.788E-01	7.370E-01	8.763E-02	1.674
		785.46		2.777E+00	2.104E+00	3.692E+00	3.790E-01	0.752
		1620.62		3.667E-01	1.721E+00	2.909E+00	2.433E-01	0.126
PO-215		81.07		1.564E-02	1.077E-01	1.632E-01	1.451E-02	0.096
	+	83.78		2.472E-01	7.923E-02	1.208E-01	1.098E-02	2.046
		94.90		1.506E-01	1.535E-01	2.113E-01	2.058E-02	0.713
		122.32		-2.023E-01	1.171E+00	1.834E+00	2.192E-01	-0.110

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		144.24		5.584E-01	5.244E-01	8.505E-01	9.250E-02	0.657
	+	154.21		6.105E-01	3.538E-01	5.192E-01	5.188E-02	1.176
	+	269.46		7.233E-01	2.520E-01	3.334E-01	3.037E-02	2.169
		323.87	*	-1.697E-01	6.521E-01	9.188E-01	1.636E-01	-0.185
	+	338.28		8.355E+00	2.063E+00	2.545E+00	3.151E-01	3.283
		445.03		-1.030E+00	2.125E+00	3.467E+00	4.218E-01	-0.297
RN-219	+	271.23		9.279E-01	3.272E-01	4.061E-01	4.295E-02	2.285
		401.81	*	-2.504E-01	4.087E-01	6.167E-01	9.087E-02	-0.406
RN-220		549.76	*	-1.832E+01	2.563E+01	3.995E+01	4.007E+00	-0.459
RA-223		81.07		1.564E-02	1.077E-01	1.632E-01	1.451E-02	0.096
	+	83.78		2.472E-01	7.923E-02	1.208E-01	1.098E-02	2.046
		94.90		1.506E-01	1.535E-01	2.113E-01	2.058E-02	0.713
		122.32		-2.023E-01	1.171E+00	1.834E+00	2.192E-01	-0.110
		144.24		5.584E-01	5.244E-01	8.505E-01	9.250E-02	0.657
	+	154.21		6.105E-01	3.538E-01	5.192E-01	5.188E-02	1.176
	+	269.46		7.233E-01	2.520E-01	3.334E-01	3.037E-02	2.169
		323.87	*	-1.697E-01	6.521E-01	9.188E-01	1.636E-01	-0.185
	+	338.28		8.355E+00	2.063E+00	2.545E+00	3.151E-01	3.283
		445.03		-1.030E+00	2.125E+00	3.467E+00	4.218E-01	-0.297
AC-227		79.80		2.650E-01	7.974E-01	1.216E+00	2.624E-01	0.218
		236.00		1.532E-01	1.978E-01	3.064E-01	3.804E-02	0.500
		256.20	*	-3.099E-01	3.101E-01	4.784E-01	7.427E-02	-0.648
		286.10		5.906E-01	1.271E+00	2.127E+00	2.851E-01	0.278
	+	299.80		3.386E+00	2.243E+00	2.387E+00	4.211E-01	1.419
		304.40		-3.413E-01	1.753E+00	2.502E+00	4.648E-01	-0.136
		334.20		1.180E+00	2.399E+00	3.559E+00	6.928E-01	0.332
TH-227		79.80		2.650E-01	7.974E-01	1.216E+00	2.657E-01	0.218
	+	94.00		1.403E+01	3.747E+00	2.302E+00	5.116E-01	6.095
		236.00		1.532E-01	1.976E-01	3.064E-01	3.452E-02	0.500
		256.20	*	-3.099E-01	3.115E-01	4.784E-01	8.714E-02	-0.648
		286.10		5.906E-01	1.400E+00	2.127E+00	2.135E+00	0.278
	+	299.80		3.386E+00	2.243E+00	2.387E+00	4.211E-01	1.419
		304.40		-3.413E-01	1.753E+00	2.502E+00	4.648E-01	-0.136
		334.20		1.180E+00	2.399E+00	3.559E+00	6.928E-01	0.332
PA-231		283.67	*	2.722E-01	1.242E+00	2.056E+00	3.157E-01	0.132
	+	301.29		1.355E+00	8.811E-01	9.364E-01	1.166E-01	1.447
TH-231		81.07		1.564E-02	1.077E-01	1.632E-01	1.451E-02	0.096
	+	83.78		2.472E-01	7.923E-02	1.208E-01	1.098E-02	2.046
		94.90		1.506E-01	1.535E-01	2.113E-01	2.058E-02	0.713
		122.32		-2.023E-01	1.171E+00	1.834E+00	2.192E-01	-0.110
		144.24		5.584E-01	5.244E-01	8.505E-01	9.250E-02	0.657
	+	154.21		6.105E-01	3.538E-01	5.192E-01	5.188E-02	1.176
	+	269.46		7.233E-01	2.520E-01	3.334E-01	3.037E-02	2.169
		323.87	*	-1.697E-01	6.521E-01	9.188E-01	1.636E-01	-0.185
	+	338.28		8.355E+00	2.063E+00	2.545E+00	3.151E-01	3.283
		445.03		-1.030E+00	2.125E+00	3.467E+00	4.218E-01	-0.297
U-231	+	84.21		1.244E+01	3.987E+00	6.161E+00	5.616E-01	2.019
	+	92.29		1.619E+01	2.867E+00	2.826E+00	2.716E-01	5.728
		95.87	*	6.791E-01	7.911E-01	1.091E+00	1.069E-01	0.622

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		8.346E-01	1.670E+00	2.516E+00	2.644E-01	0.332
	+	75.28		2.179E+01	3.842E+00	3.588E+00	5.486E-01	6.073
	+	86.59		8.218E+00	2.541E+00	1.905E+00	5.151E-01	4.315
	+	300.12		9.441E-01	6.192E-01	6.673E-01	1.004E-01	1.415
		311.98	*	-3.241E-02	5.706E-02	8.928E-02	8.147E-03	-0.363
		340.50		4.761E-01	5.909E-01	8.863E-01	2.115E-01	0.537
		398.62		2.875E-01	2.055E+00	3.287E+00	8.695E-01	0.087
PA-234		415.76		-1.176E+00	1.490E+00	2.276E+00	4.878E-01	-0.516
	+	63.00		2.439E+00	1.055E+00	9.571E-01	1.447E-01	2.549
	+	94.67		1.251E+00	2.480E-01	1.646E-01	2.173E-02	7.598
	+	98.44		1.758E-01	1.286E-01	9.355E-02	5.239E-02	1.880
	+	99.86		9.115E-01	4.383E-01	4.842E-01	4.849E-02	1.883
		111.00		-7.651E-02	1.238E-01	1.910E-01	2.608E-02	-0.400
		131.20		-2.506E-02	8.430E-02	1.197E-01	1.305E-02	-0.209
	+	152.70		5.010E-01	2.988E-01	4.056E-01	7.059E-02	1.235
	+	186.00		4.977E+00	2.267E+00	2.118E+00	6.599E-01	2.349
		226.40		-1.638E-02	3.278E-01	5.453E-01	7.265E-02	-0.030
		227.20		1.203E-01	3.461E-01	5.854E-01	5.156E-02	0.205
		248.90		-3.318E-01	6.414E-01	1.025E+00	2.309E-01	-0.324
	+	293.70		7.511E+00	1.698E+00	1.483E+00	2.589E-01	5.064
		369.80		-2.241E-01	7.652E-01	1.194E+00	2.586E-01	-0.188
		568.70		-3.949E-01	1.085E+00	1.708E+00	1.748E-01	-0.231
		569.50		-1.020E-01	3.011E-01	4.754E-01	4.867E-02	-0.215
		574.00		8.928E-02	1.508E+00	2.498E+00	2.569E-01	0.036
		699.00		-2.432E-01	7.659E-01	1.203E+00	2.432E-01	-0.202
		706.10		-4.417E-01	1.186E+00	1.830E+00	8.251E-01	-0.241
		733.00		4.880E-01	4.979E-01	7.592E-01	1.753E-01	0.643
		742.81		1.056E+00	1.700E+00	2.626E+00	1.773E+00	0.402
		796.30		1.328E+00	1.197E+00	1.808E+00	4.985E-01	0.735
		805.60		7.765E-02	1.035E+00	1.756E+00	5.457E-01	0.044
		819.60		-8.829E-02	1.235E+00	2.064E+00	7.913E-01	-0.043
		826.30		6.290E-02	8.673E-01	1.467E+00	6.599E-01	0.043
		831.60		-4.600E-01	7.150E-01	1.117E+00	3.372E-01	-0.412
		876.40		-3.344E-02	9.041E-01	1.506E+00	1.549E+00	-0.022
		880.51		-1.443E-01	3.213E-01	5.160E-01	4.661E-02	-0.280
		883.24		1.881E-01	3.535E-01	5.774E-01	3.884E-01	0.326
		899.00		-5.273E-01	9.661E-01	1.487E+00	6.506E-01	-0.354
		925.00		-6.831E-01	1.351E+00	2.143E+00	1.878E-01	-0.319
		926.50		-1.373E-02	1.963E-01	3.244E-01	8.217E-02	-0.042
		946.00	*	-3.395E-01	3.674E-01	5.513E-01	1.038E-01	-0.616
		949.00		2.677E-01	5.250E-01	9.076E-01	7.956E-02	0.295
		980.50		-4.423E-01	7.951E-01	1.241E+00	1.086E-01	-0.356
		1394.10		-6.890E-01	1.295E+00	1.865E+00	1.213E+00	-0.369
PA-234M		766.42		1.594E+01	1.786E+01	2.449E+01	1.251E+01	0.651
NP-236		1001.03	*	3.506E-01	5.600E+00	9.293E+00	9.350E-01	0.038
	+	94.67		9.487E-01	1.680E-01	1.251E-01	1.217E-02	7.584
	+	98.44		1.329E-01	6.392E-02	7.070E-02	7.024E-03	1.880
		111.00		-5.787E-02	9.353E-02	1.445E-01	1.547E-02	-0.400
		160.31	*	-4.786E-03	5.468E-02	9.328E-02	8.064E-03	-0.051

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	+	99.55		3.038E-01	1.461E-01	1.642E-01	1.641E-02	1.851
		117.00	*	-1.600E-01	1.324E-01	1.962E-01	2.181E-02	-0.815
	+	209.75		2.198E+00	8.753E-01	1.150E+00	9.966E-02	1.911
		228.18		7.173E-02	1.817E-01	3.078E-01	2.713E-02	0.233
	+	277.60		4.073E-01	2.059E-01	2.859E-01	2.551E-02	1.425
AM-241		334.30		7.040E-01	1.356E+00	2.023E+00	1.770E-01	0.348
		59.54	*	2.536E-02	4.279E-02	6.750E-02	5.726E-03	0.376
CM-243	+	99.55		3.127E-01	1.504E-01	1.690E-01	1.689E-02	1.851
		103.76	*	5.524E-02	6.237E-02	9.606E-02	9.840E-03	0.575
		117.00		-1.646E-01	1.362E-01	2.019E-01	2.244E-02	-0.815
	+	209.75		2.167E+00	8.629E-01	1.134E+00	9.825E-02	1.911
		228.18		7.248E-02	1.837E-01	3.111E-01	2.742E-02	0.233
AM-246	+	277.60		4.106E-01	2.076E-01	2.883E-01	2.572E-02	1.425
		798.80		-1.061E-01	1.714E-01	2.168E-01	2.194E-02	-0.489
		1036.00		2.626E-01	3.231E-01	5.721E-01	4.964E-02	0.459
		1062.04		1.133E-01	2.629E-01	4.484E-01	3.866E-02	0.253
		1078.86	*	1.051E-01	1.653E-01	2.863E-01	2.456E-02	0.367
CM-247	+	278.00		1.689E+00	8.540E-01	1.167E+00	1.041E-01	1.448
		287.40		-2.896E-01	1.043E+00	1.677E+00	1.497E-01	-0.173
		402.60	*	-2.892E-02	3.720E-02	5.559E-02	4.510E-03	-0.520
CF-249		252.85		5.337E-01	7.009E-01	1.199E+00	1.071E-01	0.445
		333.44		6.414E-02	2.241E-01	2.617E-01	2.292E-02	0.245
		387.95	*	1.309E-02	4.077E-02	6.611E-02	5.303E-03	0.198
CF-251		176.60	*	-4.012E-03	9.138E-02	1.550E-01	1.282E-02	-0.026
		227.00		1.010E-01	3.071E-01	5.190E-01	4.571E-02	0.195
		285.00		-5.756E-01	1.470E+00	2.349E+00	2.097E-01	-0.245



## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229003      *
* Acquisition date   : 22-JAN-2010 12:57:46 Detector SN# :                  *
* Detector ID        : GAM21 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 03:00:38.23 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229003 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.2065E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.537E+01	3.580E+00	5.875E-01	0.000E+00
CD-109	4.277E+00	7.396E-01	7.460E-01	0.000E+00
SN-126	4.198E-01	7.259E-02	7.310E-02	0.000E+00
EU-155	2.643E-01	1.242E-01	1.080E-01	0.000E+00
RE-188	2.667E-01	1.511E-01	2.046E-01	0.000E+00
TL-208	6.604E-01	1.128E-01	5.944E-02	0.000E+00
BI-210	1.548E+00	6.365E-01	5.548E-01	0.000E+00
PB-210	1.548E+00	6.365E-01	5.548E-01	0.000E+00
PO-210	1.548E+00	6.336E-01	5.548E-01	0.000E+00
BI-211	4.847E+00	5.961E-01	2.759E-01	0.000E+00
PB-212	1.945E+00	2.139E-01	7.384E-02	0.000E+00
PO-212	1.945E+00	2.139E-01	7.384E-02	0.000E+00
BI-214	1.490E+00	2.308E-01	1.101E-01	0.000E+00
PB-214	1.686E+00	2.246E-01	9.623E-02	0.000E+00
PO-214	1.686E+00	2.246E-01	9.623E-02	0.000E+00
PO-216	1.945E+00	2.139E-01	7.384E-02	0.000E+00
PO-218	1.686E+00	2.246E-01	9.623E-02	0.000E+00
RA-224	6.052E+00	1.384E+00	8.426E-01	0.000E+00
RA-226	1.490E+00	2.308E-01	1.101E-01	0.000E+00
AC-228	1.932E+00	3.946E-01	2.300E-01	0.000E+00
RA-228	1.932E+00	3.946E-01	2.300E-01	0.000E+00
TH-228	1.977E+00	2.173E-01	7.503E-02	0.000E+00
TH-229	3.822E-01	3.719E-01	6.788E-01	0.000E+00
TH-230	1.490E+00	2.308E-01	1.101E-01	0.000E+00
TH-232	1.932E+00	3.946E-01	2.300E-01	0.000E+00
TH-234	2.093E+00	9.065E-01	6.820E-01	0.000E+00
U-234	1.490E+00	2.308E-01	1.101E-01	0.000E+00
U-235	6.324E-02	1.592E-01	2.636E-01	0.000E+00
NP-237	1.233E+00	3.280E-01	2.138E-01	0.000E+00
U-238	2.093E+00	9.065E-01	6.820E-01	0.000E+00
AM-243	4.160E-01	4.987E-02	3.947E-02	0.000E+00
ANH-511	1.244E-01	6.927E-02	4.391E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	9.132E-02	3.152E-01	5.552E-01	0.000E+00	NOT IDENT.
NA-22	-4.543E-02	5.405E-02	8.083E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.314E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	9.567E-03	2.939E-02	5.218E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.827E-02	3.536E-02	0.000E+00	FAIL ABUN
SC-46	-4.355E-02	4.231E-02	6.529E-02	0.000E+00	FAIL ABUN
V-48	4.370E-02	7.909E-02	1.404E-01	0.000E+00	NOT IDENT.
CR-51	1.715E-01	3.176E-01	5.499E-01	0.000E+00	NOT IDENT.
MN-52	1.150E-02	2.681E-01	4.574E-01	0.000E+00	NOT IDENT.
MN-54	3.317E-03	4.230E-02	7.327E-02	0.000E+00	NOT IDENT.
CO-56	1.831E-02	4.402E-02	7.809E-02	0.000E+00	NOT IDENT.
CO-57	1.490E-04	1.631E-02	2.703E-02	0.000E+00	NOT IDENT.
CO-58	2.541E-02	3.913E-02	7.113E-02	0.000E+00	NOT IDENT.
FE-59	-3.221E-02	1.104E-01	1.795E-01	0.000E+00	NOT IDENT.
CO-60	3.592E-02	4.307E-02	7.991E-02	0.000E+00	NOT IDENT.
ZN-65	-4.224E-02	1.147E-01	1.570E-01	0.000E+00	NOT IDENT.
GE-68	5.315E-02	1.465E+00	2.461E+00	0.000E+00	NOT IDENT.
AS-73	6.108E-02	1.489E-01	2.673E-01	0.000E+00	NOT IDENT.
AS-74	1.493E-02	9.838E-02	1.682E-01	0.000E+00	NOT IDENT.
SE-75	-2.631E-02	3.598E-02	5.908E-02	0.000E+00	NOT IDENT.
BR-77	8.561E+00	1.262E+01	2.266E+01	0.000E+00	FAIL ABUN
SR-82	-1.727E-01	4.303E-01	6.801E-01	0.000E+00	NOT IDENT.
RB-83	3.309E-02	6.480E-02	1.151E-01	0.000E+00	NOT IDENT.
RB-84	2.098E-02	7.982E-02	1.396E-01	0.000E+00	NOT IDENT.
KR-85	6.583E+00	6.949E+00	1.141E+01	0.000E+00	NOT IDENT.
SR-85	3.409E-02	3.599E-02	5.908E-02	0.000E+00	NOT IDENT.
RB-86	3.065E-02	9.429E-01	1.584E+00	0.000E+00	NOT IDENT.
Y-88	3.596E-02	3.888E-02	7.531E-02	0.000E+00	NOT IDENT.
ZR-88	1.704E-02	2.892E-02	4.935E-02	0.000E+00	NOT IDENT.
Y-91	1.451E+01	2.374E+01	4.114E+01	0.000E+00	NOT IDENT.
NB-94	3.482E-03	3.468E-02	5.807E-02	0.000E+00	NOT IDENT.
NB-95	3.473E-02	5.573E-02	8.516E-02	0.000E+00	NOT IDENT.
NB-95M	1.170E-01	1.036E-01	1.701E-01	0.000E+00	NOT IDENT.
ZR-95	5.861E-02	8.501E-02	1.473E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.797E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.780E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-9.069E+00	1.621E+01	2.531E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.655E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.045E-02	2.568E-02	4.194E-02	0.000E+00	NOT IDENT.
RH-102	-1.008E-02	2.788E-02	4.713E-02	0.000E+00	FAIL ABUN
RU-103	5.376E-03	3.839E-02	6.679E-02	0.000E+00	FAIL ABUN
RH-106	2.364E-01	3.351E-01	5.910E-01	0.000E+00	FAIL ABUN
RU-106	2.364E-01	3.343E-01	5.910E-01	0.000E+00	FAIL ABUN
AG-108M	-2.005E-02	3.034E-02	5.081E-02	0.000E+00	NOT IDENT.
AG-110M	-2.154E-02	3.816E-02	6.088E-02	0.000E+00	NOT IDENT.
IN-111	-3.583E-01	1.080E+00	1.627E+00	0.000E+00	NOT IDENT.
IN-113M	4.315E-03	4.172E-02	6.903E-02	0.000E+00	NOT IDENT.
SN-113	4.315E-03	4.172E-02	6.903E-02	0.000E+00	NOT IDENT.
IN-114M	-1.141E-01	1.352E-01	2.182E-01	0.000E+00	NOT IDENT.
CD-115	1.034E+01	1.462E+01	2.617E+01	0.000E+00	NOT IDENT.
SN-117M	-1.027E-02	3.917E-02	6.947E-02	0.000E+00	NOT IDENT.
SB-122	1.631E-03	2.642E+00	4.496E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.284E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.384E-02	1.929E-02	3.355E-02	0.000E+00	NOT IDENT.
I-124	-4.225E-02	7.994E-01	1.244E+00	0.000E+00	NOT IDENT.
SB-124	2.965E-02	8.816E-02	1.553E-01	0.000E+00	FAIL ABUN
SB-125	-5.149E-02	8.714E-02	1.471E-01	0.000E+00	FAIL ABUN
TE-125M	4.317E+00	6.472E+00	1.030E+01	0.000E+00	NOT IDENT.
I-126	1.154E-01	2.100E-01	3.645E-01	0.000E+00	NOT IDENT.
SB-126	3.084E-03	1.683E-01	2.694E-01	0.000E+00	FAIL ABUN
SB-127	-1.641E+00	1.769E+00	2.693E+00	0.000E+00	NOT IDENT.
XE-127	-1.527E-02	3.658E-02	6.305E-02	0.000E+00	NOT IDENT.
I-131	-4.908E-02	1.124E-01	1.804E-01	0.000E+00	NOT IDENT.
TE-132	2.674E-01	6.665E-01	1.174E+00	0.000E+00	NOT IDENT.
BA-133	2.122E-02	4.321E-02	6.635E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.267E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.121E-02	9.690E-02	0.000E+00	FAIL ABUN
CS-135	2.265E-01	1.388E-01	2.320E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.743E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.818E-02	1.290E-01	2.005E-01	0.000E+00	FAIL ABUN
BA-137M	7.010E-03	3.995E-02	6.765E-02	0.000E+00	NOT IDENT.
CS-137	7.411E-03	4.223E-02	7.151E-02	0.000E+00	NOT IDENT.
CE-139	-3.176E-03	2.134E-02	3.787E-02	0.000E+00	NOT IDENT.

BA-140	-1.515E-01	2.634E-01	4.228E-01	0.000E+00	NOT IDENT.
LA-140	-2.413E-02	1.095E-01	1.778E-01	0.000E+00	FAIL ABUN
CE-141	1.624E-02	4.933E-02	8.152E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.306E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.300E-01	1.482E-01	2.309E-01	0.000E+00	NOT IDENT.
PM-144	7.271E-03	3.656E-02	6.174E-02	0.000E+00	NOT IDENT.
PR-144	4.929E-01	2.479E+00	4.186E+00	0.000E+00	NOT IDENT.
PM-146	-1.201E-02	3.992E-02	6.807E-02	0.000E+00	NOT IDENT.
ND-147	-4.198E-01	6.014E-01	9.729E-01	0.000E+00	FAIL ABUN
PM-149	4.060E+01	9.948E+01	1.723E+02	0.000E+00	NOT IDENT.
EU-152	-2.792E-02	8.355E-02	1.361E-01	0.000E+00	FAIL ABUN
GD-153	2.621E-02	5.183E-02	7.343E-02	0.000E+00	FAIL ABUN
EU-154	-1.104E-01	1.496E-01	2.260E-01	0.000E+00	NOT IDENT.
TB-160	-9.191E-02	1.559E-01	2.532E-01	0.000E+00	FAIL ABUN
HO-166M	1.864E-02	6.384E-02	1.084E-01	0.000E+00	FAIL ABUN
TM-171	5.146E+00	1.053E+01	1.731E+01	0.000E+00	NOT IDENT.
LU-176	-1.513E-02	2.077E-02	3.341E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.333E+00	1.832E+00	0.000E+00	FAIL ABUN
LU-177M	6.574E-02	1.790E-01	2.687E-01	0.000E+00	FAIL ABUN
HF-181	-1.537E-02	4.289E-02	7.244E-02	0.000E+00	NOT IDENT.
W-181	-1.027E-01	1.300E-01	2.033E-01	0.000E+00	NOT IDENT.
TA-182	-2.087E-01	2.594E-01	3.994E-01	0.000E+00	FAIL ABUN
RE-183	3.165E-02	7.673E-02	1.391E-01	0.000E+00	FAIL ABUN
RE-184	1.428E-01	1.838E-01	3.271E-01	0.000E+00	NOT IDENT.
OS-185	1.020E-02	4.196E-02	7.178E-02	0.000E+00	NOT IDENT.
W-188	6.020E-01	6.752E+00	1.029E+01	0.000E+00	FAIL ABUN
IR-192	-4.231E-03	2.857E-02	4.756E-02	0.000E+00	FAIL ABUN
AU-195	0.000E+00	2.052E-01	2.478E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	7.322E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-5.452E-01	6.127E+00	1.089E+01	0.000E+00	NOT IDENT.
TL-202	9.743E-03	6.444E-02	1.135E-01	0.000E+00	NOT IDENT.
HG-203	1.122E-02	3.625E-02	5.633E-02	0.000E+00	FAIL ABUN
BI-207	4.581E-02	6.189E-02	1.102E-01	0.000E+00	FAIL ABUN
TL-207	-1.697E-01	6.390E-01	9.337E-01	0.000E+00	FAIL ABUN
PO-209	-3.355E+00	8.190E+00	1.350E+01	0.000E+00	NOT IDENT.
PB-211	1.045E+00	1.182E+00	1.577E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.672E-01	7.417E-01	0.000E+00	FAIL ABUN
PO-215	-1.697E-01	6.390E-01	9.337E-01	0.000E+00	FAIL ABUN
RN-219	-2.504E-01	4.005E-01	6.251E-01	0.000E+00	FAIL ABUN
RN-220	-1.832E+01	2.512E+01	4.034E+01	0.000E+00	NOT IDENT.
RA-223	-1.697E-01	6.390E-01	9.337E-01	0.000E+00	FAIL ABUN
AC-227	-3.099E-01	3.039E-01	4.875E-01	0.000E+00	FAIL ABUN
TH-227	-3.099E-01	3.053E-01	4.875E-01	0.000E+00	FAIL ABUN
PA-231	2.722E-01	1.217E+00	2.092E+00	0.000E+00	FAIL ABUN
TH-231	-1.697E-01	6.390E-01	9.337E-01	0.000E+00	FAIL ABUN
U-231	6.791E-01	7.753E-01	1.125E+00	0.000E+00	FAIL ABUN
PA-233	-3.241E-02	5.591E-02	9.077E-02	0.000E+00	FAIL ABUN
PA-234	-3.395E-01	3.600E-01	5.530E-01	0.000E+00	FAIL ABUN
PA-234M	3.506E-01	5.488E+00	9.315E+00	0.000E+00	NOT IDENT.
NP-236	-4.786E-03	5.359E-02	9.558E-02	0.000E+00	FAIL ABUN
NP-239	-1.600E-01	1.297E-01	2.018E-01	0.000E+00	FAIL ABUN
AM-241	2.536E-02	4.194E-02	6.997E-02	0.000E+00	NOT IDENT.
CM-243	5.524E-02	6.112E-02	9.894E-02	0.000E+00	FAIL ABUN
AM-246	1.051E-01	1.620E-01	2.867E-01	0.000E+00	NOT IDENT.
CM-247	-2.892E-02	3.646E-02	5.635E-02	0.000E+00	FAIL ABUN
CF-249	1.309E-02	3.995E-02	6.704E-02	0.000E+00	NOT IDENT.
CF-251	-4.012E-03	8.955E-02	1.587E-01	0.000E+00	NOT IDENT.

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229003.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:57:46
Sample ID          : G244229003      Sample quantity   : 1.20650E+02 GRAM
Detector name      : GAM21            Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00   Elapsed real time: 0 03:00:38.23 0.4%
Energy tolerance  : 1.50000 keV      Analyst Initials : MXR1
Abundance limit   : 75.00000         Sensitivity      : 5.00000
Batch ID          : 941239            Detector SN#     :
Matrix Spike ID   :                   LCS ID          : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1311	10.67*	7.204E-01	3.537E+01	3.537E+01	10.33
CD-109	88.03	609	3.72*	8.136E+00	4.175E+00	4.277E+00	17.65
SN-126	64.28	314	9.60	8.181E+00	8.283E-01	8.283E-01	43.14
	86.94	609	8.90	8.136E+00	1.745E+00	1.745E+00	44.13
	87.57	609	37.00*	8.136E+00	4.198E-01	4.198E-01	17.65
EU-155	48.70	-----	4.60	7.522E+00	-----	Line Not Found	-----
	60.01	-----	1.11	8.097E+00	-----	Line Not Found	-----
	86.54	609	30.90	8.136E+00	5.026E-01	5.057E-01	17.69
	105.31	202	20.70*	7.707E+00	2.627E-01	2.643E-01	47.96
RE-188	155.03	103	15.00*	6.271E+00	2.271E-01	2.667E-01	57.81
	477.96	-----	1.04	2.183E+00	-----	Line Not Found	-----
	633.10	-----	1.26	1.634E+00	-----	Line Not Found	-----
TL-208	277.35	105	6.80	3.804E+00	8.445E-01	8.445E-01	51.32
	510.84	122	21.60	2.037E+00	5.759E-01	5.759E-01	57.43
	583.14	477	84.20*	1.778E+00	6.604E-01	6.604E-01	17.43
	860.37	-----	12.46	1.201E+00	-----	Line Not Found	-----
BI-210	46.50	222	4.05*	7.355E+00	1.546E+00	1.548E+00	41.94
PB-210	46.50	222	4.05*	7.355E+00	1.546E+00	1.548E+00	41.94
PO-210	46.50	222	4.05*	7.355E+00	1.546E+00	1.548E+00	41.76
BI-211	72.87	107	1.27	8.278E+00	2.120E+00	2.120E+00	69.24
	351.07	906	12.94*	2.997E+00	4.847E+00	4.847E+00	12.55
PB-212	74.81	1095	10.70	8.275E+00	2.566E+00	2.566E+00	15.39
	77.11	1825	18.00	8.264E+00	2.544E+00	2.544E+00	10.49
	87.30	609	8.00	8.136E+00	1.941E+00	1.941E+00	20.28
	238.63	1835	44.60*	4.387E+00	1.945E+00	1.945E+00	11.22
	300.09	106	3.41	3.520E+00	1.827E+00	1.827E+00	64.73
PO-212	74.81	1095	10.70	8.275E+00	2.566E+00	2.566E+00	15.39
	77.11	1825	18.00	8.264E+00	2.544E+00	2.544E+00	10.49
	87.30	609	8.00	8.136E+00	1.941E+00	1.941E+00	20.28
	115.19	-----	0.60	7.423E+00	-----	Line Not Found	-----
	238.63	1835	44.60*	4.387E+00	1.945E+00	1.945E+00	11.22
	300.09	106	3.41	3.520E+00	1.827E+00	1.827E+00	64.73

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BI-214	609.31	565	46.30*	1.700E+00	1.490E+00	1.490E+00	15.81
	1120.29	122	15.10	9.293E-01	1.799E+00	1.799E+00	39.84
	1764.49	94	15.80	5.984E-01	2.065E+00	2.065E+00	24.82
PB-214	74.81	1095	6.21	8.275E+00	4.422E+00	4.422E+00	14.30
	77.11	1825	10.50	8.264E+00	4.361E+00	4.361E+00	12.97
	87.30	609	4.67	8.136E+00	3.326E+00	3.326E+00	19.26
	241.98	500	7.49	4.339E+00	3.191E+00	3.191E+00	24.00
	295.21	518	19.20	3.577E+00	1.565E+00	1.565E+00	18.03
PO-214	351.92	906	37.20*	2.997E+00	1.686E+00	1.686E+00	13.59
	74.81	1095	6.21	8.275E+00	4.422E+00	4.422E+00	14.30
	77.11	1825	10.50	8.264E+00	4.361E+00	4.361E+00	12.97
	87.30	609	4.67	8.136E+00	3.326E+00	3.326E+00	19.26
	241.98	500	7.49	4.339E+00	3.191E+00	3.191E+00	24.00
PO-216	295.21	518	19.20	3.577E+00	1.565E+00	1.565E+00	18.03
	351.92	906	37.20*	2.997E+00	1.686E+00	1.686E+00	13.59
	74.81	1095	10.70	8.275E+00	2.566E+00	2.566E+00	15.39
	77.11	1825	18.00	8.264E+00	2.544E+00	2.544E+00	10.49
	87.30	609	8.00	8.136E+00	1.941E+00	1.941E+00	20.28
PO-218	238.63	1835	44.60*	4.387E+00	1.945E+00	1.945E+00	11.22
	300.09	106	3.41	3.520E+00	1.827E+00	1.827E+00	64.73
	74.81	1095	6.21	8.275E+00	4.422E+00	4.422E+00	14.30
	77.11	1825	10.50	8.264E+00	4.361E+00	4.361E+00	12.97
	87.30	609	4.67	8.136E+00	3.326E+00	3.326E+00	19.26
RA-224	241.98	500	7.49	4.339E+00	3.191E+00	3.191E+00	24.00
	295.21	518	19.20	3.577E+00	1.565E+00	1.565E+00	18.03
	351.92	906	37.20*	2.997E+00	1.686E+00	1.686E+00	13.59
	240.98	500	3.95*	4.339E+00	6.052E+00	6.052E+00	23.33
	609.31	565	46.30*	1.700E+00	1.490E+00	1.490E+00	15.81
AC-228	1120.29	122	15.10	9.293E-01	1.799E+00	1.799E+00	39.84
	1764.49	94	15.80	5.984E-01	2.065E+00	2.065E+00	24.82
	338.32	343	11.40	3.120E+00	2.001E+00	2.001E+00	46.48
RA-228	911.07	293	27.70*	1.136E+00	1.932E+00	1.932E+00	20.84
	969.11	203	16.60	1.070E+00	2.377E+00	2.377E+00	30.92
	338.32	343	11.40	3.120E+00	2.001E+00	2.001E+00	46.48
TH-228	911.07	293	27.70*	1.136E+00	1.932E+00	1.932E+00	20.84
	969.11	203	16.60	1.070E+00	2.377E+00	2.377E+00	30.92
	74.81	1095	10.70	8.275E+00	2.566E+00	2.608E+00	12.28
TH-229	77.11	1825	18.00	8.264E+00	2.544E+00	2.585E+00	10.49
	87.30	609	8.00	8.136E+00	1.941E+00	1.973E+00	17.65
	238.63	1835	44.60*	4.387E+00	1.945E+00	1.977E+00	11.22
	300.09	106	3.41	3.520E+00	1.827E+00	1.857E+00	87.15
	85.43	241	16.50	8.188E+00	3.700E-01	3.700E-01	32.05
TH-230	88.47	609	27.10	8.136E+00	5.731E-01	5.731E-01	17.65
	100.00	170	12.40	7.875E+00	3.602E-01	3.602E-01	48.09
	193.63	-----	4.59*	5.269E+00	-----	Line Not Found	-----
	210.97	-----	3.26	4.898E+00	-----	Line Not Found	-----
	609.31	565	46.30*	1.700E+00	1.490E+00	1.490E+00	15.81
TH-230	1120.29	122	15.10	9.293E-01	1.799E+00	1.799E+00	39.84
	1764.49	94	15.80	5.984E-01	2.065E+00	2.065E+00	24.82

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TH-232	338.32	343	11.40	3.120E+00	2.001E+00	2.001E+00	23.07
	911.07	293	27.70*	1.136E+00	1.932E+00	1.932E+00	20.84
	969.11	203	16.60	1.070E+00	2.377E+00	2.377E+00	30.92
TH-234	63.29	314	3.80*	8.181E+00	2.093E+00	2.093E+00	44.20
	92.38	759	5.41	8.015E+00	3.630E+00	3.630E+00	23.80
U-234	609.31	565	46.30*	1.700E+00	1.490E+00	1.490E+00	15.81
	1120.29	122	15.10	9.293E-01	1.799E+00	1.799E+00	39.84
	1764.49	94	15.80	5.984E-01	2.065E+00	2.065E+00	24.82
U-235	89.95	345	2.70	8.084E+00	3.274E+00	3.274E+00	37.95
	93.35	759	4.50	8.015E+00	4.364E+00	4.364E+00	32.01
	105.00	202	2.10	7.707E+00	2.589E+00	2.589E+00	55.81
	143.76	-----	10.50*	6.567E+00	-----	Line Not Found	-----
	163.35	-----	4.70	6.016E+00	-----	Line Not Found	-----
NP-237	185.71	262	54.00	5.452E+00	1.843E-01	1.843E-01	34.27
	205.31	-----	4.70	5.015E+00	-----	Line Not Found	-----
	86.50	609	12.60*	8.136E+00	1.233E+00	1.233E+00	27.15
	95.87	-----	2.60	7.953E+00	-----	Line Not Found	-----
	63.29	314	3.80*	8.181E+00	2.093E+00	2.093E+00	44.20
U-238	92.38	759	5.41	8.015E+00	3.630E+00	3.630E+00	17.71
	74.67	1095	66.00*	8.275E+00	4.160E-01	4.160E-01	12.23
AM-243	86.72	609	0.34	8.136E+00	4.622E+01	4.622E+01	17.65
	117.66	-----	0.55	7.349E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.613E+00	-----	Line Not Found	-----
ANH-511	511.00	122	100.00*	2.037E+00	1.244E-01	1.244E-01	56.82

Flag: "\*" = Keyline

Total number of lines in spectrum 39  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 39 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.537E+01	3.537E+01	0.365E+01	10.33	
CD-109	464.00D	1.02	4.175E+00	4.277E+00	0.755E+00	17.65	
SN-126	1.00E+05Y	1.00	4.198E-01	4.198E-01	0.741E-01	17.65	
EU-155	4.96Y	1.01	2.627E-01	2.643E-01	1.267E-01	47.96	
RE-188	69.40D	1.17	2.271E-01	2.667E-01	1.542E-01	57.81	
TL-208	1.41E+10Y	1.00	6.604E-01	6.604E-01	1.151E-01	17.43	
BI-210	22.26Y	1.00	1.546E+00	1.548E+00	0.649E+00	41.94	
PB-210	22.26Y	1.00	1.546E+00	1.548E+00	0.649E+00	41.94	
PO-210	22.26Y	1.00	1.546E+00	1.548E+00	0.647E+00	41.76	
BI-211	7.04E+08Y	1.00	4.847E+00	4.847E+00	0.608E+00	12.55	
PB-212	1.41E+10Y	1.00	1.945E+00	1.945E+00	0.218E+00	11.22	
PO-212	1.41E+10Y	1.00	1.945E+00	1.945E+00	0.218E+00	11.22	
BI-214	1600.00Y	1.00	1.490E+00	1.490E+00	0.236E+00	15.81	
PB-214	1600.00Y	1.00	1.686E+00	1.686E+00	0.229E+00	13.59	
PO-214	1600.00Y	1.00	1.686E+00	1.686E+00	0.229E+00	13.59	
PO-216	1.41E+10Y	1.00	1.945E+00	1.945E+00	0.218E+00	11.22	
PO-218	1600.00Y	1.00	1.686E+00	1.686E+00	0.229E+00	13.59	
RA-224	1.41E+10Y	1.00	6.052E+00	6.052E+00	1.412E+00	23.33	
RA-226	1600.00Y	1.00	1.490E+00	1.490E+00	0.236E+00	15.81	
AC-228	1.41E+10Y	1.00	1.932E+00	1.932E+00	0.403E+00	20.84	
RA-228	1.41E+10Y	1.00	1.932E+00	1.932E+00	0.403E+00	20.84	
TH-228	1.91Y	1.02	1.945E+00	1.977E+00	0.222E+00	11.22	
TH-229	7340.00Y	1.00	5.731E-01	5.731E-01	1.011E-01	17.65	K
TH-230	4.47E+09Y	1.00	1.490E+00	1.490E+00	0.236E+00	15.81	
TH-232	1.41E+10Y	1.00	1.932E+00	1.932E+00	0.403E+00	20.84	
TH-234	4.47E+09Y	1.00	2.093E+00	2.093E+00	0.925E+00	44.20	
U-234	4.47E+09Y	1.00	1.490E+00	1.490E+00	0.236E+00	15.81	
U-235	7.04E+08Y	1.00	1.843E-01	1.843E-01	0.632E-01	34.27	K
NP-237	2.14E+06Y	1.00	1.233E+00	1.233E+00	0.335E+00	27.15	
U-238	4.47E+09Y	1.00	2.093E+00	2.093E+00	0.925E+00	44.20	
AM-243	7380.00Y	1.00	4.160E-01	4.160E-01	0.509E-01	12.23	
ANH-511	1.00E+09Y	1.00	1.244E-01	1.244E-01	0.707E-01	56.82	
Total Activity :			8.796E+01	8.814E+01			

Grand Total Activity : 8.796E+01 8.814E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.87	159	340	0.83	257.65	255	6	1.47E-02	39.9	7.01E+00	T
0	209.19	169	303	0.85	418.23	414	8	1.57E-02	38.9	4.93E+00	T
0	270.06	185	241	1.24	539.92	536	9	1.71E-02	33.6	3.90E+00	T
0	328.27	76	255	1.05	656.31	651	11	7.03E-03	84.7	3.22E+00	T
0	409.64	67	177	0.97	819.01	815	10	6.24E-03	77.4	2.56E+00	T
0	463.33	102	160	1.29	926.37	921	12	9.46E-03	53.6	2.25E+00	T
0	727.48	100	94	1.51	1454.66	1449	13	9.22E-03	45.4	1.42E+00	T
0	768.18	55	65	1.07	1536.07	1534	8	5.05E-03	59.1	1.34E+00	T
0	794.72	52	49	1.26	1589.17	1585	9	4.82E-03	56.0	1.30E+00	T
1	964.26	48	63	1.78	1928.32	1920	25	4.46E-03	71.9	1.07E+00	T
0	1407.64	26	19	0.74	2815.56	2809	11	2.38E-03	77.1	7.46E-01	T

Flags: "T" = Tentatively associated



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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229003.CNF;1
* Acquisition date   : 22-JAN-2010 12:57:46   Detector SN#      :
* Detector ID        : GAM21                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 03:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 03:00:38.23          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229003             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity : 1.20650E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51.9MS Isotope      :
* MSD ID              :                               MSD Isotope :
* LCS ID              : 1032-A                     LCS Isotope   :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.537E+01	3.653E+00	5.889E-01	5.027E-02	60.061
CD-109	4.277E+00	7.547E-01	7.230E-01	6.802E-02	5.916
SN-126	4.198E-01	7.407E-02	7.083E-02	6.640E-03	5.926
EU-155	2.643E-01	1.267E-01	1.049E-01	1.094E-02	2.520
RE-188	2.667E-01	1.542E-01	1.996E-01	1.818E-02	1.336
TL-208	6.604E-01	1.151E-01	5.891E-02	6.417E-03	11.211
BI-210	1.548E+00	6.495E-01	5.338E-01	5.090E-02	2.901
PB-210	1.548E+00	6.495E-01	5.338E-01	5.090E-02	2.901
PO-210	1.548E+00	6.466E-01	5.338E-01	4.632E-02	2.901
BI-211	4.847E+00	6.083E-01	2.717E-01	2.452E-02	17.838
PB-212	1.945E+00	2.182E-01	7.240E-02	7.199E-03	26.869
PO-212	1.945E+00	2.182E-01	7.240E-02	7.199E-03	26.869
BI-214	1.490E+00	2.356E-01	1.092E-01	1.290E-02	13.650
PB-214	1.686E+00	2.292E-01	9.479E-02	9.875E-03	17.786
PO-214	1.686E+00	2.292E-01	9.479E-02	9.875E-03	17.786
PO-216	1.945E+00	2.182E-01	7.240E-02	7.199E-03	26.869
PO-218	1.686E+00	2.292E-01	9.479E-02	9.875E-03	17.786
RA-224	6.052E+00	1.412E+00	8.262E-01	7.342E-02	7.324

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.490E+00	2.356E-01	1.092E-01	1.290E-02	13.650
AC-228	1.932E+00	4.026E-01	2.292E-01	2.601E-02	8.428
RA-228	1.932E+00	4.026E-01	2.292E-01	2.601E-02	8.428
TH-228	1.977E+00	2.217E-01	7.356E-02	7.315E-03	26.869
TH-229	5.731E-01	1.011E-01	6.639E-01	5.637E-02	0.863
TH-230	1.490E+00	2.355E-01	1.092E-01	1.290E-02	13.650
TH-232	1.932E+00	4.026E-01	2.292E-01	2.601E-02	8.428
TH-234	2.093E+00	9.250E-01	6.584E-01	1.163E-01	3.178
U-234	1.490E+00	2.355E-01	1.092E-01	1.290E-02	13.650
U-235	1.843E-01	6.316E-02	2.569E-01	4.685E-02	0.717
NP-237	1.233E+00	3.347E-01	2.072E-01	4.688E-02	5.950
U-238	2.093E+00	9.250E-01	6.584E-01	1.163E-01	3.178
AM-243	4.160E-01	5.089E-02	3.818E-02	3.235E-03	10.898
ANH-511	1.244E-01	7.068E-02	4.345E-02	4.165E-03	2.863

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	9.132E-02		3.216E-01	5.489E-01	5.378E-02	0.166
NA-22	-4.543E-02		5.515E-02	8.088E-02	6.635E-03	-0.562
NA-24	-1.545E+00		1.180E+00	Half-Life	too short	
AL-26	9.567E-03		2.999E-02	5.244E-02	4.339E-03	0.182
TI-44	4.695E-01	+	4.925E-02	3.422E-02	2.980E-03	13.720
SC-46	-4.355E-02		4.318E-02	6.504E-02	5.783E-03	-0.670
V-48	4.370E-02		8.071E-02	1.401E-01	1.226E-02	0.312
CR-51	1.715E-01		3.241E-01	5.410E-01	5.030E-02	0.317
MN-52	1.150E-02		2.736E-01	4.583E-01	3.785E-02	0.025
MN-54	3.317E-03		4.316E-02	7.293E-02	7.069E-03	0.045
CO-56	1.831E-02		4.492E-02	7.774E-02	7.410E-03	0.235
CO-57	1.490E-04		1.664E-02	2.630E-02	3.021E-03	0.006
CO-58	2.541E-02		3.993E-02	7.077E-02	7.082E-03	0.359
FE-59	-3.221E-02		1.126E-01	1.793E-01	1.654E-02	-0.180
CO-60	3.592E-02		4.395E-02	8.000E-02	6.493E-03	0.449
ZN-65	-4.224E-02		1.170E-01	1.569E-01	1.330E-02	-0.269
GE-68	5.315E-02		1.495E+00	2.457E+00	2.109E-01	0.022
AS-73	6.108E-02		1.519E-01	2.576E-01	2.086E-02	0.237
AS-74	1.493E-02		1.004E-01	1.667E-01	1.750E-02	0.090
SE-75	-2.631E-02		3.672E-02	5.799E-02	5.207E-03	-0.454
BR-77	8.561E+00		1.288E+01	2.243E+01	2.176E+00	0.382
SR-82	-1.727E-01		4.391E-01	6.763E-01	7.001E-02	-0.255
RB-83	3.309E-02		6.613E-02	1.139E-01	1.105E-02	0.291
RB-84	2.098E-02		8.145E-02	1.390E-01	1.254E-02	0.151
KR-85	6.583E+00		7.091E+00	1.129E+01	1.086E+00	0.583
SR-85	3.409E-02		3.672E-02	5.846E-02	5.625E-03	0.583
RB-86	3.065E-02		9.621E-01	1.581E+00	1.358E-01	0.019
Y-88	3.596E-02		3.968E-02	7.569E-02	6.249E-03	0.475
ZR-88	1.704E-02		2.951E-02	4.867E-02	3.877E-03	0.350

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
Y-91	1.451E+01		2.423E+01	4.113E+01	3.389E+00	0.353
NB-94	3.482E-03		3.538E-02	5.768E-02	6.281E-03	0.060
NB-95	3.473E-02		5.687E-02	8.468E-02	8.850E-03	0.410
NB-95M	1.170E-01		1.058E-01	1.668E-01	1.681E-02	0.701
ZR-95	5.861E-02		8.675E-02	1.464E-01	1.648E-02	0.400
NB-97	-3.321E-01		1.427E-01	Half-Life	too short	
ZR-97	9.008E-01		2.439E+00	Half-Life	too short	
MO-99	-9.069E+00		1.654E+01	2.516E+01	4.134E+00	-0.360
TC-99M	9.140E+10		1.865E+11	Half-Life	too short	
RH-101	-3.045E-02		2.620E-02	4.103E-02	3.505E-03	-0.742
RH-102	-1.008E-02		2.845E-02	4.659E-02	4.256E-03	-0.216
RU-103	5.376E-03		3.917E-02	6.607E-02	9.686E-03	0.081
RH-106	2.364E-01		3.419E-01	5.861E-01	8.679E-02	0.403
RU-106	2.364E-01		3.411E-01	5.861E-01	6.289E-02	0.403
AG-108M	-2.005E-02		3.096E-02	5.017E-02	4.474E-03	-0.400
AG-110M	-2.154E-02		3.893E-02	6.043E-02	6.778E-03	-0.357
IN-111	-3.583E-01		1.102E+00	1.596E+00	1.421E-01	-0.224
IN-113M	4.315E-03		4.257E-02	6.809E-02	5.607E-03	0.063
SN-113	4.315E-03		4.257E-02	6.809E-02	5.607E-03	0.063
IN-114M	-1.141E-01		1.380E-01	2.134E-01	1.803E-02	-0.535
CD-115	1.034E+01		1.491E+01	2.590E+01	2.534E+00	0.399
SN-117M	-1.027E-02		3.997E-02	6.779E-02	5.967E-03	-0.151
SB-122	1.631E-03		2.696E+00	4.454E+00	4.534E-01	0.000
I-123	-9.213E+00		6.552E+00	Half-Life	too short	
TE-123M	-1.384E-02		1.969E-02	3.274E-02	2.886E-03	-0.423
I-124	-4.225E-02		8.157E-01	1.233E+00	1.302E-01	-0.034
SB-124	2.965E-02		8.996E-02	1.559E-01	1.357E-02	0.190
SB-125	-5.149E-02		8.892E-02	1.452E-01	1.257E-02	-0.355
TE-125M	4.317E+00		6.604E+00	1.000E+01	1.203E+00	0.432
I-126	1.154E-01		2.143E-01	3.618E-01	3.992E-02	0.319
SB-126	3.084E-03		1.718E-01	2.677E-01	2.889E-02	0.012
SB-127	-1.641E+00		1.805E+00	2.674E+00	3.608E-01	-0.614
XE-127	-1.527E-02		3.733E-02	6.170E-02	5.302E-03	-0.247
I-131	-4.908E-02		1.147E-01	1.778E-01	1.582E-02	-0.276
TE-132	2.674E-01		6.801E-01	1.150E+00	1.840E-01	0.232
BA-133	2.122E-02		4.409E-02	6.537E-02	8.590E-03	0.325
I-133	3.870E-03		6.463E-03	Half-Life	too short	
CS-134	1.098E-01	+	6.246E-02	9.639E-02	9.841E-03	1.139
CS-135	2.265E-01		1.417E-01	2.278E-01	2.333E-02	0.994
I-135	5.585E+10		3.441E+10	Half-Life	too short	
CS-136	-9.818E-02		1.316E-01	2.001E-01	1.805E-02	-0.491
BA-137M	7.010E-03		4.077E-02	6.715E-02	7.416E-03	0.104
CS-137	7.411E-03		4.310E-02	7.098E-02	7.848E-03	0.104
CE-139	-3.176E-03		2.177E-02	3.697E-02	3.005E-03	-0.086
BA-140	-1.515E-01		2.687E-01	4.186E-01	1.402E-01	-0.362
LA-140	-2.413E-02		1.118E-01	1.784E-01	1.492E-02	-0.135
CE-141	1.624E-02		5.034E-02	7.947E-02	7.967E-03	0.204
CE-143	4.711E-04		1.176E-04	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CE-144	-1.300E-01		1.512E-01	2.248E-01	3.786E-02	-0.578
PM-144	7.271E-03		3.731E-02	6.132E-02	6.698E-03	0.119
PR-144	4.929E-01		2.530E+00	4.158E+00	4.540E-01	0.119
PM-146	-1.201E-02		4.073E-02	6.726E-02	7.339E-03	-0.179
ND-147	-4.198E-01		6.137E-01	9.631E-01	1.510E-01	-0.436
PM-149	4.060E+01		1.015E+02	1.693E+02	2.662E+01	0.240
EU-152	-2.792E-02		8.526E-02	1.340E-01	1.229E-02	-0.208
GD-153	2.621E-02		5.289E-02	7.125E-02	7.038E-03	0.368
EU-154	-1.104E-01		1.526E-01	2.261E-01	2.485E-02	-0.488
TB-160	-9.191E-02		1.591E-01	2.522E-01	2.283E-02	-0.364
HO-166M	1.864E-02		6.514E-02	1.077E-01	1.168E-02	0.173
TM-171	5.146E+00		1.075E+01	1.672E+01	1.347E+00	0.308
LU-176	-1.513E-02		2.119E-02	3.286E-02	2.926E-03	-0.460
LU-177	3.417E+00	+	1.361E+00	1.794E+00	1.552E-01	1.905
LU-177M	6.574E-02		1.826E-01	2.652E-01	2.195E-02	0.248
HF-181	-1.537E-02		4.377E-02	7.163E-02	6.608E-03	-0.215
W-181	-1.027E-01		1.326E-01	1.963E-01	1.569E-02	-0.523
TA-182	-2.087E-01		2.647E-01	3.995E-01	3.288E-02	-0.522
RE-183	3.165E-02		7.830E-02	1.358E-01	1.149E-02	0.233
RE-184	1.428E-01		1.875E-01	3.209E-01	2.864E-02	0.445
OS-185	1.020E-02		4.282E-02	7.123E-02	7.783E-03	0.143
W-188	6.020E-01		6.890E+00	1.011E+01	9.027E-01	0.060
IR-192	-4.231E-03		2.916E-02	4.679E-02	4.158E-03	-0.090
AU-195	4.355E-01	+	2.094E-01	2.405E-01	2.395E-02	1.811
TL-200	1.728E-04		3.736E-04	Half-Life	too short	
TL-201	-5.452E-01		6.252E+00	1.063E+01	8.658E-01	-0.051
TL-202	9.743E-03		6.575E-02	1.121E-01	9.701E-03	0.087
HG-203	1.122E-02		3.699E-02	5.533E-02	5.065E-03	0.203
BI-207	4.581E-02		6.315E-02	1.100E-01	9.482E-03	0.416
TL-207	-1.697E-01		6.521E-01	9.188E-01	1.636E-01	-0.185
PO-209	-3.355E+00		8.357E+00	1.345E+01	1.179E+00	-0.249
PB-211	1.045E+00		1.206E+00	1.556E+00	9.743E-01	0.672
BI-212	1.233E+00	+	5.788E-01	7.370E-01	8.763E-02	1.674
PO-215	-1.697E-01		6.521E-01	9.188E-01	1.636E-01	-0.185
RN-219	-2.504E-01		4.087E-01	6.167E-01	9.087E-02	-0.406
RN-220	-1.832E+01		2.563E+01	3.995E+01	4.007E+00	-0.459
RA-223	-1.697E-01		6.521E-01	9.188E-01	1.636E-01	-0.185
AC-227	-3.099E-01		3.101E-01	4.784E-01	7.427E-02	-0.648
TH-227	-3.099E-01		3.115E-01	4.784E-01	8.714E-02	-0.648
PA-231	2.722E-01		1.242E+00	2.056E+00	3.157E-01	0.132
TH-231	-1.697E-01		6.521E-01	9.188E-01	1.636E-01	-0.185
U-231	6.791E-01		7.911E-01	1.091E+00	1.069E-01	0.622
PA-233	-3.241E-02		5.706E-02	8.928E-02	8.147E-03	-0.363
PA-234	-3.395E-01		3.674E-01	5.513E-01	1.038E-01	-0.616
PA-234M	3.506E-01		5.600E+00	9.293E+00	9.350E-01	0.038
NP-236	-4.786E-03		5.468E-02	9.328E-02	8.064E-03	-0.051
NP-239	-1.600E-01		1.324E-01	1.962E-01	2.181E-02	-0.815
AM-241	2.536E-02		4.279E-02	6.750E-02	5.726E-03	0.376

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	5.524E-02		6.237E-02	9.606E-02	9.840E-03	0.575
AM-246	1.051E-01		1.653E-01	2.863E-01	2.456E-02	0.367
CM-247	-2.892E-02		3.720E-02	5.559E-02	4.510E-03	-0.520
CF-249	1.309E-02		4.077E-02	6.611E-02	5.303E-03	0.198
CF-251	-4.012E-03		9.138E-02	1.550E-01	1.282E-02	-0.026

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229003          *
* Acquisition date   : 22-JAN-2010 12:57:46 Detector SN#                  *
* Detector ID        : GAM21 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 03:00:38.23 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229003 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.2065E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 28-JUL-2009 10:09:51 MS Isotope                   :
* MSD DPM             : 0.000 MSD Isotope                                :
* LCS DPM             : 0.000 LCS Isotope                                :
* LCSD DPM            : 0.000 LCSD Isotope                               :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.537E+01	3.580E+00	2.939E-01	1.827E+00
CD-109	4.277E+00	7.396E-01	3.732E-01	3.773E-01
SN-126	4.198E-01	7.259E-02	3.657E-02	3.704E-02
EU-155	2.643E-01	1.242E-01	5.403E-02	6.337E-02
RE-188	2.667E-01	1.511E-01	1.024E-01	7.710E-02
TL-208	6.604E-01	1.128E-01	2.974E-02	5.755E-02
BI-210	1.548E+00	6.365E-01	2.776E-01	3.247E-01
PB-210	1.548E+00	6.365E-01	2.776E-01	3.247E-01
PO-210	1.548E+00	6.336E-01	2.776E-01	3.233E-01
BI-211	4.847E+00	5.961E-01	1.380E-01	3.041E-01
PB-212	1.945E+00	2.139E-01	3.694E-02	1.091E-01
PO-212	1.945E+00	2.139E-01	3.694E-02	1.091E-01
BI-214	1.490E+00	2.308E-01	5.509E-02	1.178E-01
PB-214	1.686E+00	2.246E-01	4.814E-02	1.146E-01
PO-214	1.686E+00	2.246E-01	4.814E-02	1.146E-01
PO-216	1.945E+00	2.139E-01	3.694E-02	1.091E-01
PO-218	1.686E+00	2.246E-01	4.814E-02	1.146E-01
RA-224	6.052E+00	1.384E+00	4.215E-01	7.060E-01
RA-226	1.490E+00	2.308E-01	5.509E-02	1.178E-01
AC-228	1.932E+00	3.946E-01	1.151E-01	2.013E-01
RA-228	1.932E+00	3.946E-01	1.151E-01	2.013E-01
TH-228	1.977E+00	2.173E-01	3.754E-02	1.109E-01
TH-229	3.822E-01	3.719E-01	3.396E-01	1.898E-01
TH-230	1.490E+00	2.308E-01	5.508E-02	1.178E-01
TH-232	1.932E+00	3.946E-01	1.151E-01	2.013E-01
TH-234	2.093E+00	9.065E-01	3.412E-01	4.625E-01
U-234	1.490E+00	2.308E-01	5.508E-02	1.178E-01
U-235	6.324E-02	1.592E-01	1.319E-01	8.121E-02
NP-237	1.233E+00	3.280E-01	1.070E-01	1.673E-01
U-238	2.093E+00	9.065E-01	3.412E-01	4.625E-01
AM-243	4.160E-01	4.987E-02	1.975E-02	2.544E-02
ANH-511	1.244E-01	6.927E-02	2.197E-02	3.534E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU	
BE-7	9.132E-02	3.152E-01	2.777E-01	1.608E-01	NOT IDENT.
NA-22	-4.543E-02	5.405E-02	4.044E-02	2.758E-02	NOT IDENT.
NA-24	-1.545E+06	2.314E+06	0.000E+00	1.180E+06	SHORT HLIF
AL-26	9.567E-03	2.939E-02	2.611E-02	1.499E-02	NOT IDENT.
TI-44	4.695E-01	4.827E-02	1.769E-02	2.463E-02	FAIL ABUN
SC-46	-4.355E-02	4.231E-02	3.266E-02	2.159E-02	FAIL ABUN
V-48	4.370E-02	7.909E-02	7.027E-02	4.035E-02	NOT IDENT.
CR-51	1.715E-01	3.176E-01	2.751E-01	1.620E-01	NOT IDENT.
MN-52	1.150E-02	2.681E-01	2.288E-01	1.368E-01	NOT IDENT.
MN-54	3.317E-03	4.230E-02	3.666E-02	2.158E-02	NOT IDENT.
CO-56	1.831E-02	4.402E-02	3.907E-02	2.246E-02	NOT IDENT.
CO-57	1.490E-04	1.631E-02	1.352E-02	8.321E-03	NOT IDENT.
CO-58	2.541E-02	3.913E-02	3.558E-02	1.997E-02	NOT IDENT.
FE-59	-3.221E-02	1.104E-01	8.981E-02	5.631E-02	NOT IDENT.
CO-60	3.592E-02	4.307E-02	3.998E-02	2.198E-02	NOT IDENT.
ZN-65	-4.224E-02	1.147E-01	7.856E-02	5.849E-02	NOT IDENT.
GE-68	5.315E-02	1.465E+00	1.231E+00	7.473E-01	NOT IDENT.
AS-73	6.108E-02	1.489E-01	1.338E-01	7.595E-02	NOT IDENT.
AS-74	1.493E-02	9.838E-02	8.414E-02	5.019E-02	NOT IDENT.
SE-75	-2.631E-02	3.598E-02	2.956E-02	1.836E-02	NOT IDENT.
BR-77	8.561E+00	1.262E+01	1.134E+01	6.438E+00	FAIL ABUN
SR-82	-1.727E-01	4.303E-01	3.402E-01	2.195E-01	NOT IDENT.
RB-83	3.309E-02	6.480E-02	5.758E-02	3.306E-02	NOT IDENT.
RB-84	2.098E-02	7.982E-02	6.983E-02	4.072E-02	NOT IDENT.
KR-85	6.583E+00	6.949E+00	5.708E+00	3.546E+00	NOT IDENT.
SR-85	3.409E-02	3.599E-02	2.956E-02	1.836E-02	NOT IDENT.
RB-86	3.065E-02	9.429E-01	7.924E-01	4.811E-01	NOT IDENT.
Y-88	3.596E-02	3.888E-02	3.768E-02	1.984E-02	NOT IDENT.
ZR-88	1.704E-02	2.892E-02	2.469E-02	1.475E-02	NOT IDENT.
Y-91	1.451E+01	2.374E+01	2.058E+01	1.211E+01	NOT IDENT.
NB-94	3.482E-03	3.468E-02	2.905E-02	1.769E-02	NOT IDENT.
NB-95	3.473E-02	5.573E-02	4.261E-02	2.843E-02	NOT IDENT.
NB-95M	1.170E-01	1.036E-01	8.512E-02	5.288E-02	NOT IDENT.
ZR-95	5.861E-02	8.501E-02	7.368E-02	4.337E-02	NOT IDENT.
NB-97	-3.321E+05	2.797E+05	0.000E+00	1.427E+05	SHORT HLIF
ZR-97	9.008E+05	4.780E+06	0.000E+00	2.439E+06	SHORT HLIF
MO-99	-9.069E+00	1.621E+01	1.266E+01	8.269E+00	NOT IDENT.
TC-99M	9.140E+16	3.655E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.045E-02	2.568E-02	2.098E-02	1.310E-02	NOT IDENT.
RH-102	-1.008E-02	2.788E-02	2.358E-02	1.422E-02	FAIL ABUN
RU-103	5.376E-03	3.839E-02	3.342E-02	1.959E-02	FAIL ABUN
RH-106	2.364E-01	3.351E-01	2.957E-01	1.710E-01	FAIL ABUN
RU-106	2.364E-01	3.343E-01	2.957E-01	1.705E-01	FAIL ABUN
AG-108M	-2.005E-02	3.034E-02	2.542E-02	1.548E-02	NOT IDENT.
AG-110M	-2.154E-02	3.816E-02	3.046E-02	1.947E-02	NOT IDENT.
IN-111	-3.583E-01	1.080E+00	8.141E-01	5.510E-01	NOT IDENT.
IN-113M	4.315E-03	4.172E-02	3.454E-02	2.129E-02	NOT IDENT.
SN-113	4.315E-03	4.172E-02	3.454E-02	2.129E-02	NOT IDENT.
IN-114M	-1.141E-01	1.352E-01	1.092E-01	6.898E-02	NOT IDENT.
CD-115	1.034E+01	1.462E+01	1.309E+01	7.457E+00	NOT IDENT.
SN-117M	-1.027E-02	3.917E-02	3.476E-02	1.999E-02	NOT IDENT.
SB-122	1.631E-03	2.642E+00	2.249E+00	1.348E+00	NOT IDENT.
I-123	-9.213E+06	1.284E+07	0.000E+00	6.552E+06	SHORT HLIF
TE-123M	-1.384E-02	1.929E-02	1.679E-02	9.844E-03	NOT IDENT.
I-124	-4.225E-02	7.994E-01	6.221E-01	4.079E-01	NOT IDENT.
SB-124	2.965E-02	8.816E-02	7.767E-02	4.498E-02	FAIL ABUN
SB-125	-5.149E-02	8.714E-02	7.357E-02	4.446E-02	FAIL ABUN
TE-125M	4.317E+00	6.472E+00	5.151E+00	3.302E+00	NOT IDENT.
I-126	1.154E-01	2.100E-01	1.824E-01	1.071E-01	NOT IDENT.
SB-126	3.084E-03	1.683E-01	1.348E-01	8.588E-02	FAIL ABUN
SB-127	-1.641E+00	1.769E+00	1.347E+00	9.024E-01	NOT IDENT.
XE-127	-1.527E-02	3.658E-02	3.154E-02	1.866E-02	NOT IDENT.
I-131	-4.908E-02	1.124E-01	9.027E-02	5.736E-02	NOT IDENT.
TE-132	2.674E-01	6.665E-01	5.873E-01	3.401E-01	NOT IDENT.
BA-133	2.122E-02	4.321E-02	3.320E-02	2.204E-02	FAIL ABUN
I-133	3.870E+03	1.267E+04	0.000E+00	6.463E+03	SHORT HLIF
CS-134	1.098E-01	6.121E-02	4.848E-02	3.123E-02	FAIL ABUN
CS-135	2.265E-01	1.388E-01	1.161E-01	7.083E-02	NOT IDENT.
I-135	5.585E+16	6.743E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.818E-02	1.290E-01	1.003E-01	6.582E-02	FAIL ABUN
BA-137M	7.010E-03	3.995E-02	3.385E-02	2.038E-02	NOT IDENT.
CS-137	7.411E-03	4.223E-02	3.578E-02	2.155E-02	NOT IDENT.
CE-139	-3.176E-03	2.134E-02	1.895E-02	1.089E-02	NOT IDENT.

BA-140	-1.515E-01	2.634E-01	2.115E-01	1.344E-01	NOT IDENT.
LA-140	-2.413E-02	1.095E-01	8.894E-02	5.588E-02	FAIL ABUN
CE-141	1.624E-02	4.933E-02	4.079E-02	2.517E-02	NOT IDENT.
CE-143	4.711E+02	2.306E+02	0.000E+00	1.176E+02	SHORT HLIF
CE-144	-1.300E-01	1.482E-01	1.155E-01	7.559E-02	NOT IDENT.
PM-144	7.271E-03	3.656E-02	3.089E-02	1.866E-02	NOT IDENT.
PR-144	4.929E-01	2.479E+00	2.094E+00	1.265E+00	NOT IDENT.
PM-146	-1.201E-02	3.992E-02	3.406E-02	2.036E-02	NOT IDENT.
ND-147	-4.198E-01	6.014E-01	4.867E-01	3.068E-01	FAIL ABUN
PM-149	4.060E+01	9.948E+01	8.622E+01	5.075E+01	NOT IDENT.
EU-152	-2.792E-02	8.355E-02	6.808E-02	4.263E-02	FAIL ABUN
GD-153	2.621E-02	5.183E-02	3.674E-02	2.645E-02	FAIL ABUN
EU-154	-1.104E-01	1.496E-01	1.131E-01	7.631E-02	NOT IDENT.
TB-160	-9.191E-02	1.559E-01	1.267E-01	7.953E-02	FAIL ABUN
HO-166M	1.864E-02	6.384E-02	5.424E-02	3.257E-02	FAIL ABUN
TM-171	5.146E+00	1.053E+01	8.660E+00	5.374E+00	NOT IDENT.
LU-176	-1.513E-02	2.077E-02	1.672E-02	1.060E-02	FAIL ABUN
LU-177	3.417E+00	1.333E+00	9.168E-01	6.803E-01	FAIL ABUN
LU-177M	6.574E-02	1.790E-01	1.344E-01	9.130E-02	FAIL ABUN
HF-181	-1.537E-02	4.289E-02	3.624E-02	2.188E-02	NOT IDENT.
W-181	-1.027E-01	1.300E-01	1.017E-01	6.632E-02	NOT IDENT.
TA-182	-2.087E-01	2.594E-01	1.998E-01	1.324E-01	FAIL ABUN
RE-183	3.165E-02	7.673E-02	6.962E-02	3.915E-02	FAIL ABUN
RE-184	1.428E-01	1.838E-01	1.636E-01	9.375E-02	NOT IDENT.
OS-185	1.020E-02	4.196E-02	3.591E-02	2.141E-02	NOT IDENT.
W-188	6.020E-01	6.752E+00	5.147E+00	3.445E+00	FAIL ABUN
IR-192	-4.231E-03	2.857E-02	2.379E-02	1.458E-02	FAIL ABUN
AU-195	4.355E-01	2.052E-01	1.240E-01	1.047E-01	FAIL ABUN
TL-200	1.728E+02	7.322E+02	0.000E+00	3.736E+02	SHORT HLIF
TL-201	-5.452E-01	6.127E+00	5.447E+00	3.126E+00	NOT IDENT.
TL-202	9.743E-03	6.444E-02	5.679E-02	3.288E-02	NOT IDENT.
HG-203	1.122E-02	3.625E-02	2.818E-02	1.849E-02	FAIL ABUN
BI-207	4.581E-02	6.189E-02	5.514E-02	3.158E-02	FAIL ABUN
TL-207	-1.697E-01	6.390E-01	4.671E-01	3.260E-01	FAIL ABUN
PO-209	-3.355E+00	8.190E+00	6.753E+00	4.179E+00	NOT IDENT.
PB-211	1.045E+00	1.182E+00	7.891E-01	6.029E-01	NOT IDENT.
BI-212	1.233E+00	5.672E-01	3.711E-01	2.894E-01	FAIL ABUN
PO-215	-1.697E-01	6.390E-01	4.671E-01	3.260E-01	FAIL ABUN
RN-219	-2.504E-01	4.005E-01	3.127E-01	2.043E-01	FAIL ABUN
RN-220	-1.832E+01	2.512E+01	2.018E+01	1.281E+01	NOT IDENT.
RA-223	-1.697E-01	6.390E-01	4.671E-01	3.260E-01	FAIL ABUN
AC-227	-3.099E-01	3.039E-01	2.439E-01	1.551E-01	FAIL ABUN
TH-227	-3.099E-01	3.053E-01	2.439E-01	1.558E-01	FAIL ABUN
PA-231	2.722E-01	1.217E+00	1.047E+00	6.210E-01	FAIL ABUN
TH-231	-1.697E-01	6.390E-01	4.671E-01	3.260E-01	FAIL ABUN
U-231	6.791E-01	7.753E-01	5.629E-01	3.956E-01	FAIL ABUN
PA-233	-3.241E-02	5.591E-02	4.541E-02	2.853E-02	FAIL ABUN
PA-234	-3.395E-01	3.600E-01	2.767E-01	1.837E-01	FAIL ABUN
PA-234M	3.506E-01	5.488E+00	4.660E+00	2.800E+00	NOT IDENT.
NP-236	-4.786E-03	5.359E-02	4.782E-02	2.734E-02	FAIL ABUN
NP-239	-1.600E-01	1.297E-01	1.010E-01	6.618E-02	FAIL ABUN
AM-241	2.536E-02	4.194E-02	3.500E-02	2.140E-02	NOT IDENT.
CM-243	5.524E-02	6.112E-02	4.950E-02	3.119E-02	FAIL ABUN
AM-246	1.051E-01	1.620E-01	1.434E-01	8.264E-02	NOT IDENT.
CM-247	-2.892E-02	3.646E-02	2.819E-02	1.860E-02	FAIL ABUN
CF-249	1.309E-02	3.995E-02	3.354E-02	2.038E-02	NOT IDENT.
CF-251	-4.012E-03	8.955E-02	7.938E-02	4.569E-02	NOT IDENT.



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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
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ENERGY	MDA COUNTS
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46.50	270.4983
46.50	270.4983
46.50	270.4983
48.70	330.6298
49.72	323.7330
51.35	360.1323
52.39	347.9791
52.97	346.1276
53.15	346.4156
53.44	330.0952
54.07	325.4389
56.28	371.1840
56.28	371.1885
57.37	0.0000
57.53	382.7273
57.53	382.7319
57.60	382.8441
57.98	400.6040
57.98	400.6040
59.32	376.4368
59.32	376.4368
59.40	376.5643
59.54	376.7894
59.72	377.0760
60.01	415.9318
61.10	419.1218
61.14	419.1914
61.30	434.9106
63.00	449.9442
63.29	450.4749
63.29	450.4749
63.58	451.0031
64.28	452.2756
65.12	493.9755
65.20	494.1332
65.20	494.1332
66.05	483.9859
66.72	461.5801
66.83	427.5775
66.91	427.7097
67.20	428.1891
67.20	428.1891
67.75	477.9494
67.85	473.5144
68.90	509.2344
68.90	509.2344
69.30	490.0856
69.67	490.7726
70.82	464.8354
70.82	464.8354
70.83	464.8531
72.80	464.2009
72.87	464.3167
72.87	464.3167
74.67	467.3419
74.81	467.5771
74.81	467.5771
74.81	467.5771
74.81	467.5771
74.81	467.5771
74.81	467.5771
74.81	467.5771
74.97	467.8438
75.28	468.3597
75.70	469.0546
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77.11	471.3814

77.11	471.3814
77.11	471.3814
77.11	471.3814
77.11	471.3814
77.11	471.3814
78.38	406.2171
79.62	438.2625
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79.80	410.9504
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80.18	396.2920
80.30	393.6899
80.30	393.6899
80.57	416.8628
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81.07	421.0244
81.07	421.0244
81.07	421.0244
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83.78	482.1135
83.78	482.1135
83.78	482.1135
84.21	482.7908
84.90	483.8753
85.43	484.7035
86.29	486.0406
86.50	486.3670
86.54	486.4302
86.59	486.5074
86.72	486.7075
86.79	486.8127
86.94	487.0514
87.30	487.6059
87.30	487.6059
87.30	487.6059
87.30	487.6059
87.30	487.6059
87.30	487.6059
87.57	488.0235
87.88	488.5008
88.03	488.7325
88.36	489.2378
88.47	489.4063
89.95	491.6664
91.11	274.6035
92.29	275.5918
92.38	443.6531
92.38	443.6531
93.35	308.8740
94.00	309.4784
94.67	310.0916
94.67	310.0959
94.90	310.3076
94.90	310.3076
94.90	310.3076
94.90	310.3076
95.87	261.1469
95.87	261.1469
96.73	261.8079
97.43	275.4577
98.44	255.7993
98.44	255.8002
98.88	256.1251
99.55	256.6165
99.55	256.6165
99.86	264.1827
100.00	264.2871
100.10	264.3658
103.18	254.8103
103.76	267.0923
105.00	297.0400
105.31	297.2916
108.00	306.2200
109.28	301.2431

111.00	343.8456
111.00	343.8456
111.76	302.4585
112.95	350.1578
115.19	286.7889
116.30	319.8107
117.00	339.9662
117.00	339.9662
117.66	280.5034
121.11	263.1195
121.62	263.4471
121.78	250.7221
122.06	260.2291
122.32	274.4045
122.32	274.4045
122.32	274.4045
122.32	274.4045
123.07	239.8105
127.23	288.2794
129.76	342.2813
131.20	325.9305
133.02	278.9913
133.54	321.2802
135.34	294.9002
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136.48	288.4112
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140.51	0.0000
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142.65	299.6629
143.76	316.3153
144.24	293.3199
144.24	293.3199
144.24	293.3199
144.24	293.3199
145.22	322.2189
145.44	322.3668
147.16	307.4848
152.43	282.9667
152.70	289.7841
153.22	307.5938
154.21	276.8874
154.21	276.8874
154.21	276.8874
154.21	276.8874
155.03	272.3261
156.02	266.5786
158.56	281.4082
159.00	0.0000
159.00	285.8657
160.31	268.8463
161.27	278.6681
162.32	269.8976
162.64	262.4224
163.35	290.8447
163.89	281.7830
165.85	292.2398
167.43	281.1176
171.28	279.6932
171.86	281.7215
172.10	274.9278
176.55	262.3523
176.60	262.3768
181.06	241.1900
184.41	294.3187
185.71	281.6951
186.00	281.8375
190.27	262.4808
192.34	240.1051
193.63	232.5451
197.04	280.8219
198.01	288.5064
198.60	272.4873
200.40	276.0164
201.83	260.2756
202.84	282.5773
205.31	244.3453

208.36	266.6800
208.81	266.8688
209.75	246.0673
209.75	246.0673
210.97	222.9915
215.65	247.3970
216.55	223.5205
218.09	219.3778
222.10	238.5513
223.80	218.4417
226.40	245.7469
227.00	227.9895
227.08	228.0164
227.20	228.0557
228.16	226.4816
228.18	226.4889
228.18	226.4889
231.56	0.0000
235.69	206.9187
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236.00	224.2619
238.63	215.4779
238.63	215.4779
238.63	215.4779
238.63	215.4779
239.00	215.5895
240.98	216.1888
241.98	216.4896
241.98	216.4896
241.98	216.4896
244.69	183.3495
245.39	179.1567
247.94	169.5519
248.90	188.3116
249.79	197.3314
252.40	163.7145
252.85	169.7003
252.85	169.7003
254.15	0.0000
256.20	202.9740
256.20	202.9740
260.50	199.1721
260.90	199.2784
262.80	169.9528
264.65	197.2588
268.24	151.6295
268.79	171.2679
269.46	184.4455
269.46	184.4455
269.46	184.4455
269.46	184.4455
271.23	180.8386
273.65	157.2061
276.40	185.0515
277.35	177.1683
277.60	177.2252
277.60	177.2252
278.00	164.1390
278.60	153.6144
279.20	161.3388
279.53	165.9715
280.46	167.6889
281.68	154.1970
283.67	153.0426
284.30	160.3060
285.00	173.7284
285.90	152.4346
286.10	152.4710
286.10	152.4710
287.40	173.2085
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290.80	163.6226
291.72	156.0772
293.26	0.0000
293.70	159.5419
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295.21	150.5146

295.21	150.5146
295.96	139.7763
296.50	139.8642
297.23	139.9850
298.57	140.2048
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299.80	165.3662
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300.09	165.4212
300.09	165.4212
300.09	165.4212
300.12	165.4277
301.29	165.6509
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303.76	152.0184
303.91	170.8547
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304.40	155.2676
304.84	139.6546
306.84	162.5148
308.46	141.8060
311.98	166.6278
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318.01	145.4538
319.02	142.4268
319.41	137.1701
320.08	129.8236
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323.87	155.4729
323.87	155.4729
323.87	155.4729
325.23	125.2028
328.77	155.7617
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334.20	158.8253
334.20	158.8253
334.30	158.8433
338.28	162.7655
338.28	162.7655
338.28	162.7655
338.28	162.7655
338.32	162.7716
338.32	162.7716
338.32	162.7716
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340.57	132.1565
344.27	137.5767
345.85	122.0534
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351.92	119.9506
351.92	119.9506
351.92	119.9506
355.39	0.0000
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364.48	130.3777
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367.43	127.4011
367.94	0.0000
369.80	120.9749
374.96	129.4592
383.85	146.4504
387.95	139.0346
388.63	139.1240
391.69	121.2211
391.69	121.2211
392.90	113.3428
398.62	125.4458
400.65	126.8317
401.10	132.6505
401.81	138.5059
402.60	145.5363
404.84	109.3714
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411.60	125.7517
413.65	101.4841
414.70	120.4924
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427.89	131.9756
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433.93	123.7523
439.47	99.2862
439.56	99.2930
439.89	100.2166
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444.90	113.2127
445.03	113.2262
445.03	113.2262
445.03	113.2262
453.90	108.6218
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473.00	112.1299
475.06	109.5488
475.35	112.3366
476.78	104.1650
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477.96	110.7184
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487.03	91.9847
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511.00	84.1912
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511.85	84.2435
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513.99	77.3591
520.41	78.1012
520.65	73.3530
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529.87	0.0000
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543.00	90.9764
546.56	0.0000
549.76	92.3734
552.65	77.9443
555.20	93.6943
563.23	85.3751
563.90	92.2845
568.70	91.5980
569.32	98.5321
569.50	94.6025
569.67	94.6143
573.80	99.8164
574.00	85.9911
574.64	89.9836
578.91	92.0212
579.30	0.0000
583.14	83.5258
585.48	78.0770
591.81	92.9972
592.07	84.0103
593.00	75.0549
595.88	88.2283
600.56	91.5082
602.52	0.0000
602.71	81.8993
602.71	81.8993
603.60	77.3789
604.41	91.9348
604.70	85.4987
609.31	79.2757

609.31	79.2757
609.31	79.2757
609.31	79.2757
610.33	87.4204
612.46	98.8837
614.37	82.5024
618.01	113.8662
621.84	74.3924
621.84	74.3924
631.29	77.8995
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633.10	81.0637
634.78	79.0937
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636.97	67.8832
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646.12	65.1552
656.30	85.3182
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661.65	90.8047
664.57	0.0000
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666.33	82.6790
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685.20	90.9839
692.80	104.1250
695.00	74.4669
696.49	77.7229
696.49	77.7229
697.00	79.8752
697.49	75.6368
698.33	86.3295
698.50	86.3369
699.00	83.1630
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706.58	0.0000
706.67	84.5884
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711.68	69.7885
713.82	87.0710
717.42	66.7775
720.50	75.2118
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722.20	82.9313
722.78	76.0439
722.78	76.0439
722.89	76.0493
722.95	76.0525
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724.18	70.9132
727.18	80.1223
733.00	66.0361
735.90	77.2337
739.58	78.4753
742.81	65.5078
744.21	91.7776
747.13	76.5988
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752.31	89.9728
753.82	77.9639
755.35	60.4433
756.15	74.7610
756.87	68.1900
763.93	68.8803
765.79	79.5542
766.42	86.6520
766.84	76.0583
776.49	74.4344
778.00	70.0425
778.57	67.8394
778.89	63.4014
783.80	72.4783
785.46	63.6118
792.07	57.3281

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798.80	68.3035
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805.60	61.3195
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828.27	0.0000
831.60	80.3580
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834.83	79.5659
836.80	0.0000
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848.13	60.7406
856.28	0.0000
856.80	92.4023
860.37	49.0548
867.32	51.9969
867.82	48.2942
871.10	53.9474
873.19	57.7239
874.81	54.0394
875.33	0.0000
876.40	57.8071
879.36	69.0896
880.27	69.1167
880.51	69.1257
881.50	60.7455
883.24	57.9873
884.67	51.4739
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896.60	65.8625
898.02	62.1376
899.00	67.8164
903.28	56.6206
911.07	55.8685
911.07	55.8685
911.07	55.8685
919.63	57.0293
920.93	63.7187
925.00	66.6897
925.24	64.7909
926.50	59.1059
935.52	57.4219
937.48	88.1210
944.10	59.5539
946.00	77.8656
949.00	58.7155
962.29	71.6279
964.01	71.6785
966.15	71.7417
968.20	71.8031
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969.11	71.8302
969.11	71.8302
977.42	62.3375
980.50	57.5408
983.50	46.8703
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996.32	62.8203
1001.03	68.8413
1001.68	66.8910
1004.76	65.9891
1021.30	0.0000
1024.50	0.0000
1034.80	45.8495
1036.00	40.8839
1037.82	46.9013
1038.57	52.9043
1038.76	0.0000
1045.16	43.0315
1046.59	56.0738
1048.07	65.1238



1050.47	53.1501
1050.47	53.1501
1062.04	51.3710
1063.62	53.4192
1076.63	57.7348
1077.35	59.7750
1078.86	49.6723
1085.78	63.0142
1099.22	66.3965
1112.02	55.1646
1112.84	49.6195
1115.52	63.3709
1120.29	53.5285
1120.29	53.5285
1120.29	53.5285
1120.29	53.5285
1120.51	53.5336
1121.28	53.5488
1124.00	0.0000
1129.67	55.0885
1131.51	0.0000
1147.95	0.0000
1167.94	82.7186
1173.22	72.3826
1175.09	59.8333
1177.93	86.1601
1189.05	74.8897
1204.90	68.9355
1205.75	0.0000
1213.00	84.0146
1221.42	97.0519
1230.97	84.5238
1235.34	91.0762
1236.41	0.0000
1238.25	66.4956
1246.25	60.2191
1260.41	0.0000
1271.85	49.8835
1274.45	61.8650
1274.54	64.0357
1291.56	44.7437
1298.22	0.0000
1312.09	41.7406
1325.50	40.4461
1325.50	40.4461
1332.49	28.5592
1333.61	30.4111
1360.21	36.2372
1362.66	0.0000
1365.15	27.9163
1368.21	33.5303
1368.53	0.0000
1376.25	28.9439
1384.27	29.9505
1394.10	28.1604
1395.20	31.9262
1407.95	22.6211
1434.06	21.8451
1436.60	20.9115
1457.56	0.0000
1460.81	22.0145
1489.15	26.0519
1509.49	20.3779
1596.49	26.8231
1620.62	25.9937
1678.03	0.0000
1691.02	13.2317
1691.02	13.2317
1706.46	0.0000
1750.46	0.0000
1764.49	10.6590
1764.49	10.6590
1764.49	10.6590
1764.49	10.6590
1770.23	75.7535
1771.40	23.8741
1791.20	0.0000
1808.65	7.3307

1836.01

7.3774

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229003

Total Uranium Activity	6.2548E+00	ug/g
Total Uranium Counting Unc.	2.6980E+00	ug/g
Total Uranium Tpu	1.3765E-06	ug/g
Total Uranium Mda	1.0170E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941239                          SAMPLE ID   : G244229003
*  ANALYST       : MXR1                             DETECTOR    : GAM21
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME   : 0 03:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 12:57:46.35          SAMPLE ALQT  : 120.650 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.158E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.419E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.567E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.736E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 16:00:15.99

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229004.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:58:13
Sample ID          : G244229004      Sample quantity   : 1.09130E+02 GRAM
Detector name      : GAM22           Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00   Elapsed real time: 0 03:00:02.98 0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 941239          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.39*	24	854	1.18	127.03	123	9	2.23E-03	229.7	
2	4	74.82*	635	806	1.29	149.86	144	23	5.88E-02	8.8	2.06E+00
3	4	77.15*	867	579	1.03	154.53	144	23	8.03E-02	5.9	
4	0	84.09*	99	506	1.27	168.39	166	6	9.13E-03	39.9	
5	0	86.96*	254	764	1.10	174.12	172	7	2.35E-02	19.5	
6	4	90.03*	188	507	0.87	180.25	178	13	1.74E-02	19.7	2.04E+00
7	4	92.88*	267	841	1.44	185.95	178	13	2.47E-02	22.1	
8	0	143.58*	101	560	1.23	287.26	284	8	9.32E-03	44.0	
9	0	185.94*	242	673	1.46	371.89	366	10	2.24E-02	22.3	
10	0	209.10	159	524	1.04	418.18	415	9	1.47E-02	27.1	
11	3	238.70*	2006	390	1.27	477.33	470	20	1.86E-01	3.0	1.53E+00
12	3	241.69	477	490	1.89	483.29	470	20	4.42E-02	12.1	
13	0	270.40	173	538	2.02	540.67	534	12	1.60E-02	28.0	
14	0	277.31	133	501	3.31	554.47	547	13	1.23E-02	35.7	
15	0	295.38*	609	498	1.28	590.58	584	13	5.63E-02	8.8	
16	0	300.98	224	348	1.40	601.78	597	12	2.08E-02	18.1	
17	0	328.09	105	341	1.30	655.96	652	10	9.75E-03	34.4	
18	0	338.44*	386	340	1.49	676.63	671	10	3.58E-02	10.7	
19	0	352.02*	1038	312	1.42	703.77	698	12	9.61E-02	4.8	
20	0	511.06*	221	274	2.36	1021.62	1014	16	2.05E-02	22.2	
21	0	583.18*	716	271	1.73	1165.77	1156	20	6.63E-02	7.0	
22	0	609.41*	693	316	1.72	1218.20	1209	16	6.42E-02	7.1	
23	0	727.13*	180	245	2.29	1453.52	1446	19	1.66E-02	22.7	
24	0	861.36	110	132	1.49	1721.88	1716	13	1.02E-02	23.8	
25	0	911.48*	524	197	1.98	1822.08	1814	19	4.85E-02	8.1	
26	2	964.81	124	84	1.97	1928.71	1924	20	1.15E-02	16.7	1.31E+00
27	2	969.15*	321	98	2.25	1937.38	1924	20	2.97E-02	8.8	
28	0	1120.22*	180	139	2.43	2239.46	2231	15	1.67E-02	16.6	
29	0	1239.10*	63	214	2.71	2477.20	2467	17	5.79E-03	56.8	
30	0	1460.96*	3315	92	2.40	2920.95	2909	21	3.07E-01	1.9	
31	0	1589.57	56	89	2.33	3178.22	3168	24	5.18E-03	46.7	
32	0	1730.66	47	44	2.10	3460.49	3452	18	4.39E-03	36.2	
33	0	1764.89*	161	31	3.23	3528.99	3517	20	1.49E-02	13.0	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 16:00:20

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229004.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 12:58:13
Sample ID        : G244229004             Sample quantity  : 109.13 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA22                Detector geometry: CAN
Elapsed live time: 0 03:00:00.00          Elapsed real time: 0 03:00:02.98   0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                   Systematic Error  : 0.00 %
Efficiency type  : Empirical              Efficiencies at   : Peak Energy
Abundance limit  : 75.00                 WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.733E+01	3.701E+00	3.679E-01	3.370E-02	101.470
CD-109	+	88.03	*	2.149E+00	8.618E-01	9.737E-01	9.240E-02	2.207
SN-126	+	64.28		1.322E-01	6.078E-01	5.875E-01	8.532E-02	0.225
	+	86.94		8.770E-01	4.995E-01	3.804E-01	1.579E-01	2.305
	+	87.57	*	2.110E-01	8.459E-02	1.027E-01	9.701E-03	2.053
TL-208	+	277.35		7.261E-01	5.323E-01	4.898E-01	8.076E-02	1.482
	+	510.84		5.469E-01	2.530E-01	1.680E-01	2.189E-02	3.256
	+	583.14	*	4.963E-01	8.823E-02	4.529E-02	4.911E-03	10.959
	+	860.37		6.926E-01	3.397E-01	3.760E-01	4.382E-02	1.842
BI-211		72.87		4.570E+00	2.582E+00	3.901E+00	3.122E-01	1.171
	+	351.07	*	3.406E+00	5.135E-01	2.615E-01	3.051E-02	13.022
PB-212	+	74.81		2.206E+00	4.767E-01	4.034E-01	5.006E-02	5.469
	+	77.11		1.708E+00	2.472E-01	2.297E-01	1.921E-02	7.437
	+	87.30		9.757E-01	4.032E-01	4.763E-01	6.541E-02	2.048
	+	238.63	*	1.537E+00	2.226E-01	7.595E-02	1.003E-02	20.240
	+	300.09		2.555E+00	9.952E-01	9.372E-01	1.367E-01	2.727
PO-212	+	74.81		2.206E+00	4.767E-01	4.034E-01	5.006E-02	5.469
	+	77.11		1.708E+00	2.472E-01	2.297E-01	1.921E-02	7.437
	+	87.30		9.757E-01	4.032E-01	4.763E-01	6.541E-02	2.048
		115.19		1.707E+00	3.032E+00	4.912E+00	4.069E-01	0.347
	+	238.63	*	1.537E+00	2.226E-01	7.595E-02	1.003E-02	20.240
	+	300.09		2.555E+00	9.952E-01	9.372E-01	1.367E-01	2.727
BI-214	+	609.31	*	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
	+	1120.29		1.165E+00	4.083E-01	3.684E-01	4.071E-02	3.163
	+	1764.49		1.364E+00	3.734E-01	2.225E-01	1.854E-02	6.131
PB-214	+	74.81		3.802E+00	7.923E-01	6.951E-01	7.662E-02	5.469
	+	77.11		2.929E+00	4.789E-01	3.938E-01	4.455E-02	7.437
	+	87.30		1.671E+00	6.825E-01	8.160E-01	9.927E-02	2.048
	+	241.98		2.192E+00	6.113E-01	4.567E-01	6.280E-02	4.799
	+	295.21		1.218E+00	2.798E-01	1.778E-01	2.648E-02	6.848
	+	351.92	*	1.185E+00	1.890E-01	9.295E-02	1.185E-02	12.745
PO-214	+	74.81		3.802E+00	7.923E-01	6.951E-01	7.662E-02	5.469
	+	77.11		2.929E+00	4.789E-01	3.938E-01	4.455E-02	7.437
	+	87.30		1.671E+00	6.825E-01	8.160E-01	9.927E-02	2.048

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.192E+00	6.113E-01	4.567E-01	6.280E-02	4.799
	+	295.21		1.218E+00	2.798E-01	1.778E-01	2.648E-02	6.848
	+	351.92	*	1.185E+00	1.890E-01	9.295E-02	1.185E-02	12.745
	+	74.81		2.206E+00	4.767E-01	4.034E-01	5.006E-02	5.469
	+	77.11		1.708E+00	2.472E-01	2.297E-01	1.921E-02	7.437
	+	87.30		9.757E-01	4.032E-01	4.763E-01	6.541E-02	2.048
PO-218	+	238.63	*	1.537E+00	2.226E-01	7.595E-02	1.003E-02	20.240
	+	300.09		2.555E+00	9.952E-01	9.372E-01	1.367E-01	2.727
	+	74.81		3.802E+00	7.923E-01	6.951E-01	7.662E-02	5.469
	+	77.11		2.929E+00	4.789E-01	3.938E-01	4.455E-02	7.437
	+	87.30		1.671E+00	6.825E-01	8.160E-01	9.927E-02	2.048
	+	241.98		2.192E+00	6.113E-01	4.567E-01	6.280E-02	4.799
RA-224	+	295.21		1.218E+00	2.798E-01	1.778E-01	2.648E-02	6.848
	+	351.92	*	1.185E+00	1.890E-01	9.295E-02	1.185E-02	12.745
	+	240.98	*	4.155E+00	1.135E+00	8.634E-01	1.081E-01	4.813
	+	609.31	*	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
	+	1120.29		1.165E+00	4.083E-01	3.684E-01	4.071E-02	3.163
	+	1764.49		1.364E+00	3.734E-01	2.225E-01	1.854E-02	6.131
AC-228	+	338.32		1.406E+00	6.640E-01	3.263E-01	1.373E-01	4.309
	+	911.07	*	1.555E+00	3.248E-01	1.734E-01	2.297E-02	8.971
	+	969.11		1.675E+00	5.001E-01	2.937E-01	7.093E-02	5.703
	+	338.32		1.406E+00	6.640E-01	3.263E-01	1.373E-01	4.309
	+	911.07	*	1.555E+00	3.248E-01	1.734E-01	2.297E-02	8.971
	+	969.11		1.675E+00	5.001E-01	2.937E-01	7.093E-02	5.703
TH-228	+	74.81		2.242E+00	4.374E-01	4.099E-01	3.377E-02	5.469
	+	77.11		1.736E+00	2.512E-01	2.334E-01	1.952E-02	7.437
	+	87.30		9.914E-01	3.975E-01	4.840E-01	4.555E-02	2.048
	+	238.63	*	1.562E+00	2.262E-01	7.717E-02	1.020E-02	20.240
	+	300.09		2.597E+00	1.822E+00	9.523E-01	5.729E-01	2.727
	+	609.31	*	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
TH-230	+	1120.29		1.165E+00	4.083E-01	3.684E-01	4.071E-02	3.163
	+	1764.49		1.364E+00	3.734E-01	2.225E-01	1.854E-02	6.131
	+	338.32		1.406E+00	3.448E-01	3.263E-01	3.881E-02	4.309
	+	911.07	*	1.555E+00	3.248E-01	1.734E-01	2.297E-02	8.971
	+	969.11		1.675E+00	5.001E-01	2.937E-01	7.093E-02	5.703
	+	63.29	*	3.341E-01	1.536E+00	1.524E+00	2.652E-01	0.219
TH-234	+	92.38		1.438E+00	6.889E-01	6.034E-01	1.106E-01	2.383
	+	609.31	*	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
	+	1120.29		1.165E+00	4.083E-01	3.684E-01	4.071E-02	3.163
	+	1764.49		1.364E+00	3.734E-01	2.225E-01	1.854E-02	6.131
	+	89.95		2.077E+00	1.043E+00	1.289E+00	4.005E-01	1.611
	+	93.35		1.729E+00	9.071E-01	7.211E-01	2.030E-01	2.397
U-235	+	105.00		1.096E+00	9.900E-01	1.505E+00	4.485E-01	0.728
	+	143.76	*	2.627E-01	2.356E-01	2.912E-01	5.138E-02	0.902
	+	163.35		-5.270E-02	4.183E-01	6.632E-01	1.299E-01	-0.079
	+	185.71		1.352E-01	6.204E-02	5.909E-02	6.187E-03	2.289
	+	205.31		3.486E-01	5.222E-01	7.394E-01	1.506E-01	0.471
	+	86.50	*	6.195E-01	2.794E-01	2.698E-01	6.109E-02	2.296
NP-237	+	95.87		-4.249E-01	8.582E-01	1.199E+00	2.964E-01	-0.355

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-238	+	63.29	*	3.341E-01	1.536E+00	1.524E+00	2.652E-01	0.219
	+	92.38		1.438E+00	6.499E-01	6.034E-01	5.498E-02	2.383
AM-243	+	74.67	*	3.577E-01	6.968E-02	6.558E-02	5.346E-03	5.454
	+	86.72		2.323E+01	9.315E+00	1.010E+01	9.435E-01	2.301
		117.66		-3.942E+00	3.228E+00	4.886E+00	4.036E-01	-0.807
	+	142.18		2.207E+01	1.950E+01	2.341E+01	2.067E+00	0.943
ANH-511	+	511.00	*	1.181E-01	5.374E-02	3.629E-02	3.636E-03	3.256

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.760E-01	2.681E-01	4.457E-01	4.651E-02	0.395
NA-22		1274.54	*	-1.849E-02	3.508E-02	5.609E-02	4.834E-03	-0.330
NA-24		1368.53	*	-1.831E+00	3.508E-02	Half-Life too short		
AL-26		1129.67		-1.320E+00	1.537E+00	2.248E+00	1.958E-01	-0.587
		1808.65	*	2.030E-02	2.315E-02	4.170E-02	3.410E-03	0.487
TI-44		67.85		-1.558E-02	3.780E-02	5.406E-02	4.126E-03	-0.288
	+	78.38	*	3.153E-01	4.562E-02	5.802E-02	4.919E-03	5.434
SC-46		889.25	*	-1.457E-02	3.307E-02	5.347E-02	5.985E-03	-0.272
	+	1120.51		2.010E-01	6.917E-02	9.728E-02	8.601E-03	2.067
V-48		944.10		-6.584E-01	7.461E-01	1.160E+00	1.258E-01	-0.568
		983.50	*	3.706E-02	5.938E-02	1.009E-01	1.058E-02	0.367
		1312.09		6.277E-02	7.012E-02	1.219E-01	1.074E-02	0.515
CR-51		320.08	*	-2.462E-01	3.085E-01	4.979E-01	6.447E-02	-0.494
MN-52		744.21		4.282E-02	2.476E-01	3.553E-01	3.861E-02	0.121
		848.13		-1.107E+00	6.152E+00	1.015E+01	1.130E+00	-0.109
		935.52		2.841E-01	2.220E-01	3.893E-01	4.251E-02	0.730
		1246.25		-5.110E-01	8.025E+00	1.127E+01	9.525E-01	-0.045
		1333.61		7.719E-01	4.822E+00	8.028E+00	7.160E-01	0.096
		1434.06	*	-9.048E-02	2.130E-01	3.354E-01	2.998E-02	-0.270
MN-54		834.83	*	-2.461E-02	3.208E-02	5.138E-02	5.708E-03	-0.479
CO-56		846.75	*	-1.380E-02	3.287E-02	5.351E-02	5.957E-03	-0.258
		977.42		-3.127E+00	2.716E+00	3.684E+00	3.885E-01	-0.849
		1037.82		3.992E-02	2.573E-01	4.242E-01	4.374E-02	0.094
		1175.09		-6.510E-02	1.933E+00	3.220E+00	2.593E-01	-0.020
	+	1238.25		1.143E-01	1.301E-01	1.407E-01	1.220E-02	0.812
		1360.21		1.868E-01	7.947E-01	1.330E+00	1.188E-01	0.140
		1771.40		-6.872E-02	2.106E-01	2.768E-01	2.300E-02	-0.248
CO-57		122.06	*	4.572E-04	2.296E-02	3.486E-02	2.875E-03	0.013
		136.48		-3.307E-02	1.691E-01	2.844E-01	2.638E-02	-0.116
CO-58		810.76	*	-2.696E-02	3.155E-02	5.013E-02	5.551E-03	-0.538
FE-59	+	142.65		3.439E+00	3.039E+00	4.019E+00	3.556E-01	0.856
		192.34		-4.055E-01	7.918E-01	1.281E+00	1.902E-01	-0.317
		1099.22	*	5.392E-02	8.313E-02	1.395E-01	1.367E-02	0.386
		1291.56		1.162E-03	1.043E-01	1.726E-01	1.701E-02	0.007
CO-60		1173.22		-3.916E-02	3.861E-02	6.085E-02	4.894E-03	-0.644
		1332.49	*	1.203E-02	3.323E-02	5.605E-02	4.998E-03	0.215
ZN-65		1115.52	*	5.134E-02	8.838E-02	1.275E-01	1.137E-02	0.403



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GE-68	1077.35	*		7.557E-01	1.090E+00	1.839E+00	1.734E-01	0.411
AS-73	53.44	*		-5.568E-02	6.199E-01	1.007E+00	7.613E-02	-0.055
AS-74	595.88	*		1.164E-02	7.707E-02	1.286E-01	1.333E-02	0.091
	634.78			5.257E-02	3.021E-01	5.020E-01	5.262E-02	0.105
SE-75	66.05			2.934E-01	3.903E+00	5.703E+00	5.440E-01	0.051
	96.73			-3.991E-01	7.035E-01	9.830E-01	1.353E-01	-0.406
	121.11			-4.535E-03	1.211E-01	1.832E-01	2.002E-02	-0.025
	136.00			-2.664E-03	3.175E-02	5.357E-02	4.648E-03	-0.050
	198.60			1.222E-01	1.694E+00	2.636E+00	3.081E-01	0.046
	264.65	*		-1.042E-02	4.255E-02	5.884E-02	7.919E-03	-0.177
	279.53			9.231E-02	1.087E-01	1.572E-01	2.232E-02	0.587
	303.91			-6.684E-01	1.870E+00	2.679E+00	4.082E-01	-0.249
	400.65			-1.934E-01	2.047E-01	3.197E-01	3.742E-02	-0.605
BR-77	87.88	+		6.107E+02	2.449E+02	3.488E+02	3.306E+01	1.751
	200.40			-1.172E+02	1.876E+02	3.017E+02	3.318E+01	-0.388
	239.00	+		3.251E+02	4.476E+01	3.875E+01	4.822E+00	8.390
	249.79			-6.388E+01	7.366E+01	1.143E+02	1.469E+01	-0.559
	281.68			1.930E+01	1.146E+02	1.611E+02	2.244E+01	0.120
	297.23			4.994E+02	1.170E+02	1.340E+02	1.802E+01	3.728
	303.76			-7.893E+01	2.084E+02	2.984E+02	3.947E+01	-0.265
	439.47			8.566E+01	1.482E+02	2.475E+02	2.382E+01	0.346
	484.57			-1.741E+02	2.471E+02	3.836E+02	3.792E+01	-0.454
	520.65	*		7.104E+00	1.100E+01	1.858E+01	1.870E+00	0.382
	574.64			-6.205E+01	2.540E+02	3.575E+02	3.679E+01	-0.174
	578.91			1.310E+02	9.644E+01	1.498E+02	1.544E+01	0.874
	585.48			2.355E+03	3.620E+02	5.254E+02	5.427E+01	4.482
	755.35			-6.017E+01	1.747E+02	2.774E+02	3.024E+01	-0.217
	817.79			8.610E+00	1.402E+02	2.352E+02	2.604E+01	0.037
SR-82	698.33			-7.191E+00	2.965E+01	4.785E+01	5.119E+00	-0.150
	776.49	*		-3.884E-01	3.182E-01	4.728E-01	5.185E-02	-0.821
	1395.20			-7.936E+00	9.109E+00	1.382E+01	1.236E+00	-0.574
RB-83	520.41	*		4.171E-02	5.593E-02	9.484E-02	9.545E-03	0.440
	529.64			-6.606E-03	8.043E-02	1.342E-01	1.356E-02	-0.049
	552.65			9.327E-02	1.609E-01	2.751E-01	2.808E-02	0.339
RB-84	881.50	*		-2.652E-02	6.231E-02	1.010E-01	1.130E-02	-0.262
KR-85	513.99	*		3.013E+01	7.987E+00	1.251E+01	1.255E+00	2.408
SR-85	513.99	*		1.560E-01	4.136E-02	6.478E-02	6.500E-03	2.408
RB-86	1076.63	*		4.678E-01	7.124E-01	1.200E+00	1.133E-01	0.390
Y-88	898.02			-1.809E-02	3.596E-02	5.792E-02	6.507E-03	-0.312
	1836.01	*		-2.269E-02	2.941E-02	4.416E-02	3.570E-03	-0.514
ZR-88	392.90	*		-8.341E-03	2.473E-02	4.005E-02	3.729E-03	-0.208
Y-91	1204.90	*		8.402E+00	1.658E+01	2.824E+01	2.322E+00	0.298
NB-94	702.63	*		1.780E-03	2.786E-02	4.562E-02	4.889E-03	0.039
	871.10			-3.854E-03	2.888E-02	4.676E-02	5.224E-03	-0.082
NB-95	765.79	*		4.400E-02	3.752E-02	6.361E-02	6.955E-03	0.692
NB-95M	235.69	*		2.233E-01	1.241E-01	1.848E-01	2.443E-02	1.208
ZR-95	724.18			1.219E-01	9.093E-02	1.372E-01	1.564E-02	0.889
	756.15	*		-1.793E-02	5.800E-02	9.233E-02	1.072E-02	-0.194
NB-97	657.90	*		-5.027E-02	5.800E-02	Half-Life too short		

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	1024.50			2.167E+01	5.800E-02	Half-Life	too short	
	254.15			1.573E+00	5.800E-02	Half-Life	too short	
	355.39			1.057E+01	5.800E-02	Half-Life	too short	
	507.63	*		1.215E+01	5.800E-02	Half-Life	too short	
	602.52			-1.797E+00	5.800E-02	Half-Life	too short	
	1021.30			-5.142E-01	5.800E-02	Half-Life	too short	
	1147.95			-4.096E+00	5.800E-02	Half-Life	too short	
	1362.66			-1.520E+00	5.800E-02	Half-Life	too short	
MO-99	1750.46			-4.019E+00	5.800E-02	Half-Life	too short	
	140.51			2.494E+01	3.177E+01	4.619E+01	1.281E+01	0.540
	181.06			6.578E-01	2.019E+01	2.943E+01	5.634E+00	0.022
	366.43			2.956E+01	8.518E+01	1.429E+02	1.515E+01	0.207
	739.58	*		-2.048E+00	1.218E+01	1.960E+01	3.244E+00	-0.104
	778.00			-5.083E+01	3.523E+01	5.131E+01	5.630E+00	-0.991
TC-99M	140.51	*		3.873E+11	3.523E+01	Half-Life	too short	
RH-101	127.23			-9.200E-03	2.852E-02	4.458E-02	3.727E-03	-0.206
	198.01	*		8.264E-03	3.068E-02	4.798E-02	5.234E-03	0.172
	325.23			2.449E-01	2.046E-01	3.124E-01	3.884E-02	0.784
RH-102	418.52			4.737E-02	2.288E-01	3.775E-01	3.582E-02	0.125
	475.06	*		-6.594E-03	2.526E-02	3.889E-02	3.825E-03	-0.170
	631.29			-1.548E-03	4.429E-02	7.291E-02	7.635E-03	-0.021
	697.49			1.075E-02	6.443E-02	1.061E-01	1.135E-02	0.101
	766.84			8.988E-02	9.479E-02	1.594E-01	1.744E-02	0.564
	1046.59			-5.173E-02	9.787E-02	1.546E-01	1.516E-02	-0.335
RU-103	1112.84			-2.958E-02	2.170E-01	2.955E-01	2.645E-02	-0.100
	497.08	*		2.706E-03	3.292E-02	5.321E-02	7.986E-03	0.051
RH-106	610.33	+		9.887E+00	2.245E+00	2.093E+00	3.699E-01	4.725
	511.85	+		5.911E-01	2.689E-01	3.584E-01	3.592E-02	1.649
RU-106	621.84	*		-1.074E-01	2.592E-01	4.186E-01	6.112E-02	-0.257
	1050.47			4.312E-01	1.999E+00	3.301E+00	3.222E-01	0.131
	511.85	+		5.911E-01	2.689E-01	3.584E-01	3.592E-02	1.649
	621.84	*		-1.074E-01	2.590E-01	4.186E-01	4.372E-02	-0.257
AG-108M	1050.47			4.312E-01	1.999E+00	3.301E+00	3.222E-01	0.131
	433.93	*		-8.994E-03	2.614E-02	4.188E-02	4.146E-03	-0.215
	614.37			-7.471E-03	3.551E-02	4.970E-02	5.320E-03	-0.150
AG-110M	722.95			4.602E-03	3.843E-02	5.387E-02	5.961E-03	0.085
	657.75	*		-6.718E-03	2.799E-02	4.541E-02	4.880E-03	-0.148
	677.61			6.472E-02	2.374E-01	3.945E-01	4.265E-02	0.164
	706.67			5.895E-02	1.717E-01	2.848E-01	3.111E-02	0.207
	763.93			-1.489E-02	1.455E-01	2.344E-01	2.607E-02	-0.064
	884.67			-1.704E-02	4.163E-02	6.748E-02	7.695E-03	-0.253
	937.48			1.416E-02	8.725E-02	1.453E-01	1.620E-02	0.097
	1384.27			-2.848E-01	1.486E-01	2.056E-01	1.886E-02	-1.385
IN-111	171.28			-1.251E-01	1.034E+00	1.714E+00	1.711E-01	-0.073
	245.39	*		4.846E-01	1.236E+00	1.781E+00	2.260E-01	0.272
IN-113M	391.69	*		2.869E-03	3.574E-02	5.899E-02	5.634E-03	0.049
SN-113	391.69	*		2.869E-03	3.574E-02	5.899E-02	5.634E-03	0.049
IN-114M	190.27	*		-5.329E-02	1.705E-01	2.434E-01	2.588E-02	-0.219
CD-115	260.90			6.598E+01	1.490E+02	2.434E+02	3.234E+01	0.271

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	492.35			3.174E+01	3.880E+01	6.489E+01	6.441E+00	0.489
	527.90	*		-6.372E+00	1.110E+01	1.806E+01	1.824E+00	-0.353
SN-117M	156.02			7.762E-01	1.932E+00	3.271E+00	3.067E-01	0.237
	158.56	*		-6.407E-02	4.783E-02	7.618E-02	7.224E-03	-0.841
SB-122	563.90	*		1.385E+00	2.049E+00	3.512E+00	3.600E-01	0.394
	692.80			4.697E+01	4.648E+01	7.924E+01	8.460E+00	0.593
I-123	159.00	*		-1.708E+01	4.648E+01	Half-Life	too short	
	528.96			-2.270E+02	4.648E+01	Half-Life	too short	
TE-123M	159.00	*		-2.566E-02	2.349E-02	3.779E-02	3.609E-03	-0.679
I-124	602.71	*		-7.503E-02	7.613E-01	1.077E+00	1.119E-01	-0.070
	722.78			4.582E-01	4.690E+00	6.564E+00	7.084E-01	0.070
	1325.50			3.842E+00	3.423E+01	5.685E+01	5.049E+00	0.068
	1376.25			6.592E+01	3.169E+01	5.656E+01	5.055E+00	1.166
	1509.49			7.651E+00	1.367E+01	2.334E+01	2.074E+00	0.328
	1691.02			1.029E+00	3.107E+00	5.340E+00	4.566E-01	0.193
SB-124	602.71			-3.769E-03	3.825E-02	5.413E-02	5.623E-03	-0.070
	645.85			-1.498E-01	4.138E-01	6.581E-01	7.197E-02	-0.228
	709.31			-5.401E-01	2.346E+00	3.781E+00	4.062E-01	-0.143
	713.82			2.501E-01	1.326E+00	2.183E+00	2.980E-01	0.115
	722.78			3.337E-02	3.415E-01	4.780E-01	5.230E-02	0.070
+	968.20			1.743E+01	3.578E+00	5.841E+00	6.210E-01	2.984
	1045.16			-1.104E+00	2.129E+00	3.366E+00	3.306E-01	-0.328
	1325.50			2.989E-01	2.663E+00	4.422E+00	3.927E-01	0.068
	1368.21			-9.747E-01	1.400E+00	2.160E+00	2.955E-01	-0.451
	1436.60			6.101E-01	2.847E+00	4.743E+00	4.238E-01	0.129
	1691.02	*		1.768E-02	5.338E-02	9.172E-02	8.159E-03	0.193
SB-125	427.89	*		4.494E-02	7.573E-02	1.266E-01	1.229E-02	0.355
	463.38			6.623E-01	2.422E-01	4.215E-01	4.370E-02	1.571
	600.56			1.523E-01	1.654E-01	2.573E-01	2.808E-02	0.592
	635.90			6.019E-02	2.249E-01	3.752E-01	4.151E-02	0.160
TE-125M	109.28	*		-5.469E+00	8.417E+00	1.258E+01	1.275E+00	-0.435
I-126	388.63			-8.597E-03	1.691E-01	2.777E-01	2.629E-02	-0.031
	666.33	*		3.805E-02	1.505E-01	2.500E-01	2.642E-02	0.152
	753.82			9.742E-01	1.215E+00	2.050E+00	2.234E-01	0.475
SB-126	223.80			-1.913E-02	3.576E+00	5.826E+00	6.913E-01	-0.003
+	278.60			5.061E+00	3.683E+00	3.775E+00	5.277E-01	1.340
+	296.50			1.278E+01	2.826E+00	3.008E+00	4.052E-01	4.249
	414.70			-1.130E-02	6.558E-02	1.065E-01	1.008E-02	-0.106
	415.30			-1.639E-01	5.432E+00	8.877E+00	8.405E-01	-0.018
	555.20			1.587E+00	3.427E+00	5.829E+00	5.955E-01	0.272
	573.80			-4.393E-01	9.782E-01	1.416E+00	1.457E-01	-0.310
	593.00			-1.031E+00	8.344E-01	1.218E+00	1.261E-01	-0.846
	656.30			-6.161E-01	2.849E+00	4.629E+00	4.876E-01	-0.133
	666.33			1.594E-02	6.304E-02	1.047E-01	1.106E-02	0.152
	675.00			-3.625E-01	1.624E+00	2.628E+00	2.787E-01	-0.138
	695.00			5.104E-02	6.917E-02	1.167E-01	1.247E-02	0.437
	697.00			6.112E-02	2.383E-01	3.940E-01	4.213E-02	0.155
	720.50	*		-3.310E-02	1.419E-01	1.942E-01	2.094E-02	-0.170
	856.80			2.181E-01	4.527E-01	6.684E-01	7.452E-02	0.326

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		989.30		-2.710E-02	1.088E+00	1.784E+00	1.861E-01	-0.015
		1034.80		-6.336E+00	7.592E+00	1.172E+01	1.165E+00	-0.541
		1213.00		6.692E-01	4.305E+00	7.213E+00	5.964E-01	0.093
		61.10		4.570E+01	5.306E+01	8.134E+01	8.463E+00	0.562
		252.40		-5.276E-01	4.305E+00	6.904E+00	2.983E+00	-0.076
		290.80		-1.225E+01	2.363E+01	3.373E+01	5.260E+00	-0.363
		411.60		1.103E+00	1.206E+01	1.982E+01	3.249E+00	0.056
		444.90		5.015E-03	9.354E+00	1.521E+01	2.055E+00	0.000
		473.00		-2.327E-01	1.643E+00	2.639E+00	3.677E-01	-0.088
		543.00		-1.867E+01	1.612E+01	2.505E+01	3.903E+00	-0.745
		603.60		-4.523E+00	1.346E+01	1.873E+01	2.626E+00	-0.241
		685.20	*	-1.005E+00	1.295E+00	2.019E+00	2.672E-01	-0.498
		698.50		-3.575E+00	1.526E+01	2.462E+01	4.242E+00	-0.145
		722.20		4.696E+00	3.180E+01	4.468E+01	5.879E+00	0.105
XE-127		783.80		5.354E+00	3.483E+00	5.957E+00	8.572E-01	0.899
		57.60		-4.558E-01	4.359E+00	7.237E+00	5.198E-01	-0.063
		145.22		6.701E-01	6.797E-01	1.001E+00	8.953E-02	0.669
		172.10		4.855E-03	9.964E-02	1.660E-01	1.661E-02	0.029
		202.84	*	-8.036E-03	4.113E-02	6.713E-02	7.442E-03	-0.120
I-131		374.96		2.246E-02	1.541E-01	2.561E-01	2.607E-02	0.088
		80.18		-2.314E+00	4.078E+00	5.806E+00	5.058E-01	-0.399
		284.30		1.056E-01	1.422E+00	2.279E+00	3.222E-01	0.046
		364.48	*	4.972E-02	1.008E-01	1.699E-01	1.884E-02	0.293
TE-132		636.97		3.370E-01	1.373E+00	2.289E+00	2.494E-01	0.147
		722.89		7.860E-01	7.018E+00	9.834E+00	1.066E+00	0.080
		49.72		-2.943E+01	1.682E+01	2.608E+01	2.776E+00	-1.128
		111.76		7.354E+00	3.121E+01	5.016E+01	5.461E+00	0.147
		116.30		1.847E+00	2.828E+01	4.509E+01	4.889E+00	0.041
BA-133		228.16	*	-5.030E-02	7.244E-01	1.176E+00	2.113E-01	-0.043
		53.15		-1.637E-01	2.672E+00	4.349E+00	3.300E-01	-0.038
		79.62		-4.353E-01	1.061E+00	1.521E+00	2.313E-01	-0.286
		81.00		-6.644E-02	8.023E-02	1.120E-01	1.785E-02	-0.593
I-133	+	276.40		7.176E-01	5.289E-01	5.421E-01	9.808E-02	1.324
		302.84		8.349E-02	1.304E-01	1.960E-01	3.268E-02	0.426
		356.01	*	1.539E-02	4.012E-02	5.891E-02	8.802E-03	0.261
		383.85		-6.142E-02	2.275E-01	3.700E-01	4.952E-02	-0.166
	+	510.53		2.557E+00	2.275E-01	Half-Life	too short	
		529.87	*	-4.353E-04	2.275E-01	Half-Life	too short	
		706.58		2.662E-01	2.275E-01	Half-Life	too short	
		856.28		3.288E-01	2.275E-01	Half-Life	too short	
		875.33		9.285E-02	2.275E-01	Half-Life	too short	
		1236.41		1.919E+00	2.275E-01	Half-Life	too short	
CS-134		1298.22		1.897E-01	2.275E-01	Half-Life	too short	
		475.35		-5.495E-01	1.660E+00	2.548E+00	2.506E-01	-0.216
		563.23		1.198E-01	2.834E-01	4.809E-01	4.961E-02	0.249
		569.32		1.439E-01	1.527E-01	2.641E-01	2.738E-02	0.545
		604.70		8.273E-03	3.258E-02	4.711E-02	4.905E-03	0.176
		795.84	*	7.802E-02	4.082E-02	7.065E-02	7.820E-03	1.104
		801.93		-5.988E-01	3.704E-01	5.217E-01	5.777E-02	-1.148

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	1038.57			3.614E-01	3.152E+00	5.184E+00	5.133E-01	0.070
	1167.94			1.342E+00	2.104E+00	3.620E+00	2.941E-01	0.371
	1365.15			-1.380E-01	9.440E-01	1.533E+00	1.428E-01	-0.090
	268.24	*		3.149E-01	1.600E-01	2.367E-01	3.423E-02	1.331
	288.45			2.895E+10	1.600E-01	Half-Life	too short	
	417.63			4.399E+10	1.600E-01	Half-Life	too short	
	546.56			4.186E+10	1.600E-01	Half-Life	too short	
	836.80			1.099E+11	1.600E-01	Half-Life	too short	
	1038.76			-4.841E+08	1.600E-01	Half-Life	too short	
	1124.00			1.063E+12	1.600E-01	Half-Life	too short	
	1131.51			1.732E+10	1.600E-01	Half-Life	too short	
	1260.41	*		3.915E+10	1.600E-01	Half-Life	too short	
	1457.56			1.341E+13	1.600E-01	Half-Life	too short	
	1678.03			-8.293E+09	1.600E-01	Half-Life	too short	
CS-136	1706.46			2.202E+10	1.600E-01	Half-Life	too short	
	1791.20			1.888E+10	1.600E-01	Half-Life	too short	
	66.91			-4.110E-01	6.713E-01	9.496E-01	1.413E-01	-0.433
	86.29	+		2.893E+00	1.192E+00	1.611E+00	2.144E-01	1.796
	153.22			4.206E-01	5.707E-01	9.742E-01	9.948E-02	0.432
	163.89			-2.228E-01	9.889E-01	1.561E+00	1.662E-01	-0.143
	176.55			1.137E-02	3.185E-01	5.294E-01	5.602E-02	0.021
	273.65			-2.606E-01	6.400E-01	6.132E-01	8.675E-02	-0.425
	340.57			6.116E-01	1.545E-01	2.344E-01	2.808E-02	2.609
	818.51			5.332E-03	6.341E-02	1.065E-01	1.180E-02	0.050
	1048.07	*		-5.709E-02	9.805E-02	1.544E-01	1.561E-02	-0.370
	1235.34			4.850E-01	6.471E-01	9.551E-01	1.116E-01	0.508
	661.65	*		-3.512E-04	2.902E-02	4.762E-02	5.021E-03	-0.007
	661.65	*		-3.713E-04	3.068E-02	5.033E-02	5.315E-03	-0.007
BA-137M	165.85	*		-9.665E-04	2.508E-02	4.178E-02	4.098E-03	-0.023
CS-137	162.64			9.250E-03	6.924E-01	1.102E+00	1.114E-01	0.008
CE-139	304.84			-4.873E-01	1.193E+00	1.693E+00	5.036E-01	-0.288
BA-140	423.70			-8.788E-01	1.642E+00	2.575E+00	8.413E-01	-0.341
LA-140	537.32	*		7.419E-02	2.189E-01	3.694E-01	1.240E-01	0.201
	328.77	+		5.011E-01	3.510E-01	4.522E-01	5.713E-02	1.108
	432.53			2.188E-01	1.736E+00	2.846E+00	2.835E-01	0.077
	487.03			3.423E-02	1.180E-01	1.929E-01	1.999E-02	0.177
	751.79			-6.050E-02	1.423E+00	2.303E+00	2.679E-01	-0.026
	815.85			-1.441E-01	2.713E-01	4.399E-01	5.216E-02	-0.328
	867.82			-6.202E-02	1.351E+00	1.915E+00	2.206E-01	-0.032
	919.63			2.048E+00	2.622E+00	3.937E+00	4.997E-01	0.520
	925.24			3.969E-01	9.287E-01	1.571E+00	1.796E-01	0.253
	1596.49	*		3.800E-02	7.824E-02	1.177E-01	1.032E-02	0.323
	145.44	*		8.597E-02	5.775E-02	8.999E-02	8.192E-03	0.955
	57.37			2.787E-04	5.775E-02	Half-Life	too short	
	231.56			-1.293E-03	5.775E-02	Half-Life	too short	
	293.26	*		1.202E-03	5.775E-02	Half-Life	too short	
CE-141	350.59	+		4.345E-02	5.775E-02	Half-Life	too short	
CE-143	490.36			4.857E-04	5.775E-02	Half-Life	too short	
	664.57			7.965E-04	5.775E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			3.267E-04	5.775E-02	Half-Life too short		
CE-144	80.11			-9.469E-01	1.735E+00	2.473E+00	2.138E-01	-0.383
	133.54	*		-3.790E-02	1.648E-01	2.770E-01	4.300E-02	-0.137
PM-144	476.78			-1.344E-02	5.927E-02	9.150E-02	9.661E-03	-0.147
	618.01			1.317E-02	2.586E-02	4.284E-02	4.554E-03	0.307
	696.49	*		1.144E-02	2.903E-02	4.829E-02	5.164E-03	0.237
	778.57			-2.413E+00	1.878E+00	2.775E+00	3.045E-01	-0.869
PR-144	696.49	*		7.754E-01	1.968E+00	3.274E+00	3.500E-01	0.237
	1489.15			-8.571E+00	9.480E+00	1.404E+01	1.251E+00	-0.610
PM-146	453.90	*		1.851E-02	3.445E-02	5.725E-02	6.653E-03	0.323
	633.02			-2.086E-02	1.134E+00	1.868E+00	7.069E-01	-0.011
	735.90			4.933E-02	1.418E-01	2.017E-01	5.919E-02	0.245
	747.13			-6.564E-02	7.270E-02	1.106E-01	1.717E-02	-0.594
ND-147	91.11	+		5.536E-01	2.254E-01	4.305E-01	4.254E-02	1.286
	319.41			-1.484E+00	2.823E+00	4.620E+00	5.848E-01	-0.321
	439.89			2.223E+00	4.953E+00	8.225E+00	7.920E-01	0.270
	531.02	*		1.562E-01	4.559E-01	7.747E-01	1.228E-01	0.202
PM-149	285.90	*		2.737E+01	1.084E+02	1.745E+02	3.302E+01	0.157
EU-152	121.78			8.322E-03	6.621E-02	1.009E-01	9.682E-03	0.083
	244.69			3.219E-01	3.085E-01	4.552E-01	5.763E-02	0.707
	344.27	*		-3.275E-02	8.857E-02	1.314E-01	1.579E-02	-0.249
	443.98			-4.661E-01	7.808E-01	1.232E+00	1.189E-01	-0.378
	778.89			-1.679E-01	2.102E-01	3.222E-01	3.536E-02	-0.521
	867.32			-5.351E-02	7.645E-01	1.081E+00	1.207E-01	-0.049
	964.01	+		7.442E-01	2.606E-01	4.636E-01	4.947E-02	1.605
	1085.78			7.360E-03	3.418E-01	5.567E-01	5.187E-02	0.013
	1112.02			6.386E-02	3.011E-01	4.230E-01	3.790E-02	0.151
	1407.95			3.124E-03	1.809E-01	2.678E-01	2.394E-02	0.012
GD-153	69.67			-2.319E-01	1.321E+00	1.933E+00	1.500E-01	-0.120
	83.37	+		1.493E+01	1.200E+01	1.800E+01	1.616E+00	0.829
	97.43	*		2.964E-02	7.093E-02	1.036E-01	9.109E-03	0.286
	103.18			-2.338E-02	8.861E-02	1.410E-01	1.205E-02	-0.166
EU-154	123.07			-1.520E-03	4.495E-02	7.113E-02	7.890E-03	-0.021
	247.94			2.279E-01	3.209E-01	4.921E-01	7.314E-02	0.463
	591.81			-6.035E-01	5.875E-01	7.687E-01	9.994E-02	-0.785
	723.30			3.609E-02	1.637E-01	2.311E-01	2.666E-02	0.156
	756.87			-2.811E-01	6.325E-01	9.978E-01	1.368E-01	-0.282
	873.19			6.743E-03	2.535E-01	4.219E-01	5.973E-02	0.016
	996.32			-2.230E-01	3.129E-01	4.878E-01	9.108E-02	-0.457
	1004.76			4.255E-02	1.858E-01	3.082E-01	3.979E-02	0.138
	1274.45	*		-5.050E-02	9.806E-02	1.568E-01	1.773E-02	-0.322
EU-155	48.70			-2.032E+00	1.730E+00	2.783E+00	2.267E-01	-0.730
	60.01			2.135E-01	3.920E+00	5.851E+00	4.155E-01	0.036
	86.54	+		2.542E-01	1.020E-01	1.430E-01	1.345E-02	1.778
	105.31	*		1.121E-01	9.560E-02	1.531E-01	1.315E-02	0.732
TB-160	86.79	+		6.848E-01	2.746E-01	3.861E-01	3.611E-02	1.774
	197.04			8.649E-02	5.262E-01	8.206E-01	8.923E-02	0.105
	215.65			-3.855E-02	6.627E-01	1.044E+00	1.207E-01	-0.037
	298.57			2.514E-01	1.487E-01	1.669E-01	2.237E-02	1.507

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		879.36	*	9.524E-02	1.207E-01	2.077E-01	2.323E-02	0.458
		962.29		7.718E-01	5.524E-01	8.406E-01	8.984E-02	0.918
	+	966.15		5.156E-01	1.805E-01	4.336E-01	4.618E-02	1.189
		1177.93		1.206E-02	3.152E-01	5.268E-01	4.250E-02	0.023
		1271.85		3.267E-02	5.528E-01	9.185E-01	7.893E-02	0.036
		80.57		-1.457E-01	2.212E-01	3.134E-01	2.723E-02	-0.465
		184.41		7.313E-02	3.673E-02	5.654E-02	5.895E-03	1.293
		280.46		5.472E-03	8.240E-02	1.153E-01	1.610E-02	0.047
		410.95		1.763E-01	2.033E-01	3.437E-01	3.244E-02	0.513
		711.68	*	-1.196E-02	4.953E-02	7.970E-02	8.568E-03	-0.150
TM-171		752.31		1.937E-01	2.099E-01	3.567E-01	3.886E-02	0.543
		810.29		-4.197E-02	4.709E-02	7.466E-02	8.254E-03	-0.562
		51.35		1.300E+00	2.155E+01	3.620E+01	2.824E+00	0.036
		52.39		1.427E+01	1.165E+01	1.965E+01	1.508E+00	0.726
		59.40		6.585E+00	2.064E+01	3.117E+01	2.203E+00	0.211
LU-176	+	66.72	*	-1.240E+01	2.322E+01	3.307E+01	2.499E+00	-0.375
		88.36		5.003E-01	2.006E-01	2.874E-01	2.718E-02	1.741
		201.83		-2.622E-02	2.522E-02	3.985E-02	4.403E-03	-0.658
LU-177		306.84	*	1.422E-02	2.221E-02	3.346E-02	4.390E-03	0.425
		401.10		-4.239E+00	5.265E+00	8.306E+00	7.783E-01	-0.510
		112.95		-1.837E-02	1.549E+00	2.468E+00	2.052E-01	-0.007
LU-177M	+	208.36	*	2.435E+00	1.350E+00	1.805E+00	2.038E-01	1.349
		52.97		6.921E-01	1.197E+00	1.986E+00	1.511E-01	0.349
		54.07		-2.591E-01	6.357E-01	1.021E+00	7.650E-02	-0.254
		61.30		1.328E+00	1.169E+00	1.811E+00	1.303E-01	0.733
		121.62		3.507E-02	3.406E-01	5.185E-01	4.271E-02	0.068
		147.16		-1.113E-02	5.815E-01	8.617E-01	7.771E-02	-0.013
		171.86		-8.194E-03	3.951E-01	6.568E-01	6.568E-02	-0.012
		218.09		2.347E-01	7.061E-01	1.165E+00	1.358E-01	0.201
		268.79		2.374E+00	8.428E-01	1.251E+00	1.700E-01	1.898
		319.02		-1.194E-01	2.085E-01	3.405E-01	4.314E-02	-0.351
HF-181		367.43		-1.064E-01	7.239E-01	1.190E+00	1.256E-01	-0.089
		413.65	*	-1.417E-01	1.492E-01	2.333E-01	2.207E-02	-0.607
		56.28		-1.501E-01	6.800E-01	1.126E+00	8.202E-02	-0.133
		57.53		7.268E-02	3.614E-01	6.058E-01	4.354E-02	0.120
		65.20		2.266E-01	7.737E-01	1.141E+00	8.504E-02	0.199
		133.02		-7.105E-02	5.686E-02	8.934E-02	7.615E-03	-0.795
		136.25		-3.154E-02	3.742E-01	6.311E-01	5.444E-02	-0.050
W-181		345.85		-1.647E-01	1.881E-01	2.569E-01	2.971E-02	-0.641
		482.03	*	-1.009E-02	3.539E-02	5.630E-02	5.558E-03	-0.179
		56.28		-5.766E-02	2.635E-01	4.364E-01	3.179E-02	-0.132
		57.53		2.824E-02	1.402E-01	2.350E-01	1.689E-02	0.120
TA-182		65.20	*	8.717E-02	2.977E-01	4.389E-01	3.272E-02	0.199
		67.75		-4.003E-02	9.068E-02	1.295E-01	9.878E-03	-0.309
		100.10		6.593E-02	1.453E-01	2.370E-01	2.054E-02	0.278
		152.43		1.975E-01	2.776E-01	4.741E-01	4.374E-02	0.417
		222.10		-6.316E-02	2.871E-01	4.644E-01	5.481E-02	-0.136
		1001.68		1.898E+00	1.939E+00	3.085E+00	3.179E-01	0.615
	+	1121.28		5.541E-01	1.906E-01	2.671E-01	2.358E-02	2.075

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183	1189.05			-1.446E-01	2.666E-01	4.319E-01	3.512E-02	-0.335
	1221.42	*		1.017E-01	1.665E-01	2.846E-01	2.367E-02	0.357
	1230.97			3.319E-01	4.716E-01	6.989E-01	5.849E-02	0.475
	57.98			-2.931E-02	1.436E-01	2.375E-01	1.700E-02	-0.123
	59.32			2.489E-02	8.556E-02	1.291E-01	9.129E-03	0.193
	67.20			-1.133E-01	1.643E-01	2.323E-01	1.762E-02	-0.488
	162.32	*		-3.954E-03	9.674E-02	1.536E-01	1.482E-02	-0.026
	208.81	+		2.005E+00	1.111E+00	1.484E+00	1.678E-01	1.351
	291.72			-2.666E-01	8.672E-01	1.254E+00	1.708E-01	-0.213
	57.98			-1.074E-01	5.262E-01	8.705E-01	6.230E-02	-0.123
RE-184	59.32			9.116E-02	3.133E-01	4.726E-01	3.343E-02	0.193
	67.20			-4.151E-01	6.019E-01	8.509E-01	6.457E-02	-0.488
	161.27			1.150E-01	2.913E-01	4.922E-01	4.725E-02	0.234
	216.55			-5.630E-02	2.240E-01	3.627E-01	4.205E-02	-0.155
	252.85	*		-9.855E-03	1.968E-01	3.169E-01	4.112E-02	-0.031
	318.01			-5.421E-02	3.575E-01	5.950E-01	7.562E-02	-0.091
	792.07			3.246E-01	8.552E-01	1.406E+00	1.548E-01	0.231
	903.28			-3.857E-01	1.004E+00	1.377E+00	1.538E-01	-0.280
	920.93			9.683E-02	4.141E-01	5.964E-01	6.581E-02	0.162
	59.72			-1.627E-02	2.344E-01	3.483E-01	2.466E-02	-0.047
OS-185	61.14			1.142E-01	1.281E-01	1.969E-01	1.414E-02	0.580
	69.30			-1.234E-01	2.378E-01	3.431E-01	2.654E-02	-0.360
	592.07			-2.380E+00	2.283E+00	3.139E+00	3.249E-01	-0.758
	646.12	*		-1.322E-02	3.523E-02	5.599E-02	5.884E-03	-0.236
	717.42			1.955E-01	8.096E-01	1.212E+00	1.305E-01	0.161
	874.81			-1.198E-02	5.072E-01	8.416E-01	9.405E-02	-0.014
	880.27			5.569E-02	6.694E-01	1.116E+00	1.248E-01	0.050
	155.03	*		1.204E-01	1.427E-01	2.441E-01	2.278E-02	0.493
	477.96			2.671E+00	2.539E+00	4.286E+00	4.222E-01	0.623
	633.10			-1.155E-01	2.321E+00	3.817E+00	3.999E-01	-0.030
W-188	63.58	+		1.356E+01	6.228E+01	6.848E+01	5.032E+00	0.198
	227.08			6.987E-02	1.109E+01	1.806E+01	2.165E+00	0.004
IR-192	290.67	*		-3.467E+00	6.968E+00	9.967E+00	1.361E+00	-0.348
	295.96	+		9.368E-01	2.074E-01	2.228E-01	3.014E-02	4.205
AU-195	308.46			8.573E-02	8.227E-02	1.350E-01	1.768E-02	0.635
	316.51	*		1.080E-02	2.784E-02	4.723E-02	6.036E-03	0.229
	468.07			-1.791E-01	6.055E-02	7.922E-02	8.195E-03	-2.260
	604.41			-4.134E-02	4.481E-01	6.342E-01	9.040E-02	-0.065
	612.46			4.489E+00	9.645E-01	1.463E+00	1.682E-01	3.068
	65.12			-1.645E-02	1.401E-01	2.034E-01	1.515E-02	-0.081
	66.83			-4.463E-02	7.685E-02	1.092E-01	8.261E-03	-0.409
	75.70	+		1.162E+00	2.263E-01	3.382E-01	2.786E-02	3.435
	98.88	*		1.432E-01	1.838E-01	3.026E-01	2.639E-02	0.473
	129.76			3.612E+00	2.370E+00	4.146E+00	3.494E-01	0.871
TL-200	367.94	*		-2.098E-04	2.370E+00	Half-Life	too short	
	579.30			9.583E-03	2.370E+00	Half-Life	too short	
	828.27			2.911E-03	2.370E+00	Half-Life	too short	
TL-201	1205.75			1.809E-03	2.370E+00	Half-Life	too short	
	68.90			-2.955E+00	4.426E+00	6.792E+00	5.234E-01	-0.435



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82		1.661E+00	2.630E+00	3.961E+00	3.108E-01	0.419
		80.30		-3.023E+00	5.076E+00	7.216E+00	6.251E-01	-0.419
		135.34		2.015E+01	2.497E+01	4.311E+01	3.706E+00	0.467
		167.43	*	1.019E+00	7.146E+00	1.196E+01	1.179E+00	0.085
		68.90		-2.262E-01	3.387E-01	5.198E-01	4.006E-02	-0.435
		70.82		1.268E-01	2.007E-01	3.023E-01	2.372E-02	0.419
HG-203		80.30		-2.308E-01	3.875E-01	5.509E-01	4.772E-02	-0.419
		439.56	*	2.925E-02	5.777E-02	9.619E-02	9.259E-03	0.304
		70.83		5.290E-01	8.379E-01	1.259E+00	1.653E-01	0.420
		72.87		9.218E-01	5.289E-01	7.869E-01	1.008E-01	1.171
BI-207	+	82.60		1.123E+00	9.103E-01	1.299E+00	1.808E-01	0.864
		279.20	*	4.320E-02	4.140E-02	6.022E-02	8.524E-03	0.717
		72.80		2.310E-01	1.496E-01	2.248E-01	1.798E-02	1.028
	+	74.97		6.421E-01	1.251E-01	1.660E-01	1.357E-02	3.868
	+	84.90		1.926E-01	1.548E-01	2.385E-01	2.180E-02	0.808
		569.67		3.107E-02	2.384E-02	4.170E-02	4.283E-03	0.745
TL-207		1063.62	*	8.837E-03	4.453E-02	7.340E-02	7.046E-03	0.120
		1770.23		6.827E-01	4.889E-01	8.021E-01	6.667E-02	0.851
		81.07		-1.528E-01	1.758E-01	2.465E-01	2.154E-02	-0.620
	+	83.78		1.270E-01	1.021E-01	1.540E-01	1.389E-02	0.825
		94.90		4.609E-01	2.065E-01	3.170E-01	2.834E-02	1.454
		122.32		-3.463E-03	1.583E+00	2.401E+00	2.137E-01	-0.001
	+	144.24		8.513E-01	7.532E-01	9.859E-01	9.760E-02	0.863
		154.21		3.667E-01	3.279E-01	5.634E-01	5.691E-02	0.651
	+	269.46		4.641E-01	2.674E-01	2.965E-01	4.072E-02	1.565
	+	323.87	*	5.380E-01	6.058E-01	9.084E-01	1.805E-01	0.592
PO-209	+	338.28		5.872E+00	1.530E+00	1.915E+00	2.833E-01	3.066
		445.03		-5.307E-02	1.836E+00	2.982E+00	3.832E-01	-0.018
		260.50		3.237E+00	8.308E+00	1.355E+01	1.798E+00	0.239
		262.80		-1.946E+01	2.423E+01	3.610E+01	4.823E+00	-0.539
		896.60	*	4.058E+00	6.292E+00	1.075E+01	1.205E+00	0.377
		46.50	*	3.213E+00	2.673E+00	4.375E+00	4.065E-01	0.734
BI-210		46.50	*	3.213E+00	2.673E+00	4.375E+00	4.065E-01	0.734
PB-210		46.50	*	3.213E+00	2.670E+00	4.375E+00	3.679E-01	0.734
PB-211		404.84	*	-3.377E-01	7.825E-01	1.212E+00	7.606E-01	-0.279
BI-212		427.08		1.336E+00	1.874E+00	2.837E+00	1.767E+00	0.471
		831.96		-8.712E-02	1.015E+00	1.684E+00	1.062E+00	-0.052
	+	727.18	*	1.045E+00	4.906E-01	5.116E-01	6.111E-02	2.043
		785.46		1.123E+00	1.442E+00	2.419E+00	2.659E-01	0.464
		1620.62		1.477E+00	9.862E-01	1.836E+00	1.601E-01	0.805
		81.07		-1.528E-01	1.758E-01	2.465E-01	2.154E-02	-0.620
PO-215	+	83.78		1.270E-01	1.021E-01	1.540E-01	1.389E-02	0.825
		94.90		4.609E-01	2.065E-01	3.170E-01	2.834E-02	1.454
		122.32		-3.463E-03	1.583E+00	2.401E+00	2.137E-01	-0.001
	+	144.24		8.513E-01	7.532E-01	9.859E-01	9.760E-02	0.863
		154.21		3.667E-01	3.279E-01	5.634E-01	5.691E-02	0.651
	+	269.46		4.641E-01	2.674E-01	2.965E-01	4.072E-02	1.565
	+	323.87	*	5.380E-01	6.058E-01	9.084E-01	1.805E-01	0.592
	+	338.28		5.872E+00	1.530E+00	1.915E+00	2.833E-01	3.066

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		-5.307E-02	1.836E+00	2.982E+00	3.832E-01	-0.018
		271.23		5.954E-01	3.446E-01	3.804E-01	5.636E-02	1.565
		401.81	*	-1.215E-01	3.227E-01	5.199E-01	8.044E-02	-0.234
RN-220		549.76	*	-7.324E+00	2.113E+01	3.470E+01	3.537E+00	-0.211
RA-223	+	81.07		-1.528E-01	1.758E-01	2.465E-01	2.154E-02	-0.620
		83.78		1.270E-01	1.021E-01	1.540E-01	1.389E-02	0.825
		94.90		4.609E-01	2.065E-01	3.170E-01	2.834E-02	1.454
	+	122.32		-3.463E-03	1.583E+00	2.401E+00	2.137E-01	-0.001
		144.24		8.513E-01	7.532E-01	9.859E-01	9.760E-02	0.863
		154.21		3.667E-01	3.279E-01	5.634E-01	5.691E-02	0.651
	+	269.46		4.641E-01	2.674E-01	2.965E-01	4.072E-02	1.565
		323.87	*	5.380E-01	6.058E-01	9.084E-01	1.805E-01	0.592
		338.28		5.872E+00	1.530E+00	1.915E+00	2.833E-01	3.066
AC-227		445.03		-5.307E-02	1.836E+00	2.982E+00	3.832E-01	-0.018
		79.80		-7.663E-01	1.348E+00	1.908E+00	4.102E-01	-0.402
		236.00		9.946E-01	2.821E-01	3.934E-01	5.935E-02	2.528
	+	256.20	*	-3.692E-02	3.254E-01	5.221E-01	9.527E-02	-0.071
		286.10		5.102E-01	1.350E+00	2.183E+00	3.720E-01	0.234
		299.80		4.736E+00	1.961E+00	2.114E+00	4.281E-01	2.240
	+	304.40		-1.141E+00	1.690E+00	2.358E+00	4.946E-01	-0.484
		334.20		1.019E+00	3.059E+00	3.074E+00	6.506E-01	0.331
		79.80		-7.663E-01	1.348E+00	1.908E+00	4.154E-01	-0.402
TH-227	+	94.00		5.556E+00	2.746E+00	2.994E+00	6.566E-01	1.856
		236.00		9.946E-01	2.773E-01	3.934E-01	5.569E-02	2.528
		256.20	*	-3.692E-02	3.254E-01	5.221E-01	1.075E-01	-0.071
	+	286.10		5.102E-01	1.443E+00	2.183E+00	2.204E+00	0.234
		299.80		4.736E+00	1.961E+00	2.114E+00	4.281E-01	2.240
		304.40		-1.141E+00	1.690E+00	2.358E+00	4.946E-01	-0.484
	+	334.20		1.019E+00	3.059E+00	3.074E+00	6.506E-01	0.331
		85.43		1.901E-01	1.528E-01	2.450E-01	2.254E-02	0.776
		88.47		4.051E-01	1.302E-01	1.650E-01	1.559E-02	2.455
TH-229	+	100.00		9.714E-02	1.494E-01	2.450E-01	2.124E-02	0.396
		193.63	*	-2.164E-01	4.300E-01	6.967E-01	7.490E-02	-0.311
		210.97		1.010E+00	7.527E-01	1.128E+00	1.284E-01	0.896
PA-231	+	283.67	*	2.013E-01	1.388E+00	2.150E+00	4.015E-01	0.094
		301.29		1.894E+00	7.477E-01	8.524E-01	1.355E-01	2.222
		81.07		-1.528E-01	1.758E-01	2.465E-01	2.154E-02	-0.620
TH-231	+	83.78		1.270E-01	1.021E-01	1.540E-01	1.389E-02	0.825
		94.90		4.609E-01	2.065E-01	3.170E-01	2.834E-02	1.454
		122.32		-3.463E-03	1.583E+00	2.401E+00	2.137E-01	-0.001
	+	144.24		8.513E-01	7.532E-01	9.859E-01	9.760E-02	0.863
		154.21		3.667E-01	3.279E-01	5.634E-01	5.691E-02	0.651
		269.46		4.641E-01	2.674E-01	2.965E-01	4.072E-02	1.565
	+	323.87	*	5.380E-01	6.058E-01	9.084E-01	1.805E-01	0.592
		338.28		5.872E+00	1.530E+00	1.915E+00	2.833E-01	3.066
		445.03		-5.307E-02	1.836E+00	2.982E+00	3.832E-01	-0.018
U-231	+	84.21		6.390E+00	5.136E+00	7.725E+00	7.003E-01	0.827
		92.29		6.413E+00	2.898E+00	3.694E+00	3.369E-01	1.736
		95.87	*	-5.627E-01	1.129E+00	1.587E+00	1.410E-01	-0.355

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		-2.067E+00	2.082E+00	3.212E+00	2.700E-01	-0.643
	+	75.28		1.874E+01	4.357E+00	5.045E+00	7.627E-01	3.714
	+	86.59		4.130E+00	1.960E+00	2.326E+00	6.294E-01	1.775
	+	300.12		1.320E+00	5.329E-01	5.918E-01	1.067E-01	2.231
		311.98	*	-3.446E-02	5.261E-02	8.576E-02	1.123E-02	-0.402
		340.50		3.004E+00	9.858E-01	1.098E+00	2.763E-01	2.736
		398.62		-2.501E-01	1.733E+00	2.667E+00	7.167E-01	-0.094
PA-234		415.76		-1.791E-01	1.357E+00	2.206E+00	4.832E-01	-0.081
	+	63.00		3.894E-01	1.790E+00	2.005E+00	2.970E-01	0.194
		94.67		4.491E-01	1.580E-01	2.367E-01	2.991E-02	1.897
		98.44		5.452E-02	8.033E-02	1.225E-01	6.837E-02	0.445
		99.86		2.554E-01	3.786E-01	6.213E-01	5.391E-02	0.411
		111.00		6.998E-02	1.644E-01	2.546E-01	3.028E-02	0.275
		131.20		-4.553E-02	9.029E-02	1.461E-01	1.237E-02	-0.312
		152.70		2.013E-01	2.686E-01	4.562E-01	7.923E-02	0.441
	+	186.00		3.652E+00	2.001E+00	2.102E+00	6.681E-01	1.737
		226.40		7.272E-02	3.446E-01	5.647E-01	8.805E-02	0.129
		227.20		5.682E-03	3.709E-01	6.041E-01	7.245E-02	0.009
		248.90		1.240E-01	6.985E-01	1.096E+00	2.668E-01	0.113
		293.70		4.940E+00	1.250E+00	1.331E+00	2.692E-01	3.710
		369.80		-1.779E-01	6.692E-01	1.092E+00	2.463E-01	-0.163
		568.70		-4.560E-03	7.717E-01	1.284E+00	1.319E-01	-0.004
		569.50		2.615E-01	2.106E-01	3.678E-01	3.778E-02	0.711
		574.00		-7.385E-01	1.336E+00	1.920E+00	1.975E-01	-0.385
		699.00		-3.023E-01	6.072E-01	9.627E-01	1.936E-01	-0.314
		706.10		2.263E-01	8.765E-01	1.439E+00	6.481E-01	0.157
		733.00		-1.811E-02	3.483E-01	4.826E-01	1.117E-01	-0.038
		742.81		1.862E-01	1.275E+00	1.822E+00	1.231E+00	0.102
		796.30		1.387E+00	8.738E-01	1.375E+00	3.837E-01	1.009
		805.60		5.599E-01	8.202E-01	1.388E+00	4.361E-01	0.403
		819.60		4.088E-01	1.012E+00	1.706E+00	6.596E-01	0.240
		826.30		-7.676E-01	7.662E-01	1.073E+00	4.860E-01	-0.715
		831.60		1.180E-01	5.187E-01	8.734E-01	2.677E-01	0.135
		876.40		3.440E-01	8.002E-01	1.221E+00	1.258E+00	0.282
		880.51		1.315E-02	2.393E-01	3.984E-01	4.456E-02	0.033
		883.24		-1.308E-01	2.620E-01	3.980E-01	2.690E-01	-0.329
		899.00		-1.010E-01	7.175E-01	1.178E+00	5.217E-01	-0.086
		925.00		4.901E-01	9.200E-01	1.565E+00	1.722E-01	0.313
		926.50		-1.039E-01	1.402E-01	2.170E-01	5.680E-02	-0.479
		946.00	*	6.202E-02	2.435E-01	4.068E-01	8.085E-02	0.152
		949.00		3.052E-01	3.644E-01	6.261E-01	6.765E-02	0.487
		980.50		1.970E-01	5.815E-01	9.742E-01	1.025E-01	0.202
		1394.10		-5.632E-01	1.010E+00	1.467E+00	9.553E-01	-0.384
PA-234M		766.42		1.046E+01	1.126E+01	1.683E+01	8.614E+00	0.621
NP-236		1001.03	*	2.971E+00	4.363E+00	6.849E+00	7.849E-01	0.434
		94.67		3.427E-01	1.161E-01	1.797E-01	1.609E-02	1.907
		98.44		4.119E-02	5.632E-02	9.261E-02	8.096E-03	0.445
		111.00		5.293E-02	1.242E-01	1.926E-01	1.607E-02	0.275
		160.31	*	8.358E-03	6.422E-02	1.078E-01	1.030E-02	0.078

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.068E-01	1.262E-01	2.080E-01	1.808E-02	0.513
		117.00	*	-5.022E-02	1.593E-01	2.505E-01	2.071E-02	-0.200
	+	209.75		1.567E+00	8.683E-01	1.148E+00	1.302E-01	1.365
		228.18		-1.458E-02	1.938E-01	3.145E-01	3.784E-02	-0.046
	+	277.60		3.502E-01	2.549E-01	2.633E-01	3.669E-02	1.330
AM-241		334.30		3.541E-01	1.493E+00	1.738E+00	2.096E-01	0.204
		59.54	*	4.412E-02	1.199E-01	1.814E-01	1.418E-02	0.243
CM-243		99.55		1.099E-01	1.298E-01	2.141E-01	1.860E-02	0.513
		103.76	*	4.110E-02	8.163E-02	1.329E-01	1.133E-02	0.309
		117.00		-5.167E-02	1.639E-01	2.577E-01	2.130E-02	-0.200
	+	209.75		1.545E+00	8.560E-01	1.132E+00	1.283E-01	1.365
		228.18		-1.474E-02	1.958E-01	3.178E-01	3.824E-02	-0.046
AM-246	+	277.60		3.530E-01	2.570E-01	2.654E-01	3.700E-02	1.330
		798.80		-8.812E-02	1.234E-01	1.907E-01	2.103E-02	-0.462
		1036.00		2.804E-03	2.432E-01	3.977E-01	3.949E-02	0.007
		1062.04		7.317E-02	1.920E-01	3.198E-01	3.076E-02	0.229
		1078.86	*	3.982E-02	1.227E-01	2.033E-01	1.913E-02	0.196
CM-247	+	278.00		1.452E+00	1.057E+00	1.097E+00	1.530E-01	1.324
		287.40		6.218E-01	1.080E+00	1.757E+00	2.417E-01	0.354
		402.60	*	1.588E-02	2.859E-02	4.800E-02	4.503E-03	0.331
CF-249		252.85		-3.684E-02	7.356E-01	1.185E+00	1.537E-01	-0.031
		333.44		2.542E-01	2.098E-01	2.297E-01	2.778E-02	1.107
		387.95	*	-6.743E-03	3.119E-02	5.084E-02	4.832E-03	-0.133
CF-251		176.60	*	6.555E-03	1.046E-01	1.740E-01	1.767E-02	0.038
		227.00		3.830E-03	3.298E-01	5.371E-01	6.438E-02	0.007
		285.00		-1.443E-01	1.539E+00	2.449E+00	3.387E-01	-0.059

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229004      *
* Acquisition date   : 22-JAN-2010 12:58:13 Detector SN# :                  *
* Detector ID        : GAM22 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 03:00:02.98 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G244229004 Analyst initials: MXR1                 *
* Batch Number      : 941239 Sample Quantity : 1.0913E+02 GRAM          *
* Recovery          : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME  : 2-DEC-2009 16:47:28 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.733E+01	3.627E+00	3.657E-01	0.000E+00
CD-109	2.149E+00	8.446E-01	9.868E-01	0.000E+00
SN-126	2.110E-01	8.289E-02	1.041E-01	0.000E+00
TL-208	4.963E-01	8.646E-02	4.532E-02	0.000E+00
BI-211	3.406E+00	5.032E-01	2.626E-01	0.000E+00
PB-212	1.537E+00	2.181E-01	7.645E-02	0.000E+00
PO-212	1.537E+00	2.181E-01	7.645E-02	0.000E+00
BI-214	9.005E-01	1.624E-01	9.150E-02	0.000E+00
PB-214	1.185E+00	1.852E-01	9.332E-02	0.000E+00
PO-214	1.185E+00	1.852E-01	9.332E-02	0.000E+00
PO-216	1.537E+00	2.181E-01	7.645E-02	0.000E+00
PO-218	1.185E+00	1.852E-01	9.332E-02	0.000E+00
RA-224	4.155E+00	1.113E+00	8.691E-01	0.000E+00
RA-226	9.005E-01	1.624E-01	9.150E-02	0.000E+00
AC-228	1.555E+00	3.183E-01	1.729E-01	0.000E+00
RA-228	1.555E+00	3.183E-01	1.729E-01	0.000E+00
TH-228	1.562E+00	2.216E-01	7.769E-02	0.000E+00
TH-230	9.005E-01	1.624E-01	9.149E-02	0.000E+00
TH-232	1.555E+00	3.183E-01	1.729E-01	0.000E+00
TH-234	3.341E-01	1.505E+00	1.547E+00	0.000E+00
U-234	9.005E-01	1.624E-01	9.149E-02	0.000E+00
U-235	2.627E-01	2.309E-01	2.942E-01	0.000E+00
NP-237	6.195E-01	2.738E-01	2.735E-01	0.000E+00
U-238	3.341E-01	1.505E+00	1.547E+00	0.000E+00
AM-243	3.577E-01	6.828E-02	6.654E-02	0.000E+00
ANH-511	1.181E-01	5.267E-02	3.634E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	1.760E-01	2.627E-01	4.465E-01	0.000E+00 NOT IDENT.

NA-22	-1.849E-02	3.437E-02	5.582E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.688E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.030E-02	2.269E-02	4.139E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.470E-02	5.885E-02	0.000E+00	FAIL ABUN
SC-46	-1.457E-02	3.241E-02	5.334E-02	0.000E+00	FAIL ABUN
V-48	3.706E-02	5.820E-02	1.006E-01	0.000E+00	NOT IDENT.
CR-51	-2.462E-01	3.024E-01	5.002E-01	0.000E+00	NOT IDENT.
MN-52	-9.048E-02	2.087E-01	3.335E-01	0.000E+00	NOT IDENT.
MN-54	-2.461E-02	3.144E-02	5.128E-02	0.000E+00	NOT IDENT.
CO-56	-1.380E-02	3.221E-02	5.340E-02	0.000E+00	FAIL ABUN
CO-57	4.572E-04	2.250E-02	3.525E-02	0.000E+00	NOT IDENT.
CO-58	-2.696E-02	3.091E-02	5.005E-02	0.000E+00	NOT IDENT.
FE-59	5.392E-02	8.147E-02	1.390E-01	0.000E+00	FAIL ABUN
CO-60	1.203E-02	3.257E-02	5.576E-02	0.000E+00	NOT IDENT.
ZN-65	5.134E-02	8.662E-02	1.270E-01	0.000E+00	NOT IDENT.
GE-68	7.557E-01	1.068E+00	1.833E+00	0.000E+00	NOT IDENT.
AS-73	-5.568E-02	6.075E-01	1.024E+00	0.000E+00	NOT IDENT.
AS-74	1.164E-02	7.553E-02	1.287E-01	0.000E+00	NOT IDENT.
SE-75	-1.042E-02	4.170E-02	5.919E-02	0.000E+00	NOT IDENT.
BR-77	7.104E+00	1.078E+01	1.860E+01	0.000E+00	FAIL ABUN
SR-82	-3.884E-01	3.118E-01	4.721E-01	0.000E+00	NOT IDENT.
RB-83	4.171E-02	5.481E-02	9.497E-02	0.000E+00	NOT IDENT.
RB-84	-2.652E-02	6.107E-02	1.008E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.827E+00	1.253E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.053E-02	6.487E-02	0.000E+00	NOT IDENT.
RB-86	4.678E-01	6.982E-01	1.196E+00	0.000E+00	NOT IDENT.
Y-88	-2.269E-02	2.882E-02	4.383E-02	0.000E+00	NOT IDENT.
ZR-88	-8.341E-03	2.424E-02	4.018E-02	0.000E+00	NOT IDENT.
Y-91	8.402E+00	1.625E+01	2.812E+01	0.000E+00	NOT IDENT.
NB-94	1.780E-03	2.730E-02	4.558E-02	0.000E+00	NOT IDENT.
NB-95	4.400E-02	3.677E-02	6.352E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.216E-01	1.861E-01	0.000E+00	NOT IDENT.
ZR-95	-1.793E-02	5.684E-02	9.221E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.931E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.486E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-2.048E+00	1.194E+01	1.958E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.862E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	8.264E-03	3.007E-02	4.836E-02	0.000E+00	NOT IDENT.
RH-102	-6.594E-03	2.475E-02	3.897E-02	0.000E+00	NOT IDENT.
RU-103	2.706E-03	3.226E-02	5.330E-02	0.000E+00	FAIL ABUN
RH-106	-1.074E-01	2.540E-01	4.186E-01	0.000E+00	FAIL ABUN
RU-106	-1.074E-01	2.538E-01	4.186E-01	0.000E+00	FAIL ABUN
AG-108M	-8.994E-03	2.561E-02	4.199E-02	0.000E+00	NOT IDENT.
AG-110M	-6.718E-03	2.743E-02	4.539E-02	0.000E+00	NOT IDENT.
IN-111	4.846E-01	1.212E+00	1.793E+00	0.000E+00	NOT IDENT.
IN-113M	2.869E-03	3.503E-02	5.919E-02	0.000E+00	NOT IDENT.
SN-113	2.869E-03	3.503E-02	5.919E-02	0.000E+00	NOT IDENT.
IN-114M	-5.329E-02	1.670E-01	2.454E-01	0.000E+00	NOT IDENT.
CD-115	-6.372E+00	1.088E+01	1.808E+01	0.000E+00	NOT IDENT.
SN-117M	-6.407E-02	4.687E-02	7.690E-02	0.000E+00	NOT IDENT.
SB-122	1.385E+00	2.008E+00	3.515E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.532E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.566E-02	2.302E-02	3.815E-02	0.000E+00	NOT IDENT.
I-124	-7.503E-02	7.460E-01	1.078E+00	0.000E+00	NOT IDENT.
SB-124	1.768E-02	5.231E-02	9.110E-02	0.000E+00	FAIL ABUN
SB-125	4.494E-02	7.421E-02	1.270E-01	0.000E+00	NOT IDENT.
TE-125M	-5.469E+00	8.249E+00	1.273E+01	0.000E+00	NOT IDENT.
I-126	3.805E-02	1.475E-01	2.499E-01	0.000E+00	NOT IDENT.
SB-126	-3.310E-02	1.391E-01	1.940E-01	0.000E+00	FAIL ABUN
SB-127	-1.005E+00	1.269E+00	2.018E+00	0.000E+00	NOT IDENT.
XE-127	-8.036E-03	4.031E-02	6.765E-02	0.000E+00	NOT IDENT.
I-131	4.972E-02	9.876E-02	1.705E-01	0.000E+00	NOT IDENT.
TE-132	-5.030E-02	7.099E-01	1.184E+00	0.000E+00	NOT IDENT.
BA-133	1.539E-02	3.932E-02	5.914E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	9.525E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	4.001E-02	7.054E-02	0.000E+00	NOT IDENT.
CS-135	0.000E+00	1.568E-01	2.381E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	5.032E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.709E-02	9.609E-02	1.538E-01	0.000E+00	FAIL ABUN
BA-137M	-3.512E-04	2.844E-02	4.760E-02	0.000E+00	NOT IDENT.
CS-137	-3.713E-04	3.006E-02	5.032E-02	0.000E+00	NOT IDENT.
CE-139	-9.665E-04	2.458E-02	4.216E-02	0.000E+00	NOT IDENT.
BA-140	7.419E-02	2.145E-01	3.698E-01	0.000E+00	NOT IDENT.
LA-140	3.800E-02	7.667E-02	1.169E-01	0.000E+00	FAIL ABUN
CE-141	8.597E-02	5.659E-02	9.089E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.690E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-3.790E-02	1.615E-01	2.799E-01	0.000E+00	NOT IDENT.
PM-144	1.144E-02	2.845E-02	4.825E-02	0.000E+00	NOT IDENT.

PR-144	7.754E-01	1.929E+00	3.271E+00	0.000E+00	NOT IDENT.
PM-146	1.851E-02	3.376E-02	5.738E-02	0.000E+00	NOT IDENT.
ND-147	1.562E-01	4.468E-01	7.756E-01	0.000E+00	FAIL ABUN
PM-149	2.737E+01	1.062E+02	1.755E+02	0.000E+00	NOT IDENT.
EU-152	-3.275E-02	8.679E-02	1.319E-01	0.000E+00	FAIL ABUN
GD-153	2.964E-02	6.952E-02	1.049E-01	0.000E+00	FAIL ABUN
EU-154	-5.050E-02	9.610E-02	1.561E-01	0.000E+00	NOT IDENT.
EU-155	1.121E-01	9.368E-02	1.550E-01	0.000E+00	FAIL ABUN
TB-160	9.524E-02	1.183E-01	2.072E-01	0.000E+00	FAIL ABUN
HO-166M	-1.196E-02	4.854E-02	7.963E-02	0.000E+00	NOT IDENT.
TM-171	-1.240E+01	2.275E+01	3.358E+01	0.000E+00	NOT IDENT.
LU-176	1.422E-02	2.177E-02	3.363E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.323E+00	1.819E+00	0.000E+00	FAIL ABUN
LU-177M	-1.417E-01	1.462E-01	2.340E-01	0.000E+00	NOT IDENT.
HF-181	-1.009E-02	3.468E-02	5.641E-02	0.000E+00	NOT IDENT.
W-181	8.717E-02	2.917E-01	4.457E-01	0.000E+00	NOT IDENT.
TA-182	1.017E-01	1.632E-01	2.833E-01	0.000E+00	FAIL ABUN
RE-183	-3.954E-03	9.481E-02	1.550E-01	0.000E+00	FAIL ABUN
RE-184	-9.855E-03	1.929E-01	3.189E-01	0.000E+00	NOT IDENT.
OS-185	-1.322E-02	3.452E-02	5.598E-02	0.000E+00	NOT IDENT.
RE-188	1.204E-01	1.398E-01	2.464E-01	0.000E+00	NOT IDENT.
W-188	-3.467E+00	6.829E+00	1.002E+01	0.000E+00	FAIL ABUN
IR-192	1.080E-02	2.728E-02	4.745E-02	0.000E+00	FAIL ABUN
AU-195	1.432E-01	1.801E-01	3.064E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	6.539E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.019E+00	7.003E+00	1.207E+01	0.000E+00	NOT IDENT.
TL-202	2.925E-02	5.662E-02	9.642E-02	0.000E+00	NOT IDENT.
HG-203	4.320E-02	4.057E-02	6.056E-02	0.000E+00	FAIL ABUN
BI-207	8.837E-03	4.364E-02	7.313E-02	0.000E+00	FAIL ABUN
TL-207	5.380E-01	5.937E-01	9.126E-01	0.000E+00	FAIL ABUN
PO-209	4.058E+00	6.166E+00	1.073E+01	0.000E+00	NOT IDENT.
BI-210	3.213E+00	2.620E+00	4.453E+00	0.000E+00	NOT IDENT.
PB-210	3.213E+00	2.620E+00	4.453E+00	0.000E+00	NOT IDENT.
PO-210	3.213E+00	2.617E+00	4.453E+00	0.000E+00	NOT IDENT.
PB-211	-3.377E-01	7.669E-01	1.215E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.808E-01	5.111E-01	0.000E+00	FAIL ABUN
PO-215	5.380E-01	5.937E-01	9.126E-01	0.000E+00	FAIL ABUN
RN-219	-1.215E-01	3.163E-01	5.215E-01	0.000E+00	FAIL ABUN
RN-220	-7.324E+00	2.071E+01	3.473E+01	0.000E+00	NOT IDENT.
RA-223	5.380E-01	5.937E-01	9.126E-01	0.000E+00	FAIL ABUN
AC-227	-3.692E-02	3.189E-01	5.253E-01	0.000E+00	FAIL ABUN
TH-227	-3.692E-02	3.189E-01	5.253E-01	0.000E+00	FAIL ABUN
TH-229	-2.164E-01	4.214E-01	7.023E-01	0.000E+00	FAIL ABUN
PA-231	2.013E-01	1.360E+00	2.162E+00	0.000E+00	FAIL ABUN
TH-231	5.380E-01	5.937E-01	9.126E-01	0.000E+00	FAIL ABUN
U-231	-5.627E-01	1.106E+00	1.608E+00	0.000E+00	FAIL ABUN
PA-233	-3.446E-02	5.155E-02	8.617E-02	0.000E+00	FAIL ABUN
PA-234	6.202E-02	2.386E-01	4.056E-01	0.000E+00	FAIL ABUN
PA-234M	2.971E+00	4.276E+00	6.827E+00	0.000E+00	NOT IDENT.
NP-236	8.358E-03	6.294E-02	1.088E-01	0.000E+00	NOT IDENT.
NP-239	-5.022E-02	1.561E-01	2.534E-01	0.000E+00	FAIL ABUN
AM-241	4.412E-02	1.175E-01	1.843E-01	0.000E+00	NOT IDENT.
CM-243	4.110E-02	8.000E-02	1.346E-01	0.000E+00	FAIL ABUN
AM-246	3.982E-02	1.203E-01	2.026E-01	0.000E+00	NOT IDENT.
CM-247	1.588E-02	2.802E-02	4.815E-02	0.000E+00	FAIL ABUN
CF-249	-6.743E-03	3.056E-02	5.101E-02	0.000E+00	NOT IDENT.
CF-251	6.555E-03	1.025E-01	1.755E-01	0.000E+00	NOT IDENT.

VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 16:00:16.96

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229004.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 12:58:13
Sample ID          : G244229004          Sample quantity  : 1.09130E+02 GRAM
Detector name      : GAM22              Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00      Elapsed real time : 0 03:00:02.98  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941239             Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

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Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	3315	10.67*	1.909E+00	3.733E+01	3.733E+01	9.92
CD-109	88.03	254	3.72*	7.459E+00	2.098E+00	2.149E+00	40.10
SN-126	64.28	24	9.60	4.352E+00	1.322E-01	1.322E-01	459.62
	86.94	254	8.90	7.459E+00	8.770E-01	8.770E-01	56.95
	87.57	254	37.00*	7.459E+00	2.110E-01	2.110E-01	40.10
TL-208	277.35	133	6.80	6.182E+00	7.261E-01	7.261E-01	73.31
	510.84	221	21.60	4.297E+00	5.469E-01	5.469E-01	46.25
	583.14	716	84.20*	3.931E+00	4.963E-01	4.963E-01	17.78
	860.37	110	12.46	2.921E+00	6.926E-01	6.926E-01	49.05
BI-211	72.87	-----	1.27	5.897E+00	-----	Line Not Found	-----
	351.07	1038	12.94*	5.400E+00	3.406E+00	3.406E+00	15.08
PB-212	74.81	635	10.70	6.167E+00	2.206E+00	2.206E+00	21.60
	77.11	867	18.00	6.466E+00	1.708E+00	1.708E+00	14.47
	87.30	254	8.00	7.459E+00	9.757E-01	9.757E-01	41.32
	238.63	2006	44.60*	6.709E+00	1.537E+00	1.537E+00	14.48
	300.09	224	3.41	5.906E+00	2.555E+00	2.555E+00	38.95
PO-212	74.81	635	10.70	6.167E+00	2.206E+00	2.206E+00	21.60
	77.11	867	18.00	6.466E+00	1.708E+00	1.708E+00	14.47
	87.30	254	8.00	7.459E+00	9.757E-01	9.757E-01	41.32
	115.19	-----	0.60	8.535E+00	-----	Line Not Found	-----
	238.63	2006	44.60*	6.709E+00	1.537E+00	1.537E+00	14.48
	300.09	224	3.41	5.906E+00	2.555E+00	2.555E+00	38.95
BI-214	609.31	693	46.30*	3.811E+00	9.005E-01	9.005E-01	18.40
	1120.29	180	15.10	2.346E+00	1.165E+00	1.165E+00	35.04
	1764.49	161	15.80	1.716E+00	1.364E+00	1.364E+00	27.37
PB-214	74.81	635	6.21	6.167E+00	3.802E+00	3.802E+00	20.84
	77.11	867	10.50	6.466E+00	2.929E+00	2.929E+00	16.35
	87.30	254	4.67	7.459E+00	1.671E+00	1.671E+00	40.83
	241.98	477	7.49	6.664E+00	2.191E+00	2.192E+00	27.89
	295.21	609	19.20	5.969E+00	1.218E+00	1.218E+00	22.98
	351.92	1038	37.20*	5.400E+00	1.185E+00	1.185E+00	15.95
PO-214	74.81	635	6.21	6.167E+00	3.802E+00	3.802E+00	20.84



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	867	10.50	6.466E+00	2.929E+00	2.929E+00	16.35
	87.30	254	4.67	7.459E+00	1.671E+00	1.671E+00	40.83
	241.98	477	7.49	6.664E+00	2.191E+00	2.192E+00	27.89
	295.21	609	19.20	5.969E+00	1.218E+00	1.218E+00	22.98
	351.92	1038	37.20*	5.400E+00	1.185E+00	1.185E+00	15.95
PO-216	74.81	635	10.70	6.167E+00	2.206E+00	2.206E+00	21.60
	77.11	867	18.00	6.466E+00	1.708E+00	1.708E+00	14.47
	87.30	254	8.00	7.459E+00	9.757E-01	9.757E-01	41.32
	238.63	2006	44.60*	6.709E+00	1.537E+00	1.537E+00	14.48
	300.09	224	3.41	5.906E+00	2.555E+00	2.555E+00	38.95
PO-218	74.81	635	6.21	6.167E+00	3.802E+00	3.802E+00	20.84
	77.11	867	10.50	6.466E+00	2.929E+00	2.929E+00	16.35
	87.30	254	4.67	7.459E+00	1.671E+00	1.671E+00	40.83
	241.98	477	7.49	6.664E+00	2.191E+00	2.192E+00	27.89
	295.21	609	19.20	5.969E+00	1.218E+00	1.218E+00	22.98
	351.92	1038	37.20*	5.400E+00	1.185E+00	1.185E+00	15.95
RA-224	240.98	477	3.95*	6.664E+00	4.155E+00	4.155E+00	27.32
RA-226	609.31	693	46.30*	3.811E+00	9.005E-01	9.005E-01	18.40
	1120.29	180	15.10	2.346E+00	1.165E+00	1.165E+00	35.04
	1764.49	161	15.80	1.716E+00	1.364E+00	1.364E+00	27.37
AC-228	338.32	386	11.40	5.525E+00	1.406E+00	1.406E+00	47.22
	911.07	524	27.70*	2.788E+00	1.555E+00	1.555E+00	20.88
	969.11	321	16.60	2.648E+00	1.675E+00	1.675E+00	29.86
RA-228	338.32	386	11.40	5.525E+00	1.406E+00	1.406E+00	47.22
	911.07	524	27.70*	2.788E+00	1.555E+00	1.555E+00	20.88
	969.11	321	16.60	2.648E+00	1.675E+00	1.675E+00	29.86
TH-228	74.81	635	10.70	6.167E+00	2.206E+00	2.242E+00	19.51
	77.11	867	18.00	6.466E+00	1.708E+00	1.736E+00	14.47
	87.30	254	8.00	7.459E+00	9.757E-01	9.914E-01	40.10
	238.63	2006	44.60*	6.709E+00	1.537E+00	1.562E+00	14.48
	300.09	224	3.41	5.906E+00	2.555E+00	2.597E+00	70.16
TH-230	609.31	693	46.30*	3.811E+00	9.005E-01	9.005E-01	18.40
	1120.29	180	15.10	2.346E+00	1.165E+00	1.165E+00	35.04
	1764.49	161	15.80	1.716E+00	1.364E+00	1.364E+00	27.37
TH-232	338.32	386	11.40	5.525E+00	1.406E+00	1.406E+00	24.52
	911.07	524	27.70*	2.788E+00	1.555E+00	1.555E+00	20.88
	969.11	321	16.60	2.648E+00	1.675E+00	1.675E+00	29.86
TH-234	63.29	24	3.80*	4.352E+00	3.341E-01	3.341E-01	459.72
	92.38	267	5.41	7.870E+00	1.438E+00	1.438E+00	47.91
U-234	609.31	693	46.30*	3.811E+00	9.005E-01	9.005E-01	18.40
	1120.29	180	15.10	2.346E+00	1.165E+00	1.165E+00	35.04
	1764.49	161	15.80	1.716E+00	1.364E+00	1.364E+00	27.37
U-235	89.95	188	2.70	7.688E+00	2.077E+00	2.077E+00	50.23
	93.35	267	4.50	7.870E+00	1.729E+00	1.729E+00	52.48
	105.00	-----	2.10	8.370E+00	-----	Line Not Found	-----
	143.76	101	10.50*	8.367E+00	2.627E-01	2.627E-01	89.68
	163.35	-----	4.70	8.031E+00	-----	Line Not Found	-----
	185.71	242	54.00	7.606E+00	1.352E-01	1.352E-01	45.87
	205.31	-----	4.70	7.253E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
NP-237	86.50	254	12.60*	7.459E+00	6.195E-01	6.195E-01	45.09
	95.87	-----	2.60	8.032E+00	-----	Line Not Found	-----
U-238	63.29	24	3.80*	4.352E+00	3.341E-01	3.341E-01	459.72
	92.38	267	5.41	7.870E+00	1.438E+00	1.438E+00	45.20
AM-243	74.67	635	66.00*	6.167E+00	3.577E-01	3.577E-01	19.48
	86.72	254	0.34	7.459E+00	2.323E+01	2.323E+01	40.10
	117.66	-----	0.55	8.550E+00	-----	Line Not Found	-----
	142.18	101	0.13	8.367E+00	2.207E+01	2.207E+01	88.37
ANH-511	511.00	221	100.00*	4.297E+00	1.181E-01	1.181E-01	45.49

Flag: "\*" = Keyline

Total number of lines in spectrum 33  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 31 93.94%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.733E+01	3.733E+01	0.370E+01	9.92	
CD-109	464.00D	1.02	2.098E+00	2.149E+00	0.862E+00	40.10	
SN-126	1.00E+05Y	1.00	2.110E-01	2.110E-01	0.846E-01	40.10	
TL-208	1.41E+10Y	1.00	4.963E-01	4.963E-01	0.882E-01	17.78	
BI-211	7.04E+08Y	1.00	3.406E+00	3.406E+00	0.513E+00	15.08	
PB-212	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.223E+00	14.48	
PO-212	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.223E+00	14.48	
BI-214	1600.00Y	1.00	9.005E-01	9.005E-01	1.657E-01	18.40	
PB-214	1600.00Y	1.00	1.185E+00	1.185E+00	0.189E+00	15.95	
PO-214	1600.00Y	1.00	1.185E+00	1.185E+00	0.189E+00	15.95	
PO-216	1.41E+10Y	1.00	1.537E+00	1.537E+00	0.223E+00	14.48	
PO-218	1600.00Y	1.00	1.185E+00	1.185E+00	0.189E+00	15.95	
RA-224	1.41E+10Y	1.00	4.155E+00	4.155E+00	1.135E+00	27.32	
RA-226	1600.00Y	1.00	9.005E-01	9.005E-01	1.657E-01	18.40	
AC-228	1.41E+10Y	1.00	1.555E+00	1.555E+00	0.325E+00	20.88	
RA-228	1.41E+10Y	1.00	1.555E+00	1.555E+00	0.325E+00	20.88	
TH-228	1.91Y	1.02	1.537E+00	1.562E+00	0.226E+00	14.48	
TH-230	4.47E+09Y	1.00	9.005E-01	9.005E-01	1.657E-01	18.40	
TH-232	1.41E+10Y	1.00	1.555E+00	1.555E+00	0.325E+00	20.88	
TH-234	4.47E+09Y	1.00	3.341E-01	3.341E-01	15.36E-01	459.72	
U-234	4.47E+09Y	1.00	9.005E-01	9.005E-01	1.657E-01	18.40	
U-235	7.04E+08Y	1.00	2.627E-01	2.627E-01	2.356E-01	89.68	
NP-237	2.14E+06Y	1.00	6.195E-01	6.195E-01	2.794E-01	45.09	
U-238	4.47E+09Y	1.00	3.341E-01	3.341E-01	15.36E-01	459.72	
AM-243	7380.00Y	1.00	3.577E-01	3.577E-01	0.697E-01	19.48	
ANH-511	1.00E+09Y	1.00	1.181E-01	1.181E-01	0.537E-01	45.49	

Total Activity : 6.769E+01 6.777E+01

Grand Total Activity : 6.769E+01 6.777E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229004

Page : 5  
Acquisition date : 22-JAN-2010 12:58:13

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	84.09	99	506	1.27	168.39	166	6	9.13E-03	79.9	7.21E+00	T
0	209.10	159	524	1.04	418.18	415	9	1.47E-02	54.3	7.19E+00	T
0	270.40	173	538	2.02	540.67	534	12	1.60E-02	56.0	6.27E+00	T
0	328.09	105	341	1.30	655.96	652	10	9.75E-03	68.9	5.62E+00	T
0	727.13	180	245	2.29	1453.52	1446	19	1.66E-02	45.4	3.34E+00	T
2	964.81	124	84	1.97	1928.71	1924	20	1.15E-02	33.4	2.66E+00	T
0	1239.10	63	214	2.71	2477.20	2467	17	5.79E-03	****	2.16E+00	T
0	1589.57	56	89	2.33	3178.22	3168	24	5.18E-03	93.5	1.81E+00	
0	1730.66	47	44	2.10	3460.49	3452	18	4.39E-03	72.3	1.73E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229004.CNF;1
* Acquisition date   : 22-JAN-2010 12:58:13   Detector SN#      :
* Detector ID        : GAM22                   Sensitivity       : 5.00000
* Geometry           : CAN                     Energy tolerance: 1.50000
* Elapsed live time  : 0 03:00:00.00           Abundance limit  : 75.00000
* Elapsed real time  : 0 03:00:02.98           Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229004             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity : 1.09130E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28.08MS Isotope      :
* MSD ID             :                               MSD Isotope :
* LCS ID             : 1032-A                       LCS Isotope   :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.733E+01	3.701E+00	3.679E-01	3.370E-02	101.470
CD-109	2.149E+00	8.618E-01	9.737E-01	9.240E-02	2.207
SN-126	2.110E-01	8.459E-02	1.027E-01	9.701E-03	2.053
TL-208	4.963E-01	8.823E-02	4.529E-02	4.911E-03	10.959
BI-211	3.406E+00	5.135E-01	2.615E-01	3.051E-02	13.022
PB-212	1.537E+00	2.226E-01	7.595E-02	1.003E-02	20.240
PO-212	1.537E+00	2.226E-01	7.595E-02	1.003E-02	20.240
BI-214	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
PB-214	1.185E+00	1.890E-01	9.295E-02	1.185E-02	12.745
PO-214	1.185E+00	1.890E-01	9.295E-02	1.185E-02	12.745
PO-216	1.537E+00	2.226E-01	7.595E-02	1.003E-02	20.240
PO-218	1.185E+00	1.890E-01	9.295E-02	1.185E-02	12.745
RA-224	4.155E+00	1.135E+00	8.634E-01	1.081E-01	4.813
RA-226	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
AC-228	1.555E+00	3.248E-01	1.734E-01	2.297E-02	8.971
RA-228	1.555E+00	3.248E-01	1.734E-01	2.297E-02	8.971
TH-228	1.562E+00	2.262E-01	7.717E-02	1.020E-02	20.240
TH-230	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.555E+00	3.248E-01	1.734E-01	2.297E-02	8.971
TH-234	3.341E-01	1.536E+00	1.524E+00	2.652E-01	0.219
U-234	9.005E-01	1.657E-01	9.148E-02	1.064E-02	9.844
U-235	2.627E-01	2.356E-01	2.912E-01	5.138E-02	0.902
NP-237	6.195E-01	2.794E-01	2.698E-01	6.109E-02	2.296
U-238	3.341E-01	1.536E+00	1.524E+00	2.652E-01	0.219
AM-243	3.577E-01	6.968E-02	6.558E-02	5.346E-03	5.454
ANH-511	1.181E-01	5.374E-02	3.629E-02	3.636E-03	3.256

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.760E-01		2.681E-01	4.457E-01	4.651E-02	0.395
NA-22	-1.849E-02		3.508E-02	5.609E-02	4.834E-03	-0.330
NA-24	-1.831E+00		8.612E-01	Half-Life too short		
AL-26	2.030E-02		2.315E-02	4.170E-02	3.410E-03	0.487
TI-44	3.153E-01	+	4.562E-02	5.802E-02	4.919E-03	5.434
SC-46	-1.457E-02		3.307E-02	5.347E-02	5.985E-03	-0.272
V-48	3.706E-02		5.938E-02	1.009E-01	1.058E-02	0.367
CR-51	-2.462E-01		3.085E-01	4.979E-01	6.447E-02	-0.494
MN-52	-9.048E-02		2.130E-01	3.354E-01	2.998E-02	-0.270
MN-54	-2.461E-02		3.208E-02	5.138E-02	5.708E-03	-0.479
CO-56	-1.380E-02		3.287E-02	5.351E-02	5.957E-03	-0.258
CO-57	4.572E-04		2.296E-02	3.486E-02	2.875E-03	0.013
CO-58	-2.696E-02		3.155E-02	5.013E-02	5.551E-03	-0.538
FE-59	5.392E-02		8.313E-02	1.395E-01	1.367E-02	0.386
CO-60	1.203E-02		3.323E-02	5.605E-02	4.998E-03	0.215
ZN-65	5.134E-02		8.838E-02	1.275E-01	1.137E-02	0.403
GE-68	7.557E-01		1.090E+00	1.839E+00	1.734E-01	0.411
AS-73	-5.568E-02		6.199E-01	1.007E+00	7.613E-02	-0.055
AS-74	1.164E-02		7.707E-02	1.286E-01	1.333E-02	0.091
SE-75	-1.042E-02		4.255E-02	5.884E-02	7.919E-03	-0.177
BR-77	7.104E+00		1.100E+01	1.858E+01	1.870E+00	0.382
SR-82	-3.884E-01		3.182E-01	4.728E-01	5.185E-02	-0.821
RB-83	4.171E-02		5.593E-02	9.484E-02	9.545E-03	0.440
RB-84	-2.652E-02		6.231E-02	1.010E-01	1.130E-02	-0.262
KR-85	3.013E+01		7.987E+00	1.251E+01	1.255E+00	2.408
SR-85	1.560E-01		4.136E-02	6.478E-02	6.500E-03	2.408
RB-86	4.678E-01		7.124E-01	1.200E+00	1.133E-01	0.390
Y-88	-2.269E-02		2.941E-02	4.416E-02	3.570E-03	-0.514
ZR-88	-8.341E-03		2.473E-02	4.005E-02	3.729E-03	-0.208
Y-91	8.402E+00		1.658E+01	2.824E+01	2.322E+00	0.298
NB-94	1.780E-03		2.786E-02	4.562E-02	4.889E-03	0.039
NB-95	4.400E-02		3.752E-02	6.361E-02	6.955E-03	0.692
NB-95M	2.233E-01		1.241E-01	1.848E-01	2.443E-02	1.208
ZR-95	-1.793E-02		5.800E-02	9.233E-02	1.072E-02	-0.194
NB-97	-5.027E-02		9.850E-02	Half-Life too short		

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	1.215E+01		2.289E+00	Half-Life too short		
MO-99	-2.048E+00		1.218E+01	1.960E+01	3.244E+00	-0.104
TC-99M	3.873E+11		2.481E+11	Half-Life too short		
RH-101	8.264E-03		3.068E-02	4.798E-02	5.234E-03	0.172
RH-102	-6.594E-03		2.526E-02	3.889E-02	3.825E-03	-0.170
RU-103	2.706E-03		3.292E-02	5.321E-02	7.986E-03	0.051
RH-106	-1.074E-01		2.592E-01	4.186E-01	6.112E-02	-0.257
RU-106	-1.074E-01		2.590E-01	4.186E-01	4.372E-02	-0.257
AG-108M	-8.994E-03		2.614E-02	4.188E-02	4.146E-03	-0.215
AG-110M	-6.718E-03		2.799E-02	4.541E-02	4.880E-03	-0.148
IN-111	4.846E-01		1.236E+00	1.781E+00	2.260E-01	0.272
IN-113M	2.869E-03		3.574E-02	5.899E-02	5.634E-03	0.049
SN-113	2.869E-03		3.574E-02	5.899E-02	5.634E-03	0.049
IN-114M	-5.329E-02		1.705E-01	2.434E-01	2.588E-02	-0.219
CD-115	-6.372E+00		1.110E+01	1.806E+01	1.824E+00	-0.353
SN-117M	-6.407E-02		4.783E-02	7.618E-02	7.224E-03	-0.841
SB-122	1.385E+00		2.049E+00	3.512E+00	3.600E-01	0.394
I-123	-1.708E+01		7.817E+00	Half-Life too short		
TE-123M	-2.566E-02		2.349E-02	3.779E-02	3.609E-03	-0.679
I-124	-7.503E-02		7.613E-01	1.077E+00	1.119E-01	-0.070
SB-124	1.768E-02		5.338E-02	9.172E-02	8.159E-03	0.193
SB-125	4.494E-02		7.573E-02	1.266E-01	1.229E-02	0.355
TE-125M	-5.469E+00		8.417E+00	1.258E+01	1.275E+00	-0.435
I-126	3.805E-02		1.505E-01	2.500E-01	2.642E-02	0.152
SB-126	-3.310E-02		1.419E-01	1.942E-01	2.094E-02	-0.170
SB-127	-1.005E+00		1.295E+00	2.019E+00	2.672E-01	-0.498
XE-127	-8.036E-03		4.113E-02	6.713E-02	7.442E-03	-0.120
I-131	4.972E-02		1.008E-01	1.699E-01	1.884E-02	0.293
TE-132	-5.030E-02		7.244E-01	1.176E+00	2.113E-01	-0.043
BA-133	1.539E-02		4.012E-02	5.891E-02	8.802E-03	0.261
I-133	-4.353E-04		4.860E-03	Half-Life too short		
CS-134	7.802E-02		4.082E-02	7.065E-02	7.820E-03	1.104
CS-135	3.149E-01		1.600E-01	2.367E-01	3.423E-02	1.331
I-135	3.915E+10		2.567E+10	Half-Life too short		
CS-136	-5.709E-02		9.805E-02	1.544E-01	1.561E-02	-0.370
BA-137M	-3.512E-04		2.902E-02	4.762E-02	5.021E-03	-0.007
CS-137	-3.713E-04		3.068E-02	5.033E-02	5.315E-03	-0.007
CE-139	-9.665E-04		2.508E-02	4.178E-02	4.098E-03	-0.023
BA-140	7.419E-02		2.189E-01	3.694E-01	1.240E-01	0.201
LA-140	3.800E-02		7.824E-02	1.177E-01	1.032E-02	0.323
CE-141	8.597E-02		5.775E-02	8.999E-02	8.192E-03	0.955
CE-143	1.202E-03		1.882E-04	Half-Life too short		
CE-144	-3.790E-02		1.648E-01	2.770E-01	4.300E-02	-0.137
PM-144	1.144E-02		2.903E-02	4.829E-02	5.164E-03	0.237
PR-144	7.754E-01		1.968E+00	3.274E+00	3.500E-01	0.237
PM-146	1.851E-02		3.445E-02	5.725E-02	6.653E-03	0.323
ND-147	1.562E-01		4.559E-01	7.747E-01	1.228E-01	0.202
PM-149	2.737E+01		1.084E+02	1.745E+02	3.302E+01	0.157

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	-3.275E-02		8.857E-02	1.314E-01	1.579E-02	-0.249
GD-153	2.964E-02		7.093E-02	1.036E-01	9.109E-03	0.286
EU-154	-5.050E-02		9.806E-02	1.568E-01	1.773E-02	-0.322
EU-155	1.121E-01		9.560E-02	1.531E-01	1.315E-02	0.732
TB-160	9.524E-02		1.207E-01	2.077E-01	2.323E-02	0.458
HO-166M	-1.196E-02		4.953E-02	7.970E-02	8.568E-03	-0.150
TM-171	-1.240E+01		2.322E+01	3.307E+01	2.499E+00	-0.375
LU-176	1.422E-02		2.221E-02	3.346E-02	4.390E-03	0.425
LU-177	2.435E+00	+	1.350E+00	1.805E+00	2.038E-01	1.349
LU-177M	-1.417E-01		1.492E-01	2.333E-01	2.207E-02	-0.607
HF-181	-1.009E-02		3.539E-02	5.630E-02	5.558E-03	-0.179
W-181	8.717E-02		2.977E-01	4.389E-01	3.272E-02	0.199
TA-182	1.017E-01		1.665E-01	2.846E-01	2.367E-02	0.357
RE-183	-3.954E-03		9.674E-02	1.536E-01	1.482E-02	-0.026
RE-184	-9.855E-03		1.968E-01	3.169E-01	4.112E-02	-0.031
OS-185	-1.322E-02		3.523E-02	5.599E-02	5.884E-03	-0.236
RE-188	1.204E-01		1.427E-01	2.441E-01	2.278E-02	0.493
W-188	-3.467E+00		6.968E+00	9.967E+00	1.361E+00	-0.348
IR-192	1.080E-02		2.784E-02	4.723E-02	6.036E-03	0.229
AU-195	1.432E-01		1.838E-01	3.026E-01	2.639E-02	0.473
TL-200	-2.098E-04		3.336E-04	Half-Life too short		
TL-201	1.019E+00		7.146E+00	1.196E+01	1.179E+00	0.085
TL-202	2.925E-02		5.777E-02	9.619E-02	9.259E-03	0.304
HG-203	4.320E-02		4.140E-02	6.022E-02	8.524E-03	0.717
BI-207	8.837E-03		4.453E-02	7.340E-02	7.046E-03	0.120
TL-207	5.380E-01		6.058E-01	9.084E-01	1.805E-01	0.592
PO-209	4.058E+00		6.292E+00	1.075E+01	1.205E+00	0.377
BI-210	3.213E+00		2.673E+00	4.375E+00	4.065E-01	0.734
PB-210	3.213E+00		2.673E+00	4.375E+00	4.065E-01	0.734
PO-210	3.213E+00		2.670E+00	4.375E+00	3.679E-01	0.734
PB-211	-3.377E-01		7.825E-01	1.212E+00	7.606E-01	-0.279
BI-212	1.045E+00	+	4.906E-01	5.116E-01	6.111E-02	2.043
PO-215	5.380E-01		6.058E-01	9.084E-01	1.805E-01	0.592
RN-219	-1.215E-01		3.227E-01	5.199E-01	8.044E-02	-0.234
RN-220	-7.324E+00		2.113E+01	3.470E+01	3.537E+00	-0.211
RA-223	5.380E-01		6.058E-01	9.084E-01	1.805E-01	0.592
AC-227	-3.692E-02		3.254E-01	5.221E-01	9.527E-02	-0.071
TH-227	-3.692E-02		3.254E-01	5.221E-01	1.075E-01	-0.071
TH-229	-2.164E-01		4.300E-01	6.967E-01	7.490E-02	-0.311
PA-231	2.013E-01		1.388E+00	2.150E+00	4.015E-01	0.094
TH-231	5.380E-01		6.058E-01	9.084E-01	1.805E-01	0.592
U-231	-5.627E-01		1.129E+00	1.587E+00	1.410E-01	-0.355
PA-233	-3.446E-02		5.261E-02	8.576E-02	1.123E-02	-0.402
PA-234	6.202E-02		2.435E-01	4.068E-01	8.085E-02	0.152
PA-234M	2.971E+00		4.363E+00	6.849E+00	7.849E-01	0.434
NP-236	8.358E-03		6.422E-02	1.078E-01	1.030E-02	0.078
NP-239	-5.022E-02		1.593E-01	2.505E-01	2.071E-02	-0.200
AM-241	4.412E-02		1.199E-01	1.814E-01	1.418E-02	0.243



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.110E-02		8.163E-02	1.329E-01	1.133E-02	0.309
AM-246	3.982E-02		1.227E-01	2.033E-01	1.913E-02	0.196
CM-247	1.588E-02		2.859E-02	4.800E-02	4.503E-03	0.331
CF-249	-6.743E-03		3.119E-02	5.084E-02	4.832E-03	-0.133
CF-251	6.555E-03		1.046E-01	1.740E-01	1.767E-02	0.038

## VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229004
* Acquisition date   : 22-JAN-2010 12:58:13 Detector SN#      :
* Detector ID        : GAM22 Sensitivity      : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 03:00:02.98 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244229004 Analyst initials: MXR1
* Batch Number       : 941239 Sample Quantity : 1.0913E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME  : 2-DEC-2009 16:47:28 MS Isotope      :
* MSD DPM           : 0.000 MSD Isotope      :
* LCS DPM           : 0.000 LCS Isotope      :
* LCSD DPM          : 0.000 LCSD Isotope     :
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.733E+01	3.627E+00	1.830E-01	1.851E+00
CD-109	2.149E+00	8.446E-01	4.937E-01	4.309E-01
SN-126	2.110E-01	8.289E-02	5.209E-02	4.229E-02
TL-208	4.963E-01	8.646E-02	2.267E-02	4.411E-02
BI-211	3.406E+00	5.032E-01	1.314E-01	2.567E-01
PB-212	1.537E+00	2.181E-01	3.825E-02	1.113E-01
PO-212	1.537E+00	2.181E-01	3.825E-02	1.113E-01
BI-214	9.005E-01	1.624E-01	4.578E-02	8.285E-02
PB-214	1.185E+00	1.852E-01	4.669E-02	9.451E-02
PO-214	1.185E+00	1.852E-01	4.669E-02	9.451E-02
PO-216	1.537E+00	2.181E-01	3.825E-02	1.113E-01
PO-218	1.185E+00	1.852E-01	4.669E-02	9.451E-02
RA-224	4.155E+00	1.113E+00	4.348E-01	5.677E-01
RA-226	9.005E-01	1.624E-01	4.578E-02	8.285E-02
AC-228	1.555E+00	3.183E-01	8.652E-02	1.624E-01
RA-228	1.555E+00	3.183E-01	8.652E-02	1.624E-01
TH-228	1.562E+00	2.216E-01	3.887E-02	1.131E-01
TH-230	9.005E-01	1.624E-01	4.577E-02	8.285E-02
TH-232	1.555E+00	3.183E-01	8.652E-02	1.624E-01
TH-234	3.341E-01	1.505E+00	7.742E-01	7.680E-01
U-234	9.005E-01	1.624E-01	4.577E-02	8.285E-02
U-235	2.627E-01	2.309E-01	1.472E-01	1.178E-01
NP-237	6.195E-01	2.738E-01	1.368E-01	1.397E-01
U-238	3.341E-01	1.505E+00	7.742E-01	7.680E-01
AM-243	3.577E-01	6.828E-02	3.329E-02	3.484E-02
ANH-511	1.181E-01	5.267E-02	1.818E-02	2.687E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	1.760E-01	2.627E-01	2.234E-01	1.340E-01 NOT IDENT.

NA-22	-1.849E-02	3.437E-02	2.793E-02	1.754E-02	NOT IDENT.
NA-24	-1.831E+06	1.688E+06	0.000E+00	8.612E+05	SHORT HLIF
AL-26	2.030E-02	2.269E-02	2.071E-02	1.157E-02	NOT IDENT.
TI-44	3.153E-01	4.470E-02	2.944E-02	2.281E-02	FAIL ABUN
SC-46	-1.457E-02	3.241E-02	2.669E-02	1.653E-02	FAIL ABUN
V-48	3.706E-02	5.820E-02	5.033E-02	2.969E-02	NOT IDENT.
CR-51	-2.462E-01	3.024E-01	2.503E-01	1.543E-01	NOT IDENT.
MN-52	-9.048E-02	2.087E-01	1.669E-01	1.065E-01	NOT IDENT.
MN-54	-2.461E-02	3.144E-02	2.566E-02	1.604E-02	NOT IDENT.
CO-56	-1.380E-02	3.221E-02	2.672E-02	1.643E-02	FAIL ABUN
CO-57	4.572E-04	2.250E-02	1.764E-02	1.148E-02	NOT IDENT.
CO-58	-2.696E-02	3.091E-02	2.504E-02	1.577E-02	NOT IDENT.
FE-59	5.392E-02	8.147E-02	6.954E-02	4.157E-02	FAIL ABUN
CO-60	1.203E-02	3.257E-02	2.789E-02	1.661E-02	NOT IDENT.
ZN-65	5.134E-02	8.662E-02	6.352E-02	4.419E-02	NOT IDENT.
GE-68	7.557E-01	1.068E+00	9.168E-01	5.450E-01	NOT IDENT.
AS-73	-5.568E-02	6.075E-01	5.125E-01	3.100E-01	NOT IDENT.
AS-74	1.164E-02	7.553E-02	6.439E-02	3.854E-02	NOT IDENT.
SE-75	-1.042E-02	4.170E-02	2.961E-02	2.127E-02	NOT IDENT.
BR-77	7.104E+00	1.078E+01	9.306E+00	5.498E+00	FAIL ABUN
SR-82	-3.884E-01	3.118E-01	2.362E-01	1.591E-01	NOT IDENT.
RB-83	4.171E-02	5.481E-02	4.751E-02	2.797E-02	NOT IDENT.
RB-84	-2.652E-02	6.107E-02	5.044E-02	3.116E-02	NOT IDENT.
KR-85	3.013E+01	7.827E+00	6.267E+00	3.994E+00	NOT IDENT.
SR-85	1.560E-01	4.053E-02	3.245E-02	2.068E-02	NOT IDENT.
RB-86	4.678E-01	6.982E-01	5.983E-01	3.562E-01	NOT IDENT.
Y-88	-2.269E-02	2.882E-02	2.193E-02	1.470E-02	NOT IDENT.
ZR-88	-8.341E-03	2.424E-02	2.010E-02	1.236E-02	NOT IDENT.
Y-91	8.402E+00	1.625E+01	1.407E+01	8.292E+00	NOT IDENT.
NB-94	1.780E-03	2.730E-02	2.281E-02	1.393E-02	NOT IDENT.
NB-95	4.400E-02	3.677E-02	3.178E-02	1.876E-02	NOT IDENT.
NB-95M	2.233E-01	1.216E-01	9.310E-02	6.205E-02	NOT IDENT.
ZR-95	-1.793E-02	5.684E-02	4.613E-02	2.900E-02	NOT IDENT.
NB-97	-5.027E+04	1.931E+05	0.000E+00	9.850E+04	SHORT HLIF
ZR-97	1.215E+07	4.486E+06	0.000E+00	2.289E+06	SHORT HLIF
MO-99	-2.048E+00	1.194E+01	9.794E+00	6.091E+00	NOT IDENT.
TC-99M	3.873E+17	4.862E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	8.264E-03	3.007E-02	2.419E-02	1.534E-02	NOT IDENT.
RH-102	-6.594E-03	2.475E-02	1.949E-02	1.263E-02	NOT IDENT.
RU-103	2.706E-03	3.226E-02	2.666E-02	1.646E-02	FAIL ABUN
RH-106	-1.074E-01	2.540E-01	2.094E-01	1.296E-01	FAIL ABUN
RU-106	-1.074E-01	2.538E-01	2.094E-01	1.295E-01	FAIL ABUN
AG-108M	-8.994E-03	2.561E-02	2.101E-02	1.307E-02	NOT IDENT.
AG-110M	-6.718E-03	2.743E-02	2.271E-02	1.400E-02	NOT IDENT.
IN-111	4.846E-01	1.212E+00	8.968E-01	6.182E-01	NOT IDENT.
IN-113M	2.869E-03	3.503E-02	2.961E-02	1.787E-02	NOT IDENT.
SN-113	2.869E-03	3.503E-02	2.961E-02	1.787E-02	NOT IDENT.
IN-114M	-5.329E-02	1.670E-01	1.228E-01	8.523E-02	NOT IDENT.
CD-115	-6.372E+00	1.088E+01	9.047E+00	5.550E+00	NOT IDENT.
SN-117M	-6.407E-02	4.687E-02	3.847E-02	2.391E-02	NOT IDENT.
SB-122	1.385E+00	2.008E+00	1.758E+00	1.025E+00	NOT IDENT.
I-123	-1.708E+07	1.532E+07	0.000E+00	7.817E+06	SHORT HLIF
TE-123M	-2.566E-02	2.302E-02	1.909E-02	1.174E-02	NOT IDENT.
I-124	-7.503E-02	7.460E-01	5.391E-01	3.806E-01	NOT IDENT.
SB-124	1.768E-02	5.231E-02	4.558E-02	2.669E-02	FAIL ABUN
SB-125	4.494E-02	7.421E-02	6.352E-02	3.786E-02	NOT IDENT.
TE-125M	-5.469E+00	8.249E+00	6.371E+00	4.209E+00	NOT IDENT.
I-126	3.805E-02	1.475E-01	1.250E-01	7.526E-02	NOT IDENT.
SB-126	-3.310E-02	1.391E-01	9.707E-02	7.096E-02	FAIL ABUN
SB-127	-1.005E+00	1.269E+00	1.010E+00	6.475E-01	NOT IDENT.
XE-127	-8.036E-03	4.031E-02	3.385E-02	2.056E-02	NOT IDENT.
I-131	4.972E-02	9.876E-02	8.533E-02	5.039E-02	NOT IDENT.
TE-132	-5.030E-02	7.099E-01	5.924E-01	3.622E-01	NOT IDENT.
BA-133	1.539E-02	3.932E-02	2.959E-02	2.006E-02	FAIL ABUN
I-133	-4.353E+02	9.525E+03	0.000E+00	4.860E+03	SHORT HLIF
CS-134	7.802E-02	4.001E-02	3.529E-02	2.041E-02	NOT IDENT.
CS-135	3.149E-01	1.568E-01	1.191E-01	8.000E-02	NOT IDENT.
I-135	3.915E+16	5.032E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.709E-02	9.609E-02	7.696E-02	4.903E-02	FAIL ABUN
BA-137M	-3.512E-04	2.844E-02	2.381E-02	1.451E-02	NOT IDENT.
CS-137	-3.713E-04	3.006E-02	2.517E-02	1.534E-02	NOT IDENT.
CE-139	-9.665E-04	2.458E-02	2.109E-02	1.254E-02	NOT IDENT.
BA-140	7.419E-02	2.145E-01	1.850E-01	1.094E-01	NOT IDENT.
LA-140	3.800E-02	7.667E-02	5.850E-02	3.912E-02	FAIL ABUN
CE-141	8.597E-02	5.659E-02	4.547E-02	2.887E-02	NOT IDENT.
CE-143	1.202E+03	3.690E+02	0.000E+00	1.882E+02	SHORT HLIF
CE-144	-3.790E-02	1.615E-01	1.400E-01	8.238E-02	NOT IDENT.
PM-144	1.144E-02	2.845E-02	2.414E-02	1.451E-02	NOT IDENT.

PR-144	7.754E-01	1.929E+00	1.637E+00	9.840E-01	NOT IDENT.
PM-146	1.851E-02	3.376E-02	2.871E-02	1.722E-02	NOT IDENT.
ND-147	1.562E-01	4.468E-01	3.880E-01	2.280E-01	FAIL ABUN
PM-149	2.737E+01	1.062E+02	8.778E+01	5.418E+01	NOT IDENT.
EU-152	-3.275E-02	8.679E-02	6.599E-02	4.428E-02	FAIL ABUN
GD-153	2.964E-02	6.952E-02	5.249E-02	3.547E-02	FAIL ABUN
EU-154	-5.050E-02	9.610E-02	7.808E-02	4.903E-02	NOT IDENT.
EU-155	1.121E-01	9.368E-02	7.755E-02	4.780E-02	FAIL ABUN
TB-160	9.524E-02	1.183E-01	1.037E-01	6.035E-02	FAIL ABUN
HO-166M	-1.196E-02	4.854E-02	3.984E-02	2.476E-02	NOT IDENT.
TM-171	-1.240E+01	2.275E+01	1.680E+01	1.161E+01	NOT IDENT.
LU-176	1.422E-02	2.177E-02	1.682E-02	1.111E-02	FAIL ABUN
LU-177	2.435E+00	1.323E+00	9.099E-01	6.748E-01	FAIL ABUN
LU-177M	-1.417E-01	1.462E-01	1.171E-01	7.460E-02	NOT IDENT.
HF-181	-1.009E-02	3.468E-02	2.822E-02	1.769E-02	NOT IDENT.
W-181	8.717E-02	2.917E-01	2.230E-01	1.488E-01	NOT IDENT.
TA-182	1.017E-01	1.632E-01	1.417E-01	8.327E-02	FAIL ABUN
RE-183	-3.954E-03	9.481E-02	7.757E-02	4.837E-02	FAIL ABUN
RE-184	-9.855E-03	1.929E-01	1.595E-01	9.840E-02	NOT IDENT.
OS-185	-1.322E-02	3.452E-02	2.801E-02	1.761E-02	NOT IDENT.
RE-188	1.204E-01	1.398E-01	1.233E-01	7.134E-02	NOT IDENT.
W-188	-3.467E+00	6.829E+00	5.013E+00	3.484E+00	FAIL ABUN
IR-192	1.080E-02	2.728E-02	2.374E-02	1.392E-02	FAIL ABUN
AU-195	1.432E-01	1.801E-01	1.533E-01	9.191E-02	FAIL ABUN
TL-200	-2.098E+02	6.539E+02	0.000E+00	3.336E+02	SHORT HLIF
TL-201	1.019E+00	7.003E+00	6.037E+00	3.573E+00	NOT IDENT.
TL-202	2.925E-02	5.662E-02	4.824E-02	2.889E-02	NOT IDENT.
HG-203	4.320E-02	4.057E-02	3.030E-02	2.070E-02	FAIL ABUN
BI-207	8.837E-03	4.364E-02	3.659E-02	2.226E-02	FAIL ABUN
TL-207	5.380E-01	5.937E-01	4.566E-01	3.029E-01	FAIL ABUN
PO-209	4.058E+00	6.166E+00	5.367E+00	3.146E+00	NOT IDENT.
BI-210	3.213E+00	2.620E+00	2.228E+00	1.336E+00	NOT IDENT.
PB-210	3.213E+00	2.620E+00	2.228E+00	1.336E+00	NOT IDENT.
PO-210	3.213E+00	2.617E+00	2.228E+00	1.335E+00	NOT IDENT.
PB-211	-3.377E-01	7.669E-01	6.080E-01	3.913E-01	NOT IDENT.
BI-212	1.045E+00	4.808E-01	2.557E-01	2.453E-01	FAIL ABUN
PO-215	5.380E-01	5.937E-01	4.566E-01	3.029E-01	FAIL ABUN
RN-219	-1.215E-01	3.163E-01	2.609E-01	1.614E-01	FAIL ABUN
RN-220	-7.324E+00	2.071E+01	1.738E+01	1.056E+01	NOT IDENT.
RA-223	5.380E-01	5.937E-01	4.566E-01	3.029E-01	FAIL ABUN
AC-227	-3.692E-02	3.189E-01	2.628E-01	1.627E-01	FAIL ABUN
TH-227	-3.692E-02	3.189E-01	2.628E-01	1.627E-01	FAIL ABUN
TH-229	-2.164E-01	4.214E-01	3.513E-01	2.150E-01	FAIL ABUN
PA-231	2.013E-01	1.360E+00	1.082E+00	6.938E-01	FAIL ABUN
TH-231	5.380E-01	5.937E-01	4.566E-01	3.029E-01	FAIL ABUN
U-231	-5.627E-01	1.106E+00	8.043E-01	5.645E-01	FAIL ABUN
PA-233	-3.446E-02	5.155E-02	4.311E-02	2.630E-02	FAIL ABUN
PA-234	6.202E-02	2.386E-01	2.029E-01	1.217E-01	FAIL ABUN
PA-234M	2.971E+00	4.276E+00	3.416E+00	2.182E+00	NOT IDENT.
NP-236	8.358E-03	6.294E-02	5.442E-02	3.211E-02	NOT IDENT.
NP-239	-5.022E-02	1.561E-01	1.268E-01	7.966E-02	FAIL ABUN
AM-241	4.412E-02	1.175E-01	9.220E-02	5.995E-02	NOT IDENT.
CM-243	4.110E-02	8.000E-02	6.733E-02	4.081E-02	FAIL ABUN
AM-246	3.982E-02	1.203E-01	1.014E-01	6.136E-02	NOT IDENT.
CM-247	1.588E-02	2.802E-02	2.409E-02	1.430E-02	FAIL ABUN
CF-249	-6.743E-03	3.056E-02	2.552E-02	1.559E-02	NOT IDENT.
CF-251	6.555E-03	1.025E-01	8.780E-02	5.231E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON , SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	373.0104
46.50	373.0104
46.50	373.0104
48.70	453.5206
49.72	459.3061
51.35	412.8034
52.39	371.0907
52.97	393.4192
53.15	428.1651
53.44	424.9719
54.07	439.2026
56.28	457.4430
56.28	457.4479
57.37	0.0000
57.53	443.6857
57.53	443.6893
57.60	464.6761
57.98	484.3895
57.98	484.3895
59.32	468.3835
59.32	468.3835
59.40	468.5319
59.54	468.7926
59.72	504.9943
60.01	505.5743
61.10	488.9897
61.14	489.0654
61.30	489.3700
63.00	553.1265
63.29	553.7378
63.29	553.7378
63.58	554.3463
64.28	569.4384
65.12	559.5113
65.20	525.9802
65.20	525.9802
66.05	530.5740
66.72	570.1837
66.83	570.4140
66.91	570.5823
67.20	571.1846
67.20	571.1846
67.75	563.4482
67.85	563.6531
68.90	605.8740
68.90	605.8740
69.30	602.2750
69.67	594.1347
70.82	562.1497
70.82	562.1497
70.83	562.1698
72.80	596.1179
72.87	596.2629
72.87	596.2629
74.67	622.6334
74.81	622.9250
74.81	622.9250
74.81	622.9250
74.81	622.9250
74.81	622.9250
74.81	622.9250
74.97	623.2606
75.28	623.9065
75.70	624.7782
77.11	627.6912
77.11	627.6912

77.11	627.6912
77.11	627.6912
77.11	627.6912
77.11	627.6912
77.11	627.6912
78.38	630.2939
79.62	632.8149
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79.80	633.1787
80.11	633.8058
80.18	633.9470
80.30	634.1884
80.30	634.1884
80.57	634.7308
81.00	635.5963
81.07	635.7374
81.07	635.7374
81.07	635.7374
81.07	635.7374
82.60	460.0543
83.37	461.1495
83.78	636.4479
83.78	636.4479
83.78	636.4479
83.78	636.4479
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84.90	557.2414
85.43	558.1404
86.29	559.5908
86.50	559.9438
86.54	560.0118
86.59	560.0959
86.72	560.3160
86.79	560.4301
86.94	560.6854
87.30	715.8002
87.30	715.8002
87.30	715.8002
87.30	715.8002
87.30	715.8002
87.30	715.8002
87.30	715.8002
87.57	716.3752
87.88	625.4330
88.03	625.7109
88.36	626.3212
88.47	626.5267
89.95	629.2518
91.11	573.9780
92.29	575.9280
92.38	576.0764
92.38	576.0764
93.35	577.6666
94.00	517.6414
94.67	526.6648
94.67	526.6723
94.90	527.0116
94.90	527.0116
94.90	527.0116
94.90	527.0116
95.87	589.8474
95.87	589.8474
96.73	578.2974
97.43	522.6039
98.44	516.4511
98.44	516.4536
98.88	512.7257
99.55	496.2451
99.55	496.2451
99.86	504.2821
100.00	504.4728
100.10	515.5129
103.18	561.4949
103.76	535.9383
105.00	510.0686
105.31	507.1627
108.00	615.2479
109.28	578.1710

111.00	529.0938
111.00	529.0938
111.76	562.6592
112.95	572.1924
115.19	522.0859
116.30	515.5323
117.00	517.5311
117.00	517.5311
117.66	552.5198
121.11	493.8412
121.62	508.2231
121.78	508.4097
122.06	516.7949
122.32	517.1032
122.32	517.1032
122.32	517.1032
122.32	517.1032
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127.23	602.0767
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133.54	539.3101
135.34	488.0484
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136.25	531.7441
136.48	539.1328
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140.51	0.0000
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143.76	575.3512
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144.24	524.4758
144.24	524.4758
144.24	524.4758
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145.44	476.3687
147.16	510.0677
152.43	519.9671
152.70	523.0010
153.22	526.2904
154.21	510.6702
154.21	510.6702
154.21	510.6702
154.21	510.6702
155.03	517.0212
156.02	515.2180
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163.35	527.9426
163.89	520.9389
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167.43	511.0414
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171.86	492.1826
172.10	492.3912
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176.60	501.0658
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184.41	530.1335
185.71	518.5790
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190.27	497.4686
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193.63	533.2059
197.04	510.2368
198.01	508.0234
198.60	524.4429
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201.83	588.2137
202.84	542.9606
205.31	493.2345

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209.75	531.4399
210.97	507.2095
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216.55	481.4818
218.09	442.5188
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223.80	459.6161
226.40	467.5404
227.00	477.2939
227.08	477.3464
227.20	476.3868
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228.18	474.9571
228.18	474.9571
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236.00	483.4717
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238.63	454.3391
238.63	454.3391
238.63	454.3391
239.00	454.5654
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241.98	456.3829
241.98	456.3829
241.98	456.3829
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245.39	378.6981
247.94	355.1487
248.90	372.1169
249.79	413.9063
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252.85	391.8599
252.85	391.8599
254.15	0.0000
256.20	403.2718
256.20	403.2718
260.50	390.2460
260.90	376.3046
262.80	424.8526
264.65	379.3739
268.24	361.7322
268.79	340.8925
269.46	358.7581
269.46	358.7581
269.46	358.7581
269.46	358.7581
271.23	414.1646
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277.35	372.8320
277.60	372.9397
277.60	372.9397
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278.60	375.1638
279.20	377.2109
279.53	377.3559
280.46	375.9880
281.68	364.0374
283.67	379.4488
284.30	382.6052
285.00	388.5165
285.90	378.8369
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286.10	374.4402
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290.80	396.7573
291.72	383.6362
293.26	0.0000
293.70	367.9112
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295.21	365.5208



295.21	365.5208
295.96	365.8310
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297.23	313.3680
298.57	313.8397
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299.80	314.2692
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300.09	314.3745
300.09	314.3745
300.09	314.3745
300.12	314.3829
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303.76	335.4785
303.91	335.5322
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304.40	346.3976
304.84	329.7700
306.84	299.8937
308.46	298.8913
311.98	356.3432
316.51	308.9112
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319.41	334.0602
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323.87	299.1680
323.87	299.1680
323.87	299.1680
325.23	304.2709
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333.44	250.2070
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334.20	311.8202
334.30	321.3025
338.28	371.6196
338.28	371.6196
338.28	371.6196
338.28	371.6196
338.32	371.6387
338.32	371.6387
338.32	371.6387
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340.57	326.5103
344.27	338.1716
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350.59	0.0000
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351.92	306.7922
351.92	306.7922
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366.43	264.2779
367.43	277.2155
367.94	0.0000
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383.85	250.7239
387.95	267.5650
388.63	267.7292
391.69	269.4595
391.69	269.4595
392.90	277.7421
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402.60	240.8234
404.84	289.7502
410.95	274.0243
411.60	294.4852
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427.89	247.0664
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433.93	248.2939
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439.56	223.4483
439.89	230.7857
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444.90	241.1091
445.03	241.1344
445.03	241.1344
445.03	241.1344
445.03	241.1344
453.90	217.6027
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468.07	342.2311
473.00	243.2352
475.06	243.6138
475.35	247.9444
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497.08	210.6932
507.63	0.0000
510.53	0.0000
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511.00	213.9049
511.85	214.0323
511.85	214.0323
513.99	229.0141
513.99	229.0141
520.41	201.7718
520.65	201.8075
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528.96	0.0000
529.64	200.9608
529.87	0.0000
531.02	194.6661
537.32	212.2610
543.00	247.6557
546.56	0.0000
549.76	229.0627
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555.20	213.8747
563.23	207.4244
563.90	197.0947
568.70	209.1146
569.32	188.2756
569.50	179.7407
569.67	179.7599
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574.00	230.3320
574.64	220.8205
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579.30	0.0000
583.14	197.6220
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591.81	231.4990
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593.00	236.3033
595.88	216.6126
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602.52	0.0000
602.71	256.3730
602.71	256.3730
603.60	266.5067
604.41	263.3076
604.70	251.6842
609.31	229.1336

609.31	229.1336
609.31	229.1336
609.31	229.1336
610.33	215.7574
612.46	231.1086
614.37	219.6370
618.01	189.2646
621.84	213.1900
621.84	213.1900
631.29	199.5671
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633.10	204.7258
634.78	197.9980
635.90	201.1002
636.97	196.2719
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646.12	194.3295
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657.90	0.0000
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661.65	208.1287
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666.33	191.5424
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692.80	191.2991
695.00	203.8179
696.49	211.1592
696.49	211.1592
697.00	215.3192
697.49	216.4004
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698.50	230.8868
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722.78	174.6377
722.89	174.6479
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727.18	190.6660
733.00	177.3589
735.90	172.2455
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742.81	161.7545
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747.13	182.1090
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752.31	140.3736
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755.35	178.6410
756.15	181.8857
756.87	188.2993
763.93	231.4343
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766.84	217.9460
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778.00	195.6326
778.57	194.6191
778.89	177.5368
783.80	143.6591
785.46	167.3813
792.07	195.9040

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836.80	0.0000
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848.13	167.6568
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856.80	153.1022
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867.32	152.1545
867.82	152.1878
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873.19	170.5130
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875.33	0.0000
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884.67	172.3418
889.25	171.7236
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898.02	184.9680
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903.28	185.1450
911.07	157.7652
911.07	157.7652
911.07	157.7652
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925.00	129.3114
925.24	130.3049
926.50	152.9205
935.52	120.0448
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944.10	158.9841
946.00	144.2865
949.00	137.5383
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964.01	193.3896
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968.20	166.5428
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969.11	146.6539
969.11	146.6539
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980.50	132.2923
983.50	130.4443
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996.32	173.4697
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1001.68	141.4941
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1021.30	0.0000
1024.50	0.0000
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1036.00	140.3113
1037.82	141.4317
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1038.76	0.0000
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1046.59	165.5540
1048.07	170.7938

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1050.47	157.5571
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1077.35	149.7807
1078.86	152.9883
1085.78	156.5029
1099.22	163.5628
1112.02	145.6177
1112.84	156.7239
1115.52	160.5656
1120.29	149.7442
1120.29	149.7442
1120.29	149.7442
1120.29	149.7442
1120.51	149.7590
1121.28	144.2505
1124.00	0.0000
1129.67	184.2493
1131.51	0.0000
1147.95	0.0000
1167.94	162.5940
1173.22	202.4286
1175.09	182.7749
1177.93	186.7247
1189.05	199.7314
1204.90	190.3259
1205.75	0.0000
1213.00	202.2889
1221.42	181.8011
1230.97	187.7018
1235.34	228.9821
1236.41	0.0000
1238.25	202.0468
1246.25	171.4844
1260.41	0.0000
1271.85	117.6766
1274.45	137.2392
1274.54	137.2435
1291.56	129.1721
1298.22	0.0000
1312.09	103.4074
1325.50	108.7781
1325.50	108.7781
1332.49	103.0637
1333.61	107.0640
1360.21	80.9431
1362.66	0.0000
1365.15	78.0595
1368.21	89.1494
1368.53	0.0000
1376.25	66.2679
1384.27	135.8693
1394.10	85.7938
1395.20	91.8776
1407.95	89.1790
1434.06	78.6167
1436.60	61.3055
1457.56	0.0000
1460.81	49.3799
1489.15	71.5416
1509.49	55.2579
1596.49	51.2095
1620.62	40.0768
1678.03	0.0000
1691.02	32.0466
1691.02	32.0466
1706.46	0.0000
1750.46	0.0000
1764.49	32.0229
1764.49	32.0229
1764.49	32.0229
1764.49	32.0229
1770.23	42.7547
1771.40	42.7664
1791.20	0.0000
1808.65	28.9583

1836.01

54.2607

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229004

Total Uranium Activity	1.1155E+00	ug/g
Total Uranium Counting Unc.	4.4792E+00	ug/g
Total Uranium Tpu	2.2853E-06	ug/g
Total Uranium Mda	2.3042E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON , SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941239          SAMPLE ID   : G244229004
*  ANALYST       : MXR1           DETECTOR    : GAM22
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00 COUNT TIME : 0 03:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 12:58:13.86 SAMPLE ALQT: 109.130 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.431E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.526E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.042E+00
GROSS GAMMA DLC (pCi/GRAM ) : 9.947E-01

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 15:05:42.15

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229005.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 13:05:11
Sample ID          : G244229005           Sample quantity  : 1.21280E+02 GRAM
Detector name      : GAM23                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:01.61  0.0%
Energy tolerance   : 1.50000 keV           Analyst Initials : MXR1
Abundance limit    : 75.00000              Sensitivity        : 5.00000
Batch ID           : 941239                 Detector SN#       :
Matrix Spike ID    :                       LCS ID          : 1032-A
*****
```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.07*	109	290	1.02	126.15	123	8	1.51E-02	29.7	
2	1	74.47	325	417	1.38	148.94	141	19	4.51E-02	12.2	4.25E+00
3	1	77.01*	501	354	1.14	154.02	141	19	6.96E-02	7.8	
4	0	87.55	102	532	1.08	175.11	169	9	1.41E-02	42.2	
5	0	92.98*	279	467	1.57	185.96	182	11	3.88E-02	16.8	
6	0	185.88*	119	323	1.12	371.76	365	10	1.66E-02	30.7	
7	0	209.16	118	325	1.57	418.32	413	14	1.64E-02	33.5	
8	0	238.25*	871	333	1.10	476.50	472	9	1.21E-01	5.1	
9	0	241.58	129	206	1.48	483.16	481	7	1.80E-02	21.0	
10	0	269.55*	100	208	1.94	539.10	532	13	1.39E-02	31.7	
11	1	294.85	345	120	1.67	589.70	585	22	4.79E-02	7.9	2.83E+00
12	1	299.60	81	106	1.67	599.20	585	22	1.13E-02	28.3	
13	0	327.15	54	148	0.95	654.31	648	11	7.56E-03	45.4	
14	0	337.83	181	227	0.80	675.65	668	14	2.51E-02	19.2	
15	0	351.50*	576	132	1.40	703.00	697	14	8.00E-02	6.1	
16	0	510.18*	125	100	2.17	1020.36	1011	21	1.73E-02	24.7	
17	0	582.49*	297	75	1.52	1164.98	1159	11	4.13E-02	8.1	
18	0	608.55*	356	70	1.59	1217.10	1212	11	4.94E-02	7.2	
19	0	661.42	82	98	1.57	1322.83	1316	16	1.13E-02	29.1	
20	0	726.58	97	46	1.22	1453.16	1448	12	1.35E-02	17.2	
21	0	910.21	188	29	1.46	1820.43	1814	13	2.61E-02	9.4	
22	0	968.08	116	69	1.55	1936.15	1931	14	1.61E-02	18.1	
23	0	1119.64	83	70	2.28	2239.29	2232	17	1.16E-02	25.3	
24	0	1459.34*	850	21	2.41	2918.68	2908	21	1.18E-01	3.7	
25	0	1763.06*	57	3	2.32	3526.11	3519	14	7.89E-03	15.5	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 15:05:45

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229005.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 13:05:11
Sample ID        : G244229005             Sample quantity  : 121.28 GRAM
Sample type      : SOLID                  Sample geometry   :
Detector name    : GAMMA23                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.61    0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance : 1.50 keV               Half life ratio   : 8.00
Errors propagated: Yes                    Systematic Error  : 0.00 %
Efficiency type  : Empirical              Efficiencies at   : Peak Energy
Abundance limit  : 75.00                  WTM error limit   : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.472E+01	2.605E+00	5.608E-01	4.195E-02	44.074
CD-109	+	88.03	*	1.650E+00	1.401E+00	1.644E+00	1.605E-01	1.004
SN-126	+	64.28		1.369E+00	8.386E-01	9.917E-01	1.509E-01	1.381
	+	86.94		6.734E-01	6.334E-01	7.456E-01	3.101E-01	0.903
	+	87.57	*	1.620E-01	1.375E-01	1.762E-01	1.715E-02	0.919
CS-135	+	268.24	*	4.589E-01	2.934E-01	2.688E-01	2.054E-02	1.707
BA-137M	+	661.65	*	1.377E-01	8.044E-02	6.001E-02	3.065E-03	2.295
CS-137	+	661.65	*	1.456E-01	8.504E-02	6.343E-02	3.258E-03	2.295
TL-208		277.35		5.313E-01	4.272E-01	7.234E-01	7.643E-02	0.734
	+	510.84		7.015E-01	3.541E-01	2.230E-01	2.265E-02	3.146
	+	583.14	*	4.797E-01	8.412E-02	5.999E-02	3.895E-03	7.997
		860.37		4.576E-01	3.316E-01	6.128E-01	5.539E-02	0.747
BI-211		72.87		1.415E+01	4.150E+00	7.284E+00	6.425E-01	1.943
	+	351.07	*	4.005E+00	5.528E-01	3.523E-01	2.295E-02	11.370
PB-212	+	74.81		2.341E+00	6.452E-01	6.503E-01	8.389E-02	3.600
	+	77.11		2.004E+00	3.593E-01	3.644E-01	3.278E-02	5.499
	+	87.30		7.492E-01	6.405E-01	8.253E-01	1.150E-01	0.908
	+	238.63	*	1.304E+00	1.633E-01	1.377E-01	9.897E-03	9.470
	+	300.09		1.886E+00	1.078E+00	1.300E+00	1.080E-01	1.450
PO-212	+	74.81		2.341E+00	6.452E-01	6.503E-01	8.389E-02	3.600
	+	77.11		2.004E+00	3.593E-01	3.644E-01	3.278E-02	5.499
	+	87.30		7.492E-01	6.405E-01	8.253E-01	1.150E-01	0.908
	+	115.19		3.575E+00	4.004E+00	6.821E+00	4.351E-01	0.524
	+	238.63	*	1.304E+00	1.633E-01	1.377E-01	9.897E-03	9.470
	+	300.09		1.886E+00	1.078E+00	1.300E+00	1.080E-01	1.450
BI-214	+	609.31	*	1.083E+00	1.765E-01	1.255E-01	9.436E-03	8.629
	+	1120.29		1.356E+00	6.964E-01	5.417E-01	5.034E-02	2.503
	+	1764.49		1.273E+00	4.016E-01	2.714E-01	1.687E-02	4.690
PB-214	+	74.81		4.034E+00	1.088E+00	1.121E+00	1.297E-01	3.600
	+	77.11		3.435E+00	6.692E-01	6.246E-01	7.364E-02	5.499
	+	87.30		1.283E+00	1.094E+00	1.414E+00	1.753E-01	0.908
	+	241.98		1.164E+00	4.980E-01	6.576E-01	5.230E-02	1.770
	+	295.21		1.408E+00	2.519E-01	2.277E-01	1.952E-02	6.184
	+	351.92	*	1.393E+00	2.056E-01	1.228E-01	1.025E-02	11.345

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		4.034E+00	1.088E+00	1.121E+00	1.297E-01	3.600
	+	77.11		3.435E+00	6.692E-01	6.246E-01	7.364E-02	5.499
	+	87.30		1.283E+00	1.094E+00	1.414E+00	1.753E-01	0.908
	+	241.98		1.164E+00	4.980E-01	6.576E-01	5.230E-02	1.770
	+	295.21		1.408E+00	2.519E-01	2.277E-01	1.952E-02	6.184
	+	351.92	*	1.393E+00	2.056E-01	1.228E-01	1.025E-02	11.345
PO-216	+	74.81		2.341E+00	6.452E-01	6.503E-01	8.389E-02	3.600
	+	77.11		2.004E+00	3.593E-01	3.644E-01	3.278E-02	5.499
	+	87.30		7.492E-01	6.405E-01	8.253E-01	1.150E-01	0.908
	+	238.63	*	1.304E+00	1.633E-01	1.377E-01	9.897E-03	9.470
	+	300.09		1.886E+00	1.078E+00	1.300E+00	1.080E-01	1.450
PO-218	+	74.81		4.034E+00	1.088E+00	1.121E+00	1.297E-01	3.600
	+	77.11		3.435E+00	6.692E-01	6.246E-01	7.364E-02	5.499
	+	87.30		1.283E+00	1.094E+00	1.414E+00	1.753E-01	0.908
	+	241.98		1.164E+00	4.980E-01	6.576E-01	5.230E-02	1.770
	+	295.21		1.408E+00	2.519E-01	2.277E-01	1.952E-02	6.184
	+	351.92	*	1.393E+00	2.056E-01	1.228E-01	1.025E-02	11.345
RA-224	+	240.98	*	2.207E+00	9.361E-01	1.567E+00	8.827E-02	1.409
RA-226	+	609.31	*	1.083E+00	1.765E-01	1.255E-01	9.436E-03	8.629
	+	1120.29		1.356E+00	6.964E-01	5.417E-01	5.034E-02	2.503
	+	1764.49		1.273E+00	4.016E-01	2.714E-01	1.687E-02	4.690
AC-228	+	338.32		1.381E+00	7.738E-01	4.107E-01	1.675E-01	3.362
	+	911.07	*	1.373E+00	3.033E-01	2.423E-01	2.796E-02	5.668
	+	969.11		1.501E+00	6.466E-01	5.262E-01	1.225E-01	2.852
RA-228	+	338.32		1.381E+00	7.738E-01	4.107E-01	1.675E-01	3.362
	+	911.07	*	1.373E+00	3.033E-01	2.423E-01	2.796E-02	5.668
	+	969.11		1.501E+00	6.466E-01	5.262E-01	1.225E-01	2.852
TH-228	+	74.81		2.379E+00	6.173E-01	6.608E-01	5.923E-02	3.600
	+	77.11		2.036E+00	3.651E-01	3.702E-01	3.331E-02	5.499
	+	87.30		7.612E-01	6.464E-01	8.386E-01	8.141E-02	0.908
	+	238.63	*	1.325E+00	1.659E-01	1.399E-01	1.006E-02	9.470
	+	300.09		1.917E+00	1.566E+00	1.321E+00	7.789E-01	1.450
TH-230	+	609.31	*	1.083E+00	1.765E-01	1.255E-01	9.435E-03	8.629
	+	1120.29		1.356E+00	6.964E-01	5.417E-01	5.034E-02	2.503
	+	1764.49		1.273E+00	4.016E-01	2.714E-01	1.687E-02	4.690
TH-232	+	338.32		1.381E+00	5.369E-01	4.107E-01	2.426E-02	3.362
	+	911.07	*	1.373E+00	3.033E-01	2.423E-01	2.796E-02	5.668
	+	969.11		1.501E+00	6.466E-01	5.262E-01	1.225E-01	2.852
TH-234	+	63.29	*	3.459E+00	2.145E+00	2.657E+00	4.787E-01	1.302
	+	92.38		2.853E+00	1.089E+00	1.150E+00	2.097E-01	2.481
U-234	+	609.31	*	1.083E+00	1.765E-01	1.255E-01	9.435E-03	8.629
	+	1120.29		1.356E+00	6.964E-01	5.417E-01	5.034E-02	2.503
	+	1764.49		1.273E+00	4.016E-01	2.714E-01	1.687E-02	4.690
NP-237	+	86.50	*	4.757E-01	4.156E-01	5.013E-01	1.142E-01	0.949
	+	95.87		6.064E-01	1.189E+00	1.764E+00	4.332E-01	0.344
U-238	+	63.29	*	3.459E+00	2.145E+00	2.657E+00	4.787E-01	1.302
	+	92.38		2.853E+00	9.906E-01	1.150E+00	1.028E-01	2.481
AM-243	+	74.67	*	3.795E-01	9.841E-02	1.058E-01	9.405E-03	3.586
	+	86.72		1.784E+01	1.515E+01	1.874E+01	1.810E+00	0.952

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-1.636E+00	4.343E+00	7.038E+00	4.358E-01	-0.232
		142.18		-6.905E-01	1.944E+01	3.177E+01	1.730E+00	-0.022
ANH-511	+	511.00	*	1.515E-01	7.543E-02	4.818E-02	2.799E-03	3.145

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-6.659E-02	3.684E-01	5.985E-01	4.067E-02	-0.111
NA-22		1274.54	*	-1.194E-03	4.867E-02	7.907E-02	5.310E-03	-0.015
NA-24		1368.53	*	-9.798E-01	4.867E-02	Half-Life too short		
AL-26		1129.67		8.190E-02	2.177E+00	3.422E+00	2.180E-01	0.024
		1808.65	*	-6.300E-03	2.842E-02	4.436E-02	2.666E-03	-0.142
TI-44		67.85		-9.905E-03	8.792E-02	9.338E-02	8.132E-03	-0.106
	+	78.38	*	3.697E-01	6.630E-02	9.318E-02	8.447E-03	3.968
SC-46		889.25	*	-1.430E-03	4.294E-02	7.130E-02	6.370E-03	-0.020
	+	1120.51		2.339E-01	1.191E-01	1.489E-01	9.701E-03	1.571
V-48		944.10		-1.900E-01	1.098E+00	1.792E+00	1.561E-01	-0.106
		983.50	*	-8.498E-03	8.392E-02	1.376E-01	1.144E-02	-0.062
		1312.09		5.001E-02	9.824E-02	1.695E-01	1.206E-02	0.295
CR-51		320.08	*	4.560E-01	4.663E-01	7.592E-01	4.978E-02	0.601
MN-52		744.21		-1.070E-01	2.985E-01	4.621E-01	2.942E-02	-0.231
		848.13		-9.269E-01	8.604E+00	1.423E+01	1.161E+00	-0.065
		935.52		-6.419E-02	3.401E-01	5.551E-01	4.880E-02	-0.116
		1246.25		-3.827E+00	9.595E+00	1.501E+01	9.604E-01	-0.255
		1333.61		-4.168E+00	6.514E+00	9.619E+00	7.061E-01	-0.433
		1434.06	*	1.025E-02	3.004E-01	4.883E-01	3.533E-02	0.021
MN-54		834.83	*	4.840E-02	4.842E-02	8.657E-02	6.854E-03	0.559
CO-56		846.75	*	-3.469E-03	4.486E-02	7.441E-02	6.054E-03	-0.047
		977.42		1.435E+00	3.168E+00	5.290E+00	4.435E-01	0.271
		1037.82		7.601E-02	3.719E-01	6.263E-01	5.134E-02	0.121
		1175.09		7.634E-01	2.650E+00	4.463E+00	2.526E-01	0.171
		1238.25		8.128E-02	1.101E-01	1.906E-01	1.268E-02	0.426
		1360.21		6.742E-01	1.133E+00	1.990E+00	1.458E-01	0.339
		1771.40		-1.982E-01	2.197E-01	2.765E-01	1.711E-02	-0.717
CO-57		122.06	*	-2.527E-03	2.865E-02	4.694E-02	2.767E-03	-0.054
		136.48		2.578E-02	2.333E-01	3.842E-01	2.498E-02	0.067
CO-58		810.76	*	-4.938E-02	4.348E-02	6.453E-02	4.848E-03	-0.765
FE-59		142.65		2.615E-01	3.108E+00	5.000E+00	2.719E-01	0.052
		192.34		-3.424E-01	1.067E+00	1.700E+00	1.966E-01	-0.201
		1099.22	*	-3.298E-02	1.029E-01	1.633E-01	1.258E-02	-0.202
		1291.56		-7.873E-02	1.636E-01	2.522E-01	2.093E-02	-0.312
CO-60		1173.22		6.265E-02	5.224E-02	9.515E-02	5.368E-03	0.658
		1332.49	*	-3.388E-02	4.534E-02	6.578E-02	4.829E-03	-0.515
ZN-65		1115.52	*	3.064E-02	1.315E-01	1.911E-01	1.262E-02	0.160
GE-68		1077.35	*	-1.960E-02	1.331E+00	2.189E+00	1.567E-01	-0.009
AS-73		53.44	*	-1.699E-01	1.258E+00	2.103E+00	1.857E-01	-0.081
AS-74		595.88	*	3.533E-02	1.054E-01	1.765E-01	9.732E-03	0.200
		634.78		-1.006E-01	4.297E-01	6.827E-01	3.614E-02	-0.147

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75	66.05			-7.284E+00	6.874E+00	9.485E+00	9.955E-01	-0.768
	96.73			6.626E-01	9.495E-01	1.429E+00	1.916E-01	0.464
	121.11			1.411E-01	1.524E-01	2.593E-01	2.419E-02	0.544
	136.00			-9.500E-03	4.414E-02	7.169E-02	4.048E-03	-0.133
	198.60			1.331E+00	2.148E+00	3.529E+00	2.383E-01	0.377
	264.65	*		1.418E-02	5.578E-02	7.935E-02	4.619E-03	0.179
	279.53			9.760E-03	1.209E-01	2.046E-01	1.287E-02	0.048
	303.91			-1.698E+00	2.533E+00	3.494E+00	3.352E-01	-0.486
	400.65			4.405E-02	2.918E-01	4.891E-01	4.451E-02	0.090
	87.88	+		4.668E+02	3.963E+02	5.226E+02	5.099E+01	0.893
	200.40			2.160E+02	2.480E+02	4.162E+02	2.226E+01	0.519
	239.00	+		2.744E+02	3.210E+01	5.217E+01	2.933E+00	5.260
	249.79			-3.710E+01	1.040E+02	1.634E+02	9.288E+00	-0.227
	281.68			-1.763E+02	1.303E+02	2.036E+02	1.187E+01	-0.866
	297.23			3.082E+02	8.701E+01	1.645E+02	9.661E+00	1.873
BR-77	303.76			-1.931E+02	2.807E+02	3.872E+02	2.279E+01	-0.499
	439.47			1.719E+02	2.090E+02	3.647E+02	2.134E+01	0.471
	484.57			6.200E+01	3.536E+02	5.891E+02	3.444E+01	0.105
	520.65	*		-3.600E+00	1.582E+01	2.475E+01	1.432E+00	-0.145
	574.64			7.781E+00	3.070E+02	4.883E+02	2.741E+01	0.016
	578.91			1.861E+02	1.512E+02	2.405E+02	1.346E+01	0.774
	585.48			5.800E+02	3.148E+02	5.193E+02	2.890E+01	1.117
	755.35			1.042E+02	2.390E+02	4.005E+02	2.622E+01	0.260
	817.79			1.656E+02	1.890E+02	3.410E+02	2.596E+01	0.486
	698.33			1.016E+01	4.076E+01	6.719E+01	3.796E+00	0.151
	776.49	*		-3.414E-01	4.288E-01	6.671E-01	4.602E-02	-0.512
	1395.20			4.189E-01	1.247E+01	2.031E+01	1.480E+00	0.021
	520.41	*		-2.122E-02	8.015E-02	1.250E-01	7.233E-03	-0.170
	529.64			-7.505E-02	1.191E-01	1.849E-01	1.066E-02	-0.406
	552.65			-7.291E-02	2.126E-01	3.369E-01	1.919E-02	-0.216
RB-84	881.50	*		-4.491E-03	7.203E-02	1.193E-01	1.048E-02	-0.038
KR-85	513.99	*		1.263E+01	7.981E+00	1.326E+01	7.693E-01	0.952
SR-85	513.99	*		6.538E-02	4.132E-02	6.864E-02	3.983E-03	0.952
RB-86	1076.63	*		-5.470E-01	8.887E-01	1.360E+00	9.748E-02	-0.402
Y-88	898.02			-2.307E-03	4.779E-02	7.921E-02	7.243E-03	-0.029
	1836.01	*		-1.509E-02	3.747E-02	5.638E-02	3.320E-03	-0.268
ZR-88	392.90	*		-1.444E-05	3.312E-02	5.505E-02	3.178E-03	0.000
Y-91	1204.90	*		7.057E-01	2.327E+01	3.817E+01	2.277E+00	0.018
NB-94	702.63	*		-1.401E-02	3.862E-02	6.024E-02	3.442E-03	-0.233
	871.10			1.292E-02	3.695E-02	6.318E-02	5.426E-03	0.204
NB-95	765.79	*		5.230E-02	5.285E-02	9.157E-02	6.153E-03	0.571
NB-95M	235.69	*		7.241E-01	1.881E-01	3.086E-01	2.277E-02	2.346
ZR-95	724.18			2.448E-01	1.361E-01	2.243E-01	1.586E-02	1.091
	756.15	*		8.536E-03	8.264E-02	1.341E-01	1.029E-02	0.064
NB-97	657.90	*		1.803E-01	8.264E-02	Half-Life	too short	
	1024.50			-3.392E+01	8.264E-02	Half-Life	too short	
ZR-97	254.15			4.449E+00	8.264E-02	Half-Life	too short	
	355.39			1.476E+00	8.264E-02	Half-Life	too short	
	507.63	*		1.810E+01	8.264E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	602.52			6.072E+00	8.264E-02	Half-Life	too short	
	1021.30			2.124E+00	8.264E-02	Half-Life	too short	
	1147.95			3.033E-01	8.264E-02	Half-Life	too short	
	1362.66			1.817E+00	8.264E-02	Half-Life	too short	
	1750.46			-2.464E+00	8.264E-02	Half-Life	too short	
MO-99	140.51			-2.013E+01	3.815E+01	5.920E+01	1.591E+01	-0.340
	181.06			1.070E+01	2.838E+01	4.111E+01	6.967E+00	0.260
	366.43			-3.259E+01	1.205E+02	1.976E+02	1.158E+01	-0.165
	739.58	*		1.051E+01	1.601E+01	2.733E+01	3.825E+00	0.385
	778.00			-9.069E+00	4.488E+01	7.391E+01	5.119E+00	-0.123
TC-99M	140.51	*		-3.012E+11	4.488E+01	Half-Life	too short	
RH-101	127.23			5.979E-02	3.652E-02	6.353E-02	3.648E-03	0.941
	198.01	*		2.961E-02	3.893E-02	6.435E-02	3.430E-03	0.460
	325.23			-1.287E-01	3.038E-01	4.290E-01	2.535E-02	-0.300
RH-102	418.52			1.977E-02	3.232E-01	5.378E-01	3.133E-02	0.037
	475.06	*		-5.669E-03	3.227E-02	5.245E-02	3.070E-03	-0.108
	631.29			1.785E-02	6.469E-02	1.074E-01	5.710E-03	0.166
	697.49			1.469E-02	8.848E-02	1.449E-01	8.166E-03	0.101
	766.84			3.963E-02	1.365E-01	2.243E-01	1.511E-02	0.177
	1046.59			9.066E-02	1.286E-01	2.272E-01	1.720E-02	0.399
	1112.84			1.383E-01	3.039E-01	4.564E-01	3.028E-02	0.303
RU-103	497.08	*		-2.478E-02	4.959E-02	7.758E-02	9.821E-03	-0.319
	610.33			1.027E+01	2.226E+00	3.105E+00	4.747E-01	3.306
RH-106	511.85			2.245E-01	2.393E-01	4.558E-01	2.647E-02	0.493
	621.84	*		-9.994E-02	3.517E-01	5.562E-01	6.414E-02	-0.180
	1050.47			-1.296E+00	2.483E+00	3.852E+00	2.897E-01	-0.336
RU-106	511.85			2.245E-01	2.393E-01	4.558E-01	2.647E-02	0.493
	621.84	*		-9.994E-02	3.516E-01	5.562E-01	2.988E-02	-0.180
	1050.47			-1.296E+00	2.483E+00	3.852E+00	2.897E-01	-0.336
AG-108M	433.93	*		-3.029E-02	3.628E-02	5.630E-02	3.569E-03	-0.538
	614.37			2.682E-02	4.634E-02	6.975E-02	4.143E-03	0.385
	722.95			1.082E-02	5.558E-02	7.905E-02	5.140E-03	0.137
AG-110M	657.75	*		2.098E-02	4.597E-02	6.788E-02	3.772E-03	0.309
	677.61			1.123E-01	3.475E-01	5.784E-01	3.310E-02	0.194
	706.67			-1.609E-01	2.357E-01	3.550E-01	2.175E-02	-0.453
	763.93			9.024E-02	2.083E-01	3.464E-01	2.425E-02	0.261
	884.67			3.468E-03	5.098E-02	8.558E-02	7.802E-03	0.041
	937.48			-5.318E-02	1.349E-01	2.157E-01	1.959E-02	-0.247
	1384.27			7.341E-02	1.718E-01	2.964E-01	2.249E-02	0.248
IN-111	171.28			-2.852E-01	1.446E+00	2.330E+00	1.195E-01	-0.122
	245.39	*		1.949E+00	1.649E+00	2.509E+00	1.420E-01	0.777
IN-113M	391.69	*		-2.989E-02	4.872E-02	7.761E-02	4.781E-03	-0.385
SN-113	391.69	*		-2.989E-02	4.872E-02	7.761E-02	4.781E-03	-0.385
IN-114M	190.27	*		-4.363E-02	2.321E-01	3.245E-01	1.711E-02	-0.134
CD-115	260.90			1.043E+02	1.993E+02	3.281E+02	1.884E+01	0.318
	492.35			1.862E+01	5.450E+01	9.190E+01	5.365E+00	0.203
	527.90	*		-8.615E+00	1.644E+01	2.579E+01	1.488E+00	-0.334
SN-117M	156.02			-2.096E-02	2.664E+00	4.344E+00	2.273E-01	-0.005
	158.56	*		8.359E-03	6.382E-02	1.047E-01	5.439E-03	0.080

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-122	563.90	*	-1.311E+00	3.109E+00	4.907E+00	2.776E-01	-0.267	
	692.80		1.690E+01	6.479E+01	1.070E+02	5.953E+00	0.158	
I-123	159.00	*	8.396E+00	6.479E+01	Half-Life too short			
	528.96		-5.163E+02	6.479E+01	Half-Life too short			
TE-123M	159.00	*	1.286E-02	3.121E-02	5.180E-02	2.734E-03	0.248	
I-124	602.71	*	4.533E-01	1.106E+00	1.613E+00	8.842E-02	0.281	
	722.78		5.724E-01	6.717E+00	9.425E+00	5.679E-01	0.061	
	1325.50		3.055E+01	4.946E+01	8.628E+01	6.267E+00	0.354	
	1376.25		5.711E+01	4.472E+01	8.294E+01	6.061E+00	0.688	
	1509.49		7.005E-01	2.076E+01	3.362E+01	2.384E+00	0.021	
	1691.02		1.764E+00	4.245E+00	7.676E+00	5.010E-01	0.230	
SB-124	602.71		2.283E-02	5.569E-02	8.126E-02	4.455E-03	0.281	
	645.85		-4.919E-01	5.625E-01	8.334E-01	5.030E-02	-0.590	
	709.31		1.196E+00	3.037E+00	5.079E+00	2.954E-01	0.236	
	713.82		5.447E-01	1.969E+00	3.250E+00	3.335E-01	0.168	
	722.78		4.179E-02	4.904E-01	6.881E-01	4.328E-02	0.061	
	968.20	+	1.561E+01	5.813E+00	8.327E+00	7.061E-01	1.875	
	1045.16		-1.586E+00	2.941E+00	4.580E+00	3.477E-01	-0.346	
	1325.50		2.382E+00	3.857E+00	6.728E+00	4.887E-01	0.354	
	1368.21		-5.926E-01	2.124E+00	3.407E+00	4.321E-01	-0.174	
	1436.60		-4.352E+00	4.615E+00	6.298E+00	4.554E-01	-0.691	
	1691.02	*	3.037E-02	7.310E-02	1.322E-01	9.215E-03	0.230	
SB-125	427.89	*	-4.666E-03	1.021E-01	1.686E-01	1.025E-02	-0.028	
	463.38		4.552E-01	3.255E-01	5.823E-01	3.967E-02	0.782	
	600.56		-9.710E-02	2.158E-01	3.387E-01	2.183E-02	-0.287	
	635.90		-1.230E-01	3.121E-01	4.883E-01	3.105E-02	-0.252	
TE-125M	109.28	*	3.213E+00	1.074E+01	1.792E+01	1.599E+00	0.179	
I-126	388.63		-2.909E-02	2.452E-01	4.003E-01	2.315E-02	-0.073	
	666.33	*	1.027E-01	2.439E-01	3.586E-01	1.856E-02	0.286	
	753.82		1.097E+00	1.763E+00	2.999E+00	1.956E-01	0.366	
SB-126	223.80		-7.653E-01	4.827E+00	7.706E+00	4.255E-01	-0.099	
	278.60		4.895E+00	2.830E+00	5.139E+00	2.990E-01	0.953	
	296.50		1.116E+01	2.093E+00	4.015E+00	2.357E-01	2.780	
	414.70		-7.761E-02	9.363E-02	1.468E-01	8.543E-03	-0.529	
	415.30		-5.462E+00	7.623E+00	1.203E+01	7.004E-01	-0.454	
	555.20		-1.187E+00	4.404E+00	7.023E+00	3.995E-01	-0.169	
	573.80		-9.775E-01	1.247E+00	1.898E+00	1.066E-01	-0.515	
	593.00		-1.391E+00	1.115E+00	1.608E+00	8.893E-02	-0.865	
	656.30		-3.910E+00	4.871E+00	6.122E+00	3.152E-01	-0.639	
	666.33		4.302E-02	1.021E-01	1.502E-01	7.772E-03	0.286	
	675.00		-9.218E-01	2.418E+00	3.771E+00	1.999E-01	-0.244	
	695.00		-7.307E-02	9.819E-02	1.479E-01	8.281E-03	-0.494	
	697.00		1.751E-02	3.282E-01	5.321E-01	2.995E-02	0.033	
	720.50	*	4.367E-03	2.104E-01	2.928E-01	1.754E-02	0.015	
	856.80		-1.160E-01	5.530E-01	9.054E-01	7.533E-02	-0.128	
	989.30		-4.181E-01	1.539E+00	2.477E+00	2.046E-01	-0.169	
	1034.80		-2.107E+00	1.186E+01	1.890E+01	1.460E+00	-0.111	
	1213.00		3.898E+00	5.911E+00	1.024E+01	6.194E-01	0.381	
SB-127	61.10		1.090E+02	9.612E+01	1.490E+02	1.712E+01	0.731	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	252.40			2.075E+00	6.184E+00	9.986E+00	4.155E+00	0.208
	290.80			8.128E-01	3.143E+01	4.619E+01	4.404E+00	0.018
	411.60			2.708E+01	1.708E+01	3.024E+01	4.414E+00	0.896
	444.90			-3.121E+00	1.318E+01	2.141E+01	2.378E+00	-0.146
	473.00			-4.609E-01	2.170E+00	3.517E+00	4.038E-01	-0.131
	543.00			-1.744E+01	2.170E+01	3.285E+01	4.309E+00	-0.531
	603.60			1.951E+01	1.819E+01	2.823E+01	3.073E+00	0.691
	685.20	*		-1.679E+00	1.768E+00	2.569E+00	2.455E-01	-0.653
	698.50			6.311E+00	2.086E+01	3.452E+01	5.052E+00	0.183
	722.20			-2.482E+01	4.783E+01	6.173E+01	5.946E+00	-0.402
	783.80			4.410E+00	4.776E+00	8.568E+00	9.975E-01	0.515
XE-127	57.60			-1.638E+00	8.690E+00	1.399E+01	1.225E+00	-0.117
	145.22			-3.816E-02	7.974E-01	1.275E+00	6.877E-02	-0.030
	172.10			-5.081E-02	1.403E-01	2.243E-01	1.152E-02	-0.226
	202.84	*		-9.661E-02	6.227E-02	8.436E-02	4.528E-03	-1.145
	374.96			-1.526E-01	2.174E-01	3.450E-01	2.013E-02	-0.442
I-131	80.18			-6.587E+00	6.605E+00	9.161E+00	8.454E-01	-0.719
	284.30			-8.663E-01	1.770E+00	2.905E+00	1.886E-01	-0.298
	364.48	*		2.450E-02	1.403E-01	2.365E-01	1.547E-02	0.104
	636.97			-5.665E-02	1.930E+00	3.122E+00	1.887E-01	-0.018
	722.89			1.580E+00	1.011E+01	1.431E+01	8.754E-01	0.110
TE-132	49.72			-2.021E+01	3.737E+01	6.141E+01	6.712E+00	-0.329
	111.76			-3.811E+01	4.131E+01	6.533E+01	6.311E+00	-0.583
	116.30			-4.291E+00	3.842E+01	6.299E+01	5.930E+00	-0.068
	228.16	*		-4.785E-02	9.441E-01	1.514E+00	2.189E-01	-0.032
BA-133	53.15			9.680E-01	5.313E+00	8.991E+00	7.931E-01	0.108
	79.62			-2.437E-02	1.689E+00	2.471E+00	3.836E-01	-0.010
	81.00			-1.631E-01	1.582E-01	1.791E-01	2.904E-02	-0.910
	276.40			4.340E-01	4.378E-01	7.093E-01	9.199E-02	0.612
	302.84			-1.348E-01	1.767E-01	2.417E-01	2.828E-02	-0.558
	356.01	*		-8.196E-03	4.911E-02	7.010E-02	8.134E-03	-0.117
	383.85			-2.404E-02	3.535E-01	5.857E-01	6.369E-02	-0.041
I-133	510.53	+		3.239E+00	3.535E-01	Half-Life	too short	
	529.87	*		-5.982E-03	3.535E-01	Half-Life	too short	
	706.58			-6.740E-01	3.535E-01	Half-Life	too short	
	856.28			-7.427E-01	3.535E-01	Half-Life	too short	
	875.33			-1.331E-02	3.535E-01	Half-Life	too short	
	1236.41			1.233E+00	3.535E-01	Half-Life	too short	
	1298.22			1.408E-02	3.535E-01	Half-Life	too short	
CS-134	475.35			-6.333E-01	2.138E+00	3.443E+00	2.015E-01	-0.184
	563.23			8.796E-02	4.221E-01	7.003E-01	4.050E-02	0.126
	569.32			2.111E-01	2.191E-01	3.844E-01	2.234E-02	0.549
	604.70			1.693E-02	4.824E-02	7.023E-02	3.865E-03	0.241
	795.84	*		9.457E-02	5.336E-02	1.009E-01	7.372E-03	0.937
	801.93			-2.404E-01	4.532E-01	7.235E-01	5.348E-02	-0.332
	1038.57			1.541E+00	4.662E+00	7.940E+00	6.095E-01	0.194
	1167.94			4.431E-01	2.983E+00	4.959E+00	2.843E-01	0.089
	1365.15			3.416E-01	1.402E+00	2.355E+00	1.831E-01	0.145
I-135	288.45			1.926E+11	1.402E+00	Half-Life	too short	



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		417.63		-1.140E+11	1.402E+00	Half-Life	too short	
		546.56		2.456E+11	1.402E+00	Half-Life	too short	
		836.80		4.537E+10	1.402E+00	Half-Life	too short	
		1038.76		8.744E+10	1.402E+00	Half-Life	too short	
		1124.00		-1.313E+11	1.402E+00	Half-Life	too short	
		1131.51		6.863E+10	1.402E+00	Half-Life	too short	
		1260.41	*	5.977E+09	1.402E+00	Half-Life	too short	
		1457.56		1.076E+13	1.402E+00	Half-Life	too short	
		1678.03		-2.906E+10	1.402E+00	Half-Life	too short	
		1706.46		-6.876E+10	1.402E+00	Half-Life	too short	
		1791.20		-5.253E+10	1.402E+00	Half-Life	too short	
CS-136		66.91		-1.268E+00	1.388E+00	1.602E+00	2.479E-01	-0.792
	+	86.29		2.220E+00	1.897E+00	2.472E+00	3.347E-01	0.898
		153.22		4.231E-01	7.621E-01	1.273E+00	8.665E-02	0.332
		163.89		3.153E-01	1.205E+00	1.986E+00	1.336E-01	0.159
		176.55		1.116E-02	4.467E-01	7.264E-01	4.331E-02	0.015
		273.65		-1.182E+00	6.536E-01	7.685E-01	5.083E-02	-1.537
		340.57		4.191E-02	1.694E-01	2.511E-01	1.574E-02	0.167
		818.51		1.017E-01	8.588E-02	1.583E-01	1.208E-02	0.643
		1048.07	*	1.055E-01	1.172E-01	2.118E-01	1.688E-02	0.498
		1235.34		8.347E-02	7.980E-01	1.314E+00	1.351E-01	0.064
CE-139		165.85	*	1.315E-02	3.330E-02	5.515E-02	2.812E-03	0.239
BA-140		162.64		-7.995E-01	8.617E-01	1.341E+00	7.974E-02	-0.596
		304.84		1.171E-01	1.561E+00	2.299E+00	6.278E-01	0.051
		423.70		5.589E-01	2.226E+00	3.738E+00	1.188E+00	0.150
		537.32	*	-6.401E-02	2.884E-01	4.618E-01	1.501E-01	-0.139
LA-140		328.77		3.670E-01	4.019E-01	6.244E-01	4.117E-02	0.588
		432.53		-1.032E+00	2.369E+00	3.796E+00	2.447E-01	-0.272
		487.03		1.552E-02	1.675E-01	2.775E-01	1.833E-02	0.056
		751.79		1.594E+00	1.972E+00	3.415E+00	2.620E-01	0.467
		815.85		-7.985E-02	3.720E-01	6.101E-01	5.303E-02	-0.131
		867.82		-1.237E+00	1.542E+00	2.382E+00	2.140E-01	-0.519
		919.63		1.211E+00	3.471E+00	5.954E+00	6.490E-01	0.203
		925.24		2.984E-01	1.412E+00	2.393E+00	2.252E-01	0.125
		1596.49	*	-3.039E-02	9.550E-02	1.507E-01	1.034E-02	-0.202
CE-141		145.44	*	1.524E-02	7.003E-02	1.156E-01	6.518E-03	0.132
CE-143		57.37		-1.581E-03	7.003E-02	Half-Life	too short	
		231.56		3.621E-04	7.003E-02	Half-Life	too short	
		293.26	*	1.349E-03	7.003E-02	Half-Life	too short	
	+	350.59		5.069E-02	7.003E-02	Half-Life	too short	
		490.36		1.658E-04	7.003E-02	Half-Life	too short	
		664.57		2.057E-03	7.003E-02	Half-Life	too short	
		721.93		-9.401E-04	7.003E-02	Half-Life	too short	
CE-144		80.11		-2.705E+00	2.817E+00	3.916E+00	3.589E-01	-0.691
		133.54	*	9.828E-02	2.262E-01	3.771E-01	5.325E-02	0.261
PM-144		476.78		1.634E-03	7.375E-02	1.217E-01	8.501E-03	0.013
		618.01		-2.206E-02	3.481E-02	5.320E-02	3.069E-03	-0.415
		696.49	*	1.358E-03	4.093E-02	6.626E-02	3.728E-03	0.020
		778.57		6.158E-01	2.401E+00	4.123E+00	2.860E-01	0.149

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PR-144	696.49	*		9.209E-02	2.775E+00	4.492E+00	2.525E-01	0.020
	1489.15			-2.291E+00	1.271E+01	1.979E+01	1.412E+00	-0.116
PM-146	453.90	*		3.856E-02	4.985E-02	8.646E-02	7.488E-03	0.446
	633.02			1.771E-01	1.598E+00	2.615E+00	9.611E-01	0.068
	735.90			-1.422E-01	1.654E-01	2.334E-01	6.530E-02	-0.609
	747.13			-3.021E-02	1.009E-01	1.571E-01	2.011E-02	-0.192
ND-147	91.11			1.228E+00	5.335E-01	6.732E-01	6.619E-02	1.824
	319.41			3.601E+00	4.020E+00	6.904E+00	4.079E-01	0.522
	439.89			9.247E-01	6.985E+00	1.165E+01	6.822E-01	0.079
	531.02	*		1.804E-01	6.577E-01	1.101E+00	1.486E-01	0.164
PM-149	285.90	*		2.345E+01	1.374E+02	2.333E+02	3.312E+01	0.101
EU-152	121.78			7.189E-03	8.355E-02	1.379E-01	1.060E-02	0.052
	244.69			2.328E-01	4.222E-01	6.145E-01	3.476E-02	0.379
	344.27	*		2.940E-02	1.293E-01	1.813E-01	1.202E-02	0.162
	443.98			-5.443E-01	1.102E+00	1.758E+00	1.029E-01	-0.310
	778.89			1.064E-01	2.802E-01	4.861E-01	3.373E-02	0.219
	867.32			-6.623E-01	8.597E-01	1.332E+00	1.134E-01	-0.497
	964.01			8.469E-01	4.059E-01	7.033E-01	5.993E-02	1.204
	1085.78			3.171E-01	4.615E-01	8.111E-01	5.707E-02	0.391
	1112.02			1.031E-02	4.433E-01	6.276E-01	4.172E-02	0.016
	1407.95			9.750E-03	2.174E-01	3.541E-01	2.575E-02	0.028
GD-153	69.67			8.440E-01	2.278E+00	3.407E+00	2.977E-01	0.248
	83.37			-2.338E+00	2.114E+01	2.867E+01	2.692E+00	-0.082
	97.43	*		1.223E-01	9.614E-02	1.490E-01	1.217E-02	0.821
	103.18			-1.064E-01	1.166E-01	1.851E-01	1.383E-02	-0.575
EU-154	123.07			-3.268E-02	5.862E-02	9.400E-02	8.873E-03	-0.348
	247.94			3.107E-02	4.452E-01	6.910E-01	6.541E-02	0.045
	591.81			-3.268E-01	6.850E-01	1.067E+00	1.027E-01	-0.306
	723.30			9.099E-02	2.358E-01	3.429E-01	2.494E-02	0.265
	756.87			-3.120E-01	8.958E-01	1.388E+00	1.471E-01	-0.225
	873.19			9.786E-02	3.199E-01	5.493E-01	6.729E-02	0.178
	996.32			7.839E-02	4.125E-01	6.954E-01	1.221E-01	0.113
	1004.76			-1.381E-01	2.433E-01	3.781E-01	4.253E-02	-0.365
	1274.45	*		-3.330E-03	1.359E-01	2.208E-01	2.192E-02	-0.015
EU-155	48.70			5.363E-01	3.892E+00	6.588E+00	5.314E-01	0.081
	60.01			-3.702E+00	7.205E+00	1.033E+01	8.973E-01	-0.358
	+ 86.54			1.952E-01	1.657E-01	2.148E-01	2.088E-02	0.909
	105.31	*		8.631E-02	1.216E-01	2.061E-01	1.520E-02	0.419
TB-160	+ 86.79			5.258E-01	4.464E-01	5.721E-01	5.528E-02	0.919
	197.04			-8.068E-02	6.593E-01	1.061E+00	5.646E-02	-0.076
	215.65			-4.633E-01	9.792E-01	1.332E+00	7.278E-02	-0.348
	+ 298.57			2.769E-01	1.575E-01	2.359E-01	1.386E-02	1.174
	879.36	*		-2.959E-02	1.445E-01	2.357E-01	2.061E-02	-0.126
	962.29			6.366E-01	7.380E-01	1.158E+00	9.886E-02	0.550
	966.15			1.339E+00	3.738E-01	6.667E-01	5.667E-02	2.009
	1177.93			-1.373E-01	4.339E-01	6.883E-01	3.916E-02	-0.199
	1271.85			4.926E-01	8.142E-01	1.417E+00	9.457E-02	0.348
HO-166M	80.57			-3.786E-01	3.856E-01	4.948E-01	4.549E-02	-0.765
	+ 184.41			9.353E-02	5.759E-02	7.631E-02	3.988E-03	1.226

----- Non-Identified Nuclides -----

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	280.46			-7.320E-02	9.216E-02	1.489E-01	8.671E-03	-0.492
	410.95			4.932E-01	2.866E-01	5.209E-01	3.028E-02	0.947
	711.68	*		-1.430E-02	6.997E-02	1.106E-01	6.476E-03	-0.129
	752.31			2.601E-01	3.075E-01	5.336E-01	3.467E-02	0.487
	810.29			-7.198E-02	6.444E-02	9.577E-02	7.164E-03	-0.752
TM-171	51.35			-3.118E+01	4.715E+01	7.705E+01	6.697E+00	-0.405
	52.39			-1.313E+01	2.361E+01	3.875E+01	3.404E+00	-0.339
	59.40			1.324E+01	3.779E+01	5.689E+01	4.942E+00	0.233
	66.72	*		-4.612E+01	4.307E+01	5.510E+01	4.792E+00	-0.837
LU-176	88.36			3.842E-01	3.262E-01	4.363E-01	4.229E-02	0.880
	201.83			-2.052E-02	3.311E-02	5.192E-02	2.783E-03	-0.395
	306.84	*		7.349E-03	2.919E-02	4.548E-02	2.679E-03	0.162
	401.10			1.368E+00	7.506E+00	1.261E+01	7.304E-01	0.108
LU-177	112.95			-8.036E-01	2.051E+00	3.327E+00	2.182E-01	-0.242
	208.36	*		3.450E+00	2.317E+00	2.344E+00	1.268E-01	1.472
LU-177M	52.97			-7.493E-01	2.451E+00	4.069E+00	3.586E-01	-0.184
	54.07			9.346E-02	1.256E+00	2.116E+00	1.870E-01	0.044
	61.30			1.974E+00	2.169E+00	3.341E+00	2.902E-01	0.591
	121.62			2.908E-01	4.212E-01	7.120E-01	4.209E-02	0.408
	147.16			-2.492E-01	7.263E-01	1.170E+00	6.275E-02	-0.213
	171.86			-1.622E-01	5.593E-01	8.975E-01	4.608E-02	-0.181
	218.09			2.297E-01	9.798E-01	1.597E+00	8.753E-02	0.144
	268.79	+		2.315E+00	1.476E+00	1.688E+00	9.752E-02	1.372
	319.02			1.950E-01	2.945E-01	4.998E-01	2.951E-02	0.390
	367.43			6.291E-02	1.017E+00	1.703E+00	9.971E-02	0.037
	413.65	*		-8.866E-02	2.129E-01	3.438E-01	2.001E-02	-0.258
HF-181	56.28			7.131E-01	1.339E+00	2.292E+00	2.018E-01	0.311
	57.53			-4.259E-01	7.415E-01	1.172E+00	1.027E-01	-0.363
	65.20			4.254E-02	1.326E+00	1.950E+00	1.694E-01	0.022
	133.02			-5.073E-02	7.513E-02	1.197E-01	6.717E-03	-0.424
	136.25			-6.884E-02	5.217E-01	8.503E-01	4.719E-02	-0.081
	345.85			1.450E-01	2.391E-01	3.653E-01	2.155E-02	0.397
	482.03	*		7.432E-03	5.058E-02	8.413E-02	4.921E-03	0.088
W-181	56.28			2.755E-01	5.191E-01	8.881E-01	7.820E-02	0.310
	57.53			-1.655E-01	2.876E-01	4.547E-01	3.985E-02	-0.364
	65.20	*		1.637E-02	5.102E-01	7.502E-01	6.518E-02	0.022
TA-182	67.75			-2.741E-02	2.112E-01	2.240E-01	1.950E-02	-0.122
	100.10			8.607E-02	1.993E-01	3.247E-01	2.541E-02	0.265
	152.43			2.907E-01	3.771E-01	6.351E-01	3.356E-02	0.458
	222.10			4.730E-03	3.965E-01	6.387E-01	3.520E-02	0.007
	1001.68			-1.202E+00	2.414E+00	3.730E+00	3.028E-01	-0.322
	1121.28			6.337E-01	2.224E-01	4.026E-01	2.618E-02	1.574
	1189.05			-2.554E-01	3.900E-01	5.984E-01	3.472E-02	-0.427
	1221.42	*		2.294E-01	2.404E-01	4.255E-01	2.612E-02	0.539
	1230.97			2.513E-01	6.147E-01	1.038E+00	6.477E-02	0.242
RE-183	57.98			-8.258E-02	2.911E-01	4.470E-01	3.909E-02	-0.185
	59.32			6.021E-02	1.572E-01	2.370E-01	2.059E-02	0.254
	67.20			-1.746E-01	3.324E-01	3.985E-01	3.467E-02	-0.438
	162.32	*		-1.626E-01	1.226E-01	1.871E-01	9.625E-03	-0.869

----- Non-Identified Nuclides -----

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RE-184	+	208.81		2.844E+00	1.910E+00	1.953E+00	1.057E-01	1.457
		291.72		-5.969E-02	1.225E+00	1.791E+00	1.049E-01	-0.033
		57.98		-3.027E-01	1.067E+00	1.638E+00	1.433E-01	-0.185
		59.32		2.205E-01	5.756E-01	8.678E-01	7.542E-02	0.254
		67.20		-6.395E-01	1.218E+00	1.460E+00	1.270E-01	-0.438
		161.27		-4.367E-01	3.879E-01	5.980E-01	3.085E-02	-0.730
		216.55		2.057E-02	3.216E-01	4.805E-01	2.629E-02	0.043
		252.85	*	4.972E-02	2.810E-01	4.543E-01	2.590E-02	0.109
		318.01		-4.023E-01	5.052E-01	8.087E-01	4.775E-02	-0.498
		792.07		1.264E+00	1.130E+00	2.056E+00	1.473E-01	0.614
OS-185		903.28		-3.866E-01	1.285E+00	1.761E+00	1.596E-01	-0.220
		920.93		1.050E-02	5.356E-01	8.922E-01	7.958E-02	0.012
		59.72		-2.537E-01	4.332E-01	6.184E-01	5.370E-02	-0.410
		61.14		2.664E-01	2.331E-01	3.627E-01	3.151E-02	0.734
		69.30		1.673E-01	4.059E-01	6.084E-01	5.311E-02	0.275
		592.07		-1.632E+00	2.789E+00	4.301E+00	2.380E-01	-0.380
		646.12	*	-4.870E-02	4.826E-02	7.052E-02	3.680E-03	-0.691
		717.42		3.001E-01	1.081E+00	1.784E+00	1.060E-01	0.168
		874.81		-1.718E-01	6.264E-01	1.015E+00	8.788E-02	-0.169
		880.27		2.191E-01	7.922E-01	1.359E+00	1.191E-01	0.161
RE-188		155.03	*	2.729E-02	1.965E-01	3.224E-01	1.692E-02	0.085
		477.96		2.834E-01	3.531E+00	5.849E+00	3.423E-01	0.048
		633.10		3.177E-01	3.252E+00	5.322E+00	2.823E-01	0.060
W-188	+	63.58		1.403E+02	8.413E+01	1.181E+02	1.025E+01	1.189
		227.08		7.046E-01	1.426E+01	2.300E+01	1.275E+00	0.031
IR-192		290.67	*	1.807E-01	9.290E+00	1.365E+01	7.993E-01	0.013
	+	295.96		1.083E+00	1.819E-01	3.055E-01	1.821E-02	3.546
		308.46		4.818E-02	1.055E-01	1.815E-01	1.082E-02	0.265
		316.51	*	-2.910E-02	3.848E-02	6.173E-02	3.662E-03	-0.471
		468.07		-4.728E-02	7.299E-02	1.143E-01	7.697E-03	-0.414
AU-195		604.41		1.030E-01	6.496E-01	9.279E-01	1.038E-01	0.111
		612.46		6.378E-01	8.478E-01	1.297E+00	9.460E-02	0.492
		65.12		2.095E-02	2.366E-01	3.490E-01	3.032E-02	0.060
		66.83		-1.449E-01	1.427E-01	1.834E-01	1.595E-02	-0.790
	+	75.70		1.232E+00	3.196E-01	5.602E-01	5.003E-02	2.200
TL-200		98.88	*	3.473E-01	2.719E-01	4.219E-01	3.367E-02	0.823
		129.76		3.556E+00	3.239E+00	5.535E+00	3.146E-01	0.643
		367.94	*	-1.701E-04	3.239E+00	Half-Life too short		
		579.30		2.045E-02	3.239E+00	Half-Life too short		
TL-201		828.27		-1.217E-03	3.239E+00	Half-Life too short		
		1205.75		-1.169E-03	3.239E+00	Half-Life too short		
		68.90		3.181E+00	8.546E+00	1.197E+01	1.044E+00	0.266
		70.82		4.741E+00	4.565E+00	7.006E+00	6.139E-01	0.677
TL-202		80.30		-8.575E+00	8.192E+00	1.133E+01	1.039E+00	-0.757
		135.34		-1.274E+01	3.494E+01	5.638E+01	3.139E+00	-0.226
		167.43	*	6.669E+00	9.835E+00	1.647E+01	8.404E-01	0.405
		68.90		2.441E-01	6.558E-01	9.181E-01	8.009E-02	0.266
		70.82		3.628E-01	3.493E-01	5.362E-01	4.698E-02	0.677
		80.30		-6.564E-01	6.271E-01	8.669E-01	7.957E-02	-0.757

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203	439.56	*		6.111E-02	8.093E-02	1.406E-01	8.228E-03	0.435
	70.83			1.517E+00	1.465E+00	2.235E+00	3.062E-01	0.679
	72.87			2.854E+00	8.843E-01	1.469E+00	1.959E-01	1.943
	82.60			-6.454E-01	2.089E+00	2.153E+00	3.058E-01	-0.300
BI-207	279.20	*		4.914E-02	4.515E-02	7.995E-02	4.939E-03	0.615
	72.80			7.683E-01	2.392E-01	4.201E-01	3.704E-02	1.829
	74.97		+	6.813E-01	1.767E-01	2.807E-01	2.498E-02	2.427
	84.90			2.129E-01	2.528E-01	3.813E-01	3.625E-02	0.558
	569.67			2.728E-02	3.458E-02	5.989E-02	3.374E-03	0.455
TL-207	1063.62	*		5.007E-02	6.109E-02	1.086E-01	7.978E-03	0.461
	1770.23			-1.662E+00	6.691E-01	5.304E-01	3.284E-02	-3.134
	81.07			-3.596E-01	3.456E-01	3.950E-01	3.645E-02	-0.910
	83.78			3.095E-02	1.651E-01	2.429E-01	2.287E-02	0.127
	94.90			5.561E-01	3.045E-01	4.766E-01	4.066E-02	1.167
	122.32			-5.112E-01	1.969E+00	3.202E+00	2.166E-01	-0.160
	144.24			1.679E-02	7.734E-01	1.241E+00	8.591E-02	0.014
	154.21			2.139E-01	4.510E-01	7.502E-01	4.931E-02	0.285
	269.46		+	5.399E-01	3.443E-01	3.971E-01	2.401E-02	1.359
	323.87	*		-6.560E-02	8.477E-01	1.229E+00	2.034E-01	-0.053
PO-209	338.28		+	5.766E+00	2.299E+00	2.722E+00	2.883E-01	2.118
	445.03			-4.221E-01	2.611E+00	4.265E+00	4.393E-01	-0.099
	260.50			6.221E+00	1.112E+01	1.833E+01	1.052E+00	0.339
	262.80			-4.620E+01	3.777E+01	4.739E+01	2.726E+00	-0.975
	896.60	*		7.441E+00	8.644E+00	1.547E+01	1.404E+00	0.481
BI-210	46.50	*		-5.090E+00	6.334E+00	9.972E+00	7.765E-01	-0.510
PB-210	46.50	*		-5.090E+00	6.334E+00	9.972E+00	7.765E-01	-0.510
PO-210	46.50	*		-5.090E+00	6.331E+00	9.972E+00	6.691E-01	-0.510
PB-211	404.84	*		-8.289E-01	1.179E+00	1.669E+00	1.041E+00	-0.497
BI-212	427.08			-3.178E-01	2.301E+00	3.760E+00	2.324E+00	-0.085
	831.96			-6.814E-02	1.520E+00	2.532E+00	1.584E+00	-0.027
	727.18	*	+	1.355E+00	4.781E-01	7.684E-01	6.099E-02	1.763
	785.46			-2.681E-01	1.944E+00	3.224E+00	2.273E-01	-0.083
	1620.62			2.334E+00	1.309E+00	2.772E+00	1.880E-01	0.842
PO-215	81.07			-3.596E-01	3.456E-01	3.950E-01	3.645E-02	-0.910
	83.78			3.095E-02	1.651E-01	2.429E-01	2.287E-02	0.127
	94.90			5.561E-01	3.045E-01	4.766E-01	4.066E-02	1.167
	122.32			-5.112E-01	1.969E+00	3.202E+00	2.166E-01	-0.160
	144.24			1.679E-02	7.734E-01	1.241E+00	8.591E-02	0.014
	154.21			2.139E-01	4.510E-01	7.502E-01	4.931E-02	0.285
	269.46		+	5.399E-01	3.443E-01	3.971E-01	2.401E-02	1.359
	323.87	*		-6.560E-02	8.477E-01	1.229E+00	2.034E-01	-0.053
	338.28		+	5.766E+00	2.299E+00	2.722E+00	2.883E-01	2.118
	445.03			-4.221E-01	2.611E+00	4.265E+00	4.393E-01	-0.099
RN-219	271.23			4.204E-01	3.203E-01	4.865E-01	3.939E-02	0.864
	401.81	*		4.455E-02	4.600E-01	7.685E-01	1.045E-01	0.058
RN-220	549.76	*		-8.300E+00	2.940E+01	4.694E+01	2.679E+00	-0.177
RA-223	81.07			-3.596E-01	3.456E-01	3.950E-01	3.645E-02	-0.910
	83.78			3.095E-02	1.651E-01	2.429E-01	2.287E-02	0.127
	94.90			5.561E-01	3.045E-01	4.766E-01	4.066E-02	1.167

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-5.112E-01	1.969E+00	3.202E+00	2.166E-01	-0.160
		144.24		1.679E-02	7.734E-01	1.241E+00	8.591E-02	0.014
		154.21		2.139E-01	4.510E-01	7.502E-01	4.931E-02	0.285
	+	269.46		5.399E-01	3.443E-01	3.971E-01	2.401E-02	1.359
		323.87	*	-6.560E-02	8.477E-01	1.229E+00	2.034E-01	-0.053
	+	338.28		5.766E+00	2.299E+00	2.722E+00	2.883E-01	2.118
		445.03		-4.221E-01	2.611E+00	4.265E+00	4.393E-01	-0.099
		79.80		-4.639E-01	2.128E+00	3.079E+00	6.687E-01	-0.151
		236.00		2.427E+00	4.469E-01	6.789E-01	7.023E-02	3.575
		256.20	*	-9.590E-02	4.646E-01	7.351E-01	1.024E-01	-0.130
		286.10		3.094E-01	1.717E+00	2.918E+00	3.380E-01	0.106
	+	299.80		3.496E+00	2.058E+00	2.978E+00	4.858E-01	1.174
TH-227		304.40		-4.101E-01	2.205E+00	3.176E+00	5.503E-01	-0.129
		334.20		-1.087E+00	3.027E+00	4.275E+00	7.853E-01	-0.254
		79.80		-4.639E-01	2.128E+00	3.079E+00	6.771E-01	-0.151
	+	94.00		1.103E+01	4.418E+00	4.516E+00	9.844E-01	2.442
		236.00		2.427E+00	4.285E-01	6.789E-01	6.064E-02	3.575
		256.20	*	-9.590E-02	4.647E-01	7.351E-01	1.240E-01	-0.130
		286.10		3.094E-01	1.744E+00	2.918E+00	2.923E+00	0.106
	+	299.80		3.496E+00	2.058E+00	2.978E+00	4.858E-01	1.174
		304.40		-4.101E-01	2.205E+00	3.176E+00	5.503E-01	-0.129
		334.20		-1.087E+00	3.027E+00	4.275E+00	7.853E-01	-0.254
		85.43		4.462E-01	2.573E-01	3.979E-01	3.799E-02	1.121
	+	88.47		2.212E-01	1.878E-01	2.497E-01	2.414E-02	0.886
TH-229		100.00		9.584E-02	2.061E-01	3.362E-01	2.635E-02	0.285
		193.63	*	2.659E-03	5.650E-01	9.148E-01	4.846E-02	0.003
		210.97		6.190E-01	8.709E-01	1.450E+00	7.871E-02	0.427
		283.67	*	-6.567E-01	1.670E+00	2.753E+00	3.798E-01	-0.239
PA-231		301.29		1.136E+00	6.958E-01	1.125E+00	1.180E-01	1.010
		81.07		-3.596E-01	3.456E-01	3.950E-01	3.645E-02	-0.910
TH-231		83.78		3.095E-02	1.651E-01	2.429E-01	2.287E-02	0.127
		94.90		5.561E-01	3.045E-01	4.766E-01	4.066E-02	1.167
		122.32		-5.112E-01	1.969E+00	3.202E+00	2.166E-01	-0.160
		144.24		1.679E-02	7.734E-01	1.241E+00	8.591E-02	0.014
U-231		154.21		2.139E-01	4.510E-01	7.502E-01	4.931E-02	0.285
	+	269.46		5.399E-01	3.443E-01	3.971E-01	2.401E-02	1.359
		323.87	*	-6.560E-02	8.477E-01	1.229E+00	2.034E-01	-0.053
	+	338.28		5.766E+00	2.299E+00	2.722E+00	2.883E-01	2.118
		445.03		-4.221E-01	2.611E+00	4.265E+00	4.393E-01	-0.099
		84.21		4.071E+00	8.212E+00	1.223E+01	1.156E+00	0.333
	+	92.29		1.269E+01	4.406E+00	5.564E+00	4.980E-01	2.281
		95.87	*	8.010E-01	1.560E+00	2.330E+00	1.955E-01	0.344
		108.00		6.045E-01	2.739E+00	4.559E+00	3.186E-01	0.133
	+	75.28		1.988E+01	5.740E+00	8.714E+00	1.352E+00	2.281
	+	86.59		3.171E+00	2.810E+00	3.481E+00	9.456E-01	0.911
	+	300.12		9.746E-01	5.666E-01	8.274E-01	1.115E-01	1.178
PA-233		311.98	*	4.636E-02	6.979E-02	1.213E-01	7.586E-03	0.382
		340.50		4.390E-01	8.008E-01	1.203E+00	2.767E-01	0.365
		398.62		-6.573E-01	2.343E+00	3.810E+00	9.851E-01	-0.173

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-1.899E+00	1.944E+00	2.946E+00	6.068E-01	-0.645
		63.00		4.032E+00	2.473E+00	3.495E+00	5.430E-01	1.154
		94.67		6.083E-01	2.313E-01	3.592E-01	4.442E-02	1.693
		98.44		9.137E-02	1.241E-01	1.720E-01	9.582E-02	0.531
		99.86		2.665E-01	5.229E-01	8.546E-01	6.714E-02	0.312
		111.00		-4.288E-02	2.094E-01	3.425E-01	3.704E-02	-0.125
		131.20		-6.837E-02	1.199E-01	1.920E-01	1.085E-02	-0.356
		152.70		2.039E-01	3.643E-01	6.064E-01	9.476E-02	0.336
		186.00		3.367E+00	2.306E+00	2.750E+00	8.374E-01	1.224
		226.40		-2.594E-01	4.584E-01	7.143E-01	8.166E-02	-0.363
		227.20		2.087E-02	4.772E-01	7.693E-01	4.266E-02	0.027
		248.90		-3.898E-01	9.811E-01	1.533E+00	3.288E-01	-0.254
		293.70		6.760E+00	1.520E+00	1.877E+00	3.023E-01	3.601
		369.80		-7.706E-02	9.344E-01	1.549E+00	3.228E-01	-0.050
		568.70		8.117E-01	1.139E+00	1.961E+00	1.106E-01	0.414
		569.50		2.420E-01	3.068E-01	5.314E-01	2.994E-02	0.455
		574.00		-7.526E-01	1.644E+00	2.576E+00	1.447E-01	-0.292
		699.00		6.002E-01	8.355E-01	1.420E+00	2.547E-01	0.423
		706.10		-3.755E-01	1.154E+00	1.783E+00	7.867E-01	-0.211
		733.00		2.136E-01	4.471E-01	6.607E-01	1.412E-01	0.323
		742.81		6.557E-01	1.546E+00	2.491E+00	1.668E+00	0.263
		796.30		1.644E+00	1.115E+00	1.933E+00	5.151E-01	0.850
		805.60		8.672E-01	1.186E+00	2.057E+00	6.240E-01	0.421
		819.60		1.426E+00	1.487E+00	2.528E+00	9.560E-01	0.564
		826.30		-1.174E-01	8.969E-01	1.479E+00	6.596E-01	-0.079
		831.60		-1.637E-01	7.820E-01	1.283E+00	3.803E-01	-0.128
		876.40		-2.960E-01	9.249E-01	1.405E+00	1.444E+00	-0.211
		880.51		9.082E-02	2.825E-01	4.868E-01	4.268E-02	0.187
		883.24		-1.888E-01	3.240E-01	4.629E-01	3.113E-01	-0.408
		899.00		-7.312E-03	9.445E-01	1.571E+00	6.885E-01	-0.005
		925.00		1.810E-01	1.422E+00	2.391E+00	2.124E-01	0.076
		926.50		-4.672E-03	2.047E-01	3.394E-01	8.609E-02	-0.014
		946.00	*	6.336E-02	3.533E-01	5.962E-01	1.121E-01	0.106
		949.00		-3.103E-01	5.300E-01	8.289E-01	7.184E-02	-0.374
		980.50		-5.452E-01	8.020E-01	1.228E+00	1.025E-01	-0.444
		1394.10		-1.060E-01	1.260E+00	2.010E+00	1.305E+00	-0.053
PA-234M	+	766.42		8.900E+00	1.483E+01	2.385E+01	1.203E+01	0.373
		1001.03	*	1.900E+00	5.197E+00	8.751E+00	8.350E-01	0.217
U-235	+	89.95		3.837E-01	2.069E+00	2.224E+00	6.913E-01	0.172
		93.35		3.430E+00	1.502E+00	1.475E+00	4.140E-01	2.326
		105.00		3.894E-01	1.199E+00	1.996E+00	5.887E-01	0.195
		143.76	*	1.748E-02	2.369E-01	3.808E-01	6.158E-02	0.046
		163.35		-1.726E-01	5.036E-01	8.056E-01	1.432E-01	-0.214
		185.71		1.247E-01	7.678E-02	1.015E-01	5.316E-03	1.228
NP-236	+	205.31		1.959E-01	6.359E-01	9.146E-01	1.633E-01	0.214
		94.67		4.639E-01	1.706E-01	2.727E-01	2.336E-02	1.701
		98.44		6.908E-02	8.577E-02	1.300E-01	1.045E-02	0.531
		111.00		-3.243E-02	1.584E-01	2.591E-01	1.741E-02	-0.125
		160.31	*	1.450E-02	8.556E-02	1.405E-01	7.268E-03	0.103

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.458E-01	1.813E-01	2.887E-01	2.279E-02	0.505
		117.00	*	-1.370E-01	2.196E-01	3.523E-01	2.199E-02	-0.389
	+	209.75		2.223E+00	1.493E+00	1.549E+00	8.394E-02	1.436
		228.18		-1.164E-02	2.535E-01	4.067E-01	2.258E-02	-0.029
		277.60		2.094E-01	2.069E-01	3.482E-01	2.025E-02	0.601
AM-241		334.30		-4.883E-01	1.718E+00	2.447E+00	1.446E-01	-0.200
		59.54	*	1.310E-02	2.203E-01	3.264E-01	3.037E-02	0.040
CM-243		99.55		1.500E-01	1.866E-01	2.971E-01	2.345E-02	0.505
		103.76	*	2.814E-02	1.065E-01	1.778E-01	1.318E-02	0.158
		117.00		-1.410E-01	2.260E-01	3.624E-01	2.262E-02	-0.389
	+	209.75		2.192E+00	1.472E+00	1.527E+00	8.276E-02	1.436
		228.18		-1.176E-02	2.562E-01	4.110E-01	2.282E-02	-0.029
AM-246		277.60		2.111E-01	2.086E-01	3.511E-01	2.041E-02	0.601
		798.80		-3.420E-01	1.663E-01	2.241E-01	1.631E-02	-1.526
		1036.00		-4.125E-03	3.730E-01	6.039E-01	4.655E-02	-0.007
		1062.04		2.495E-01	2.675E-01	4.798E-01	3.535E-02	0.520
		1078.86	*	3.431E-02	1.521E-01	2.568E-01	1.832E-02	0.134
CM-247		278.00		1.075E+00	8.102E-01	1.449E+00	8.425E-02	0.742
		287.40		5.466E-01	1.385E+00	2.378E+00	1.390E-01	0.230
CF-249		402.60	*	1.634E-02	4.053E-02	6.902E-02	4.001E-03	0.237
		252.85		1.859E-01	1.050E+00	1.698E+00	9.683E-02	0.109
		333.44		-4.007E-02	2.513E-01	3.153E-01	1.863E-02	-0.127
CF-251		387.95	*	4.497E-03	4.586E-02	7.591E-02	4.392E-03	0.059
		176.60	*	4.588E-03	1.467E-01	2.387E-01	1.233E-02	0.019
		227.00		-5.543E-03	4.249E-01	6.831E-01	3.787E-02	-0.008
		285.00		-2.548E-01	1.921E+00	3.215E+00	1.877E-01	-0.079



## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229005      *
* Acquisition date   : 22-JAN-2010 13:05:11 Detector SN#      :              *
* Detector ID        : GAM23                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00           Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:01.61           Half life ratio : 8.000        *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G244229005           Analyst initials: MXR1            *
* Batch Number       : 941239               Sample Quantity : 1.2128E+02 GRAM    *
* Recovery           : 1.00000              Carrier Weight  : 0.00000          *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00 MS Isotope         :
* MSD DPM             : 0.000                MSD Isotope      :
* LCS DPM             : 0.000                LCS Isotope       :
* LCSD DPM            : 0.000                LCSD Isotope      :
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.472E+01	2.553E+00	5.597E-01	0.000E+00
CD-109	1.650E+00	1.373E+00	1.698E+00	0.000E+00
SN-126	1.620E-01	1.348E-01	1.820E-01	0.000E+00
CS-135	4.589E-01	2.876E-01	2.740E-01	0.000E+00
BA-137M	1.377E-01	7.883E-02	6.048E-02	0.000E+00
CS-137	1.456E-01	8.334E-02	6.393E-02	0.000E+00
TL-208	4.797E-01	8.243E-02	6.056E-02	0.000E+00
BI-211	4.005E+00	5.418E-01	3.578E-01	0.000E+00
PB-212	1.304E+00	1.600E-01	1.405E-01	0.000E+00
PO-212	1.304E+00	1.600E-01	1.405E-01	0.000E+00
BI-214	1.083E+00	1.730E-01	1.266E-01	0.000E+00
PB-214	1.393E+00	2.015E-01	1.247E-01	0.000E+00
PO-214	1.393E+00	2.015E-01	1.247E-01	0.000E+00
PO-216	1.304E+00	1.600E-01	1.405E-01	0.000E+00
PO-218	1.393E+00	2.015E-01	1.247E-01	0.000E+00
RA-224	2.207E+00	9.174E-01	1.599E+00	0.000E+00
RA-226	1.083E+00	1.730E-01	1.266E-01	0.000E+00
AC-228	1.373E+00	2.972E-01	2.433E-01	0.000E+00
RA-228	1.373E+00	2.972E-01	2.433E-01	0.000E+00
TH-228	1.325E+00	1.626E-01	1.428E-01	0.000E+00
TH-230	1.083E+00	1.730E-01	1.266E-01	0.000E+00
TH-232	1.373E+00	2.972E-01	2.433E-01	0.000E+00
TH-234	3.459E+00	2.102E+00	2.755E+00	0.000E+00
U-234	1.083E+00	1.730E-01	1.266E-01	0.000E+00
NP-237	4.757E-01	4.073E-01	5.179E-01	0.000E+00
U-238	3.459E+00	2.102E+00	2.755E+00	0.000E+00
AM-243	3.795E-01	9.644E-02	1.095E-01	0.000E+00
ANH-511	1.515E-01	7.392E-02	4.872E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
---------	-------------------------------------	--------------------------	--------------------

BE-7	-6.659E-02	3.610E-01	6.057E-01	0.000E+00	NOT IDENT.
NA-22	-1.194E-03	4.769E-02	7.905E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.442E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-6.300E-03	2.785E-02	4.415E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.498E-02	9.638E-02	0.000E+00	FAIL ABUN
SC-46	-1.430E-03	4.208E-02	7.160E-02	0.000E+00	FAIL ABUN
V-48	-8.498E-03	8.224E-02	1.380E-01	0.000E+00	NOT IDENT.
CR-51	4.560E-01	4.570E-01	7.721E-01	0.000E+00	NOT IDENT.
MN-52	1.025E-02	2.944E-01	4.874E-01	0.000E+00	NOT IDENT.
MN-54	4.840E-02	4.745E-02	8.700E-02	0.000E+00	NOT IDENT.
CO-56	-3.469E-03	4.396E-02	7.477E-02	0.000E+00	NOT IDENT.
CO-57	-2.527E-03	2.807E-02	4.829E-02	0.000E+00	NOT IDENT.
CO-58	-4.938E-02	4.261E-02	6.488E-02	0.000E+00	NOT IDENT.
FE-59	-3.298E-02	1.008E-01	1.636E-01	0.000E+00	NOT IDENT.
CO-60	-3.388E-02	4.444E-02	6.573E-02	0.000E+00	NOT IDENT.
ZN-65	3.064E-02	1.289E-01	1.914E-01	0.000E+00	NOT IDENT.
GE-68	-1.960E-02	1.305E+00	2.193E+00	0.000E+00	NOT IDENT.
AS-73	-1.699E-01	1.233E+00	2.185E+00	0.000E+00	NOT IDENT.
AS-74	3.533E-02	1.033E-01	1.781E-01	0.000E+00	NOT IDENT.
SE-75	1.418E-02	5.466E-02	8.088E-02	0.000E+00	NOT IDENT.
BR-77	-3.600E+00	1.550E+01	2.502E+01	0.000E+00	FAIL ABUN
SR-82	-3.414E-01	4.202E-01	6.710E-01	0.000E+00	NOT IDENT.
RB-83	-2.122E-02	7.855E-02	1.263E-01	0.000E+00	NOT IDENT.
RB-84	-4.491E-03	7.059E-02	1.198E-01	0.000E+00	NOT IDENT.
KR-85	1.263E+01	7.822E+00	1.340E+01	0.000E+00	NOT IDENT.
SR-85	6.538E-02	4.050E-02	6.940E-02	0.000E+00	NOT IDENT.
RB-86	-5.470E-01	8.710E-01	1.363E+00	0.000E+00	NOT IDENT.
Y-88	-1.509E-02	3.672E-02	5.610E-02	0.000E+00	NOT IDENT.
ZR-88	-1.444E-05	3.246E-02	5.585E-02	0.000E+00	NOT IDENT.
Y-91	7.057E-01	2.281E+01	3.819E+01	0.000E+00	NOT IDENT.
NB-94	-1.401E-02	3.785E-02	6.067E-02	0.000E+00	NOT IDENT.
NB-95	5.230E-02	5.180E-02	9.213E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.843E-01	3.151E-01	0.000E+00	NOT IDENT.
ZR-95	8.536E-03	8.099E-02	1.349E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.150E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.040E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.051E+01	1.569E+01	2.751E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.607E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.961E-02	3.815E-02	6.582E-02	0.000E+00	NOT IDENT.
RH-102	-5.669E-03	3.163E-02	5.309E-02	0.000E+00	NOT IDENT.
RU-103	-2.478E-02	4.860E-02	7.847E-02	0.000E+00	NOT IDENT.
RH-106	-9.994E-02	3.447E-01	5.610E-01	0.000E+00	NOT IDENT.
RU-106	-9.994E-02	3.445E-01	5.610E-01	0.000E+00	NOT IDENT.
AG-108M	-3.029E-02	3.555E-02	5.704E-02	0.000E+00	NOT IDENT.
AG-110M	2.098E-02	4.505E-02	6.842E-02	0.000E+00	NOT IDENT.
IN-111	1.949E+00	1.616E+00	2.560E+00	0.000E+00	NOT IDENT.
IN-113M	-2.989E-02	4.774E-02	7.873E-02	0.000E+00	NOT IDENT.
SN-113	-2.989E-02	4.774E-02	7.873E-02	0.000E+00	NOT IDENT.
IN-114M	-4.363E-02	2.275E-01	3.321E-01	0.000E+00	NOT IDENT.
CD-115	-8.615E+00	1.611E+01	2.606E+01	0.000E+00	NOT IDENT.
SN-117M	8.359E-03	6.255E-02	1.073E-01	0.000E+00	NOT IDENT.
SB-122	-1.311E+00	3.047E+00	4.956E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.996E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.286E-02	3.059E-02	5.313E-02	0.000E+00	NOT IDENT.
I-124	4.533E-01	1.084E+00	1.628E+00	0.000E+00	NOT IDENT.
SB-124	3.037E-02	7.164E-02	1.317E-01	0.000E+00	FAIL ABUN
SB-125	-4.666E-03	1.001E-01	1.708E-01	0.000E+00	NOT IDENT.
TE-125M	3.213E+00	1.052E+01	1.846E+01	0.000E+00	NOT IDENT.
I-126	1.027E-01	2.390E-01	3.615E-01	0.000E+00	NOT IDENT.
SB-126	4.367E-03	2.062E-01	2.948E-01	0.000E+00	NOT IDENT.
SB-127	-1.679E+00	1.732E+00	2.588E+00	0.000E+00	NOT IDENT.
XE-127	-9.661E-02	6.103E-02	8.627E-02	0.000E+00	NOT IDENT.
I-131	2.450E-02	1.375E-01	2.401E-01	0.000E+00	NOT IDENT.
TE-132	-4.785E-02	9.252E-01	1.546E+00	0.000E+00	NOT IDENT.
BA-133	-8.196E-03	4.813E-02	7.120E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.383E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.457E-02	5.229E-02	1.015E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.719E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.055E-01	1.148E-01	2.123E-01	0.000E+00	FAIL ABUN
CE-139	1.315E-02	3.263E-02	5.653E-02	0.000E+00	NOT IDENT.
BA-140	-6.401E-02	2.826E-01	4.667E-01	0.000E+00	NOT IDENT.
LA-140	-3.039E-02	9.359E-02	1.502E-01	0.000E+00	NOT IDENT.
CE-141	1.524E-02	6.863E-02	1.187E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.319E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	9.828E-02	2.217E-01	3.876E-01	0.000E+00	NOT IDENT.
PM-144	1.358E-03	4.012E-02	6.674E-02	0.000E+00	NOT IDENT.
PR-144	9.209E-02	2.720E+00	4.525E+00	0.000E+00	NOT IDENT.

PM-146	3.856E-02	4.886E-02	8.755E-02	0.000E+00	NOT IDENT.
ND-147	1.804E-01	6.446E-01	1.112E+00	0.000E+00	NOT IDENT.
PM-149	2.345E+01	1.346E+02	2.376E+02	0.000E+00	NOT IDENT.
EU-152	2.940E-02	1.267E-01	1.842E-01	0.000E+00	NOT IDENT.
GD-153	1.223E-01	9.422E-02	1.537E-01	0.000E+00	NOT IDENT.
EU-154	-3.330E-03	1.331E-01	2.207E-01	0.000E+00	NOT IDENT.
EU-155	8.631E-02	1.191E-01	2.125E-01	0.000E+00	FAIL ABUN
TB-160	-2.959E-02	1.416E-01	2.367E-01	0.000E+00	FAIL ABUN
HO-166M	-1.430E-02	6.857E-02	1.114E-01	0.000E+00	FAIL ABUN
TM-171	-4.612E+01	4.221E+01	5.710E+01	0.000E+00	NOT IDENT.
LU-176	7.349E-03	2.861E-02	4.628E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.271E+00	2.396E+00	0.000E+00	FAIL ABUN
LU-177M	-8.866E-02	2.086E-01	3.486E-01	0.000E+00	FAIL ABUN
HF-181	7.432E-03	4.957E-02	8.513E-02	0.000E+00	NOT IDENT.
W-181	1.637E-02	5.000E-01	7.777E-01	0.000E+00	NOT IDENT.
TA-182	2.294E-01	2.356E-01	4.256E-01	0.000E+00	NOT IDENT.
RE-183	-1.626E-01	1.202E-01	1.919E-01	0.000E+00	FAIL ABUN
RE-184	4.972E-02	2.754E-01	4.633E-01	0.000E+00	NOT IDENT.
OS-185	-4.870E-02	4.730E-02	7.110E-02	0.000E+00	NOT IDENT.
RE-188	2.729E-02	1.925E-01	3.308E-01	0.000E+00	NOT IDENT.
W-188	1.807E-01	9.104E+00	1.390E+01	0.000E+00	FAIL ABUN
IR-192	-2.910E-02	3.771E-02	6.279E-02	0.000E+00	FAIL ABUN
AU-195	3.473E-01	2.665E-01	4.352E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.114E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	6.669E+00	9.638E+00	1.688E+01	0.000E+00	NOT IDENT.
TL-202	6.111E-02	7.931E-02	1.425E-01	0.000E+00	NOT IDENT.
HG-203	4.914E-02	4.424E-02	8.145E-02	0.000E+00	NOT IDENT.
BI-207	5.007E-02	5.987E-02	1.088E-01	0.000E+00	FAIL ABUN
TL-207	-6.560E-02	8.307E-01	1.250E+00	0.000E+00	FAIL ABUN
PO-209	7.441E+00	8.471E+00	1.553E+01	0.000E+00	NOT IDENT.
BI-210	-5.090E+00	6.208E+00	1.038E+01	0.000E+00	NOT IDENT.
PB-210	-5.090E+00	6.208E+00	1.038E+01	0.000E+00	NOT IDENT.
PO-210	-5.090E+00	6.205E+00	1.038E+01	0.000E+00	NOT IDENT.
PB-211	-8.289E-01	1.155E+00	1.693E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.685E-01	7.736E-01	0.000E+00	FAIL ABUN
PO-215	-6.560E-02	8.307E-01	1.250E+00	0.000E+00	FAIL ABUN
RN-219	4.455E-02	4.508E-01	7.794E-01	0.000E+00	NOT IDENT.
RN-220	-8.300E+00	2.881E+01	4.742E+01	0.000E+00	NOT IDENT.
RA-223	-6.560E-02	8.307E-01	1.250E+00	0.000E+00	FAIL ABUN
AC-227	-9.590E-02	4.554E-01	7.497E-01	0.000E+00	FAIL ABUN
TH-227	-9.590E-02	4.554E-01	7.497E-01	0.000E+00	FAIL ABUN
TH-229	2.659E-03	5.537E-01	9.360E-01	0.000E+00	FAIL ABUN
PA-231	-6.567E-01	1.637E+00	2.804E+00	0.000E+00	NOT IDENT.
TH-231	-6.560E-02	8.307E-01	1.250E+00	0.000E+00	FAIL ABUN
U-231	8.010E-01	1.529E+00	2.404E+00	0.000E+00	FAIL ABUN
PA-233	4.636E-02	6.840E-02	1.234E-01	0.000E+00	FAIL ABUN
PA-234	6.336E-02	3.463E-01	5.982E-01	0.000E+00	FAIL ABUN
PA-234M	1.900E+00	5.093E+00	8.775E+00	0.000E+00	NOT IDENT.
U-235	1.748E-02	2.321E-01	3.910E-01	0.000E+00	FAIL ABUN
NP-236	1.450E-02	8.385E-02	1.441E-01	0.000E+00	NOT IDENT.
NP-239	-1.370E-01	2.152E-01	3.626E-01	0.000E+00	FAIL ABUN
AM-241	1.310E-02	2.159E-01	3.387E-01	0.000E+00	NOT IDENT.
CM-243	2.814E-02	1.043E-01	1.833E-01	0.000E+00	FAIL ABUN
AM-246	3.431E-02	1.491E-01	2.572E-01	0.000E+00	NOT IDENT.
CM-247	1.634E-02	3.971E-02	6.999E-02	0.000E+00	NOT IDENT.
CF-249	4.497E-03	4.494E-02	7.702E-02	0.000E+00	NOT IDENT.
CF-251	4.588E-03	1.438E-01	2.445E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229005.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 13:05:11
Sample ID          : G244229005          Sample quantity   : 1.21280E+02 GRAM
Detector name      : GAM23              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.61  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941239             Detector SN#       :
Matrix Spike ID    :                    LCS ID             : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	850	10.67*	9.975E-01	2.472E+01	2.472E+01	10.54
CD-109	88.03	102	3.72*	5.251E+00	1.611E+00	1.650E+00	84.91
SN-126	64.28	109	9.60	2.560E+00	1.369E+00	1.369E+00	61.24
	86.94	102	8.90	5.251E+00	6.734E-01	6.734E-01	94.05
	87.57	102	37.00*	5.251E+00	1.620E-01	1.620E-01	84.91
CS-135	268.24	100	16.00*	4.231E+00	4.589E-01	4.589E-01	63.94
BA-137M	661.65	82	89.98*	2.041E+00	1.376E-01	1.377E-01	58.42
CS-137	661.65	82	85.12*	2.041E+00	1.454E-01	1.456E-01	58.43
TL-208	277.35	-----	6.80	4.140E+00	-----	Line Not Found	-----
	510.84	125	21.60	2.547E+00	7.015E-01	7.015E-01	50.47
	583.14	297	84.20*	2.278E+00	4.797E-01	4.797E-01	17.53
	860.37	-----	12.46	1.609E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.829E+00	-----	Line Not Found	-----
	351.07	576	12.94*	3.441E+00	4.005E+00	4.005E+00	13.80
PB-212	74.81	325	10.70	4.017E+00	2.341E+00	2.341E+00	27.56
	77.11	501	18.00	4.299E+00	2.004E+00	2.004E+00	17.93
	87.30	102	8.00	5.251E+00	7.492E-01	7.492E-01	85.50
	238.63	871	44.60*	4.639E+00	1.304E+00	1.304E+00	12.53
	300.09	81	3.41	3.901E+00	1.886E+00	1.886E+00	57.17
PO-212	74.81	325	10.70	4.017E+00	2.341E+00	2.341E+00	27.56
	77.11	501	18.00	4.299E+00	2.004E+00	2.004E+00	17.93
	87.30	102	8.00	5.251E+00	7.492E-01	7.492E-01	85.50
	115.19	-----	0.60	6.293E+00	-----	Line Not Found	-----
	238.63	871	44.60*	4.639E+00	1.304E+00	1.304E+00	12.53
	300.09	81	3.41	3.901E+00	1.886E+00	1.886E+00	57.17
BI-214	609.31	356	46.30*	2.194E+00	1.083E+00	1.083E+00	16.30
	1120.29	83	15.10	1.258E+00	1.356E+00	1.356E+00	51.35
	1764.49	57	15.80	8.744E-01	1.273E+00	1.273E+00	31.55
PB-214	74.81	325	6.21	4.017E+00	4.033E+00	4.034E+00	26.97
	77.11	501	10.50	4.299E+00	3.435E+00	3.435E+00	19.48
	87.30	102	4.67	5.251E+00	1.283E+00	1.283E+00	85.26
	241.98	129	7.49	4.592E+00	1.164E+00	1.164E+00	42.78

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	345	19.20	3.949E+00	1.408E+00	1.408E+00	17.89
	351.92	576	37.20*	3.441E+00	1.393E+00	1.393E+00	14.76
	74.81	325	6.21	4.017E+00	4.033E+00	4.034E+00	26.97
	77.11	501	10.50	4.299E+00	3.435E+00	3.435E+00	19.48
	87.30	102	4.67	5.251E+00	1.283E+00	1.283E+00	85.26
PO-216	241.98	129	7.49	4.592E+00	1.164E+00	1.164E+00	42.78
	295.21	345	19.20	3.949E+00	1.408E+00	1.408E+00	17.89
	351.92	576	37.20*	3.441E+00	1.393E+00	1.393E+00	14.76
	74.81	325	10.70	4.017E+00	2.341E+00	2.341E+00	27.56
	77.11	501	18.00	4.299E+00	2.004E+00	2.004E+00	17.93
PO-218	87.30	102	8.00	5.251E+00	7.492E-01	7.492E-01	85.50
	238.63	871	44.60*	4.639E+00	1.304E+00	1.304E+00	12.53
	300.09	81	3.41	3.901E+00	1.886E+00	1.886E+00	57.17
	74.81	325	6.21	4.017E+00	4.033E+00	4.034E+00	26.97
	77.11	501	10.50	4.299E+00	3.435E+00	3.435E+00	19.48
RA-224	87.30	102	4.67	5.251E+00	1.283E+00	1.283E+00	85.26
	241.98	129	7.49	4.592E+00	1.164E+00	1.164E+00	42.78
	295.21	345	19.20	3.949E+00	1.408E+00	1.408E+00	17.89
	351.92	576	37.20*	3.441E+00	1.393E+00	1.393E+00	14.76
	240.98	129	3.95*	4.592E+00	2.207E+00	2.207E+00	42.41
AC-228	609.31	356	46.30*	2.194E+00	1.083E+00	1.083E+00	16.30
	1120.29	83	15.10	1.258E+00	1.356E+00	1.356E+00	51.35
	1764.49	57	15.80	8.744E-01	1.273E+00	1.273E+00	31.55
	338.32	181	11.40	3.551E+00	1.381E+00	1.381E+00	56.04
	911.07	188	27.70*	1.527E+00	1.373E+00	1.373E+00	22.08
RA-228	969.11	116	16.60	1.442E+00	1.501E+00	1.501E+00	43.09
	338.32	181	11.40	3.551E+00	1.381E+00	1.381E+00	56.04
	911.07	188	27.70*	1.527E+00	1.373E+00	1.373E+00	22.08
	969.11	116	16.60	1.442E+00	1.501E+00	1.501E+00	43.09
	74.81	325	10.70	4.017E+00	2.341E+00	2.379E+00	25.95
TH-228	77.11	501	18.00	4.299E+00	2.004E+00	2.036E+00	17.93
	87.30	102	8.00	5.251E+00	7.492E-01	7.612E-01	84.91
	238.63	871	44.60*	4.639E+00	1.304E+00	1.325E+00	12.53
	300.09	81	3.41	3.901E+00	1.886E+00	1.917E+00	81.69
	609.31	356	46.30*	2.194E+00	1.083E+00	1.083E+00	16.30
TH-230	1120.29	83	15.10	1.258E+00	1.356E+00	1.356E+00	51.35
	1764.49	57	15.80	8.744E-01	1.273E+00	1.273E+00	31.55
	338.32	181	11.40	3.551E+00	1.381E+00	1.381E+00	38.88
	911.07	188	27.70*	1.527E+00	1.373E+00	1.373E+00	22.08
	969.11	116	16.60	1.442E+00	1.501E+00	1.501E+00	43.09
TH-232	63.29	109	3.80*	2.560E+00	3.459E+00	3.459E+00	62.00
	92.38	279	5.41	5.604E+00	2.853E+00	2.853E+00	38.18
	609.31	356	46.30*	2.194E+00	1.083E+00	1.083E+00	16.30
	1120.29	83	15.10	1.258E+00	1.356E+00	1.356E+00	51.35
	1764.49	57	15.80	8.744E-01	1.273E+00	1.273E+00	31.55
NP-237	86.50	102	12.60*	5.251E+00	4.757E-01	4.757E-01	87.38
	95.87	-----	2.60	5.757E+00	-----	Line Not Found	-----
	63.29	109	3.80*	2.560E+00	3.459E+00	3.459E+00	62.00
	92.38	279	5.41	5.604E+00	2.853E+00	2.853E+00	34.72

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	325	66.00*	4.017E+00	3.795E-01	3.795E-01	25.93
	86.72	102	0.34	5.251E+00	1.784E+01	1.784E+01	84.91
	117.66	-----	0.55	6.314E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.209E+00	-----	Line Not Found	-----
ANH-511	511.00	125	100.00*	2.547E+00	1.515E-01	1.515E-01	49.78

Flag: "\*" = Keyline

Total number of lines in spectrum 25  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 24 96.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.472E+01	2.472E+01	0.260E+01	10.54	
CD-109	464.00D	1.02	1.611E+00	1.650E+00	1.401E+00	84.91	
SN-126	1.00E+05Y	1.00	1.620E-01	1.620E-01	1.375E-01	84.91	
CS-135	2.30E+06Y	1.00	4.589E-01	4.589E-01	2.934E-01	63.94	
BA-137M	30.17Y	1.00	1.376E-01	1.377E-01	0.804E-01	58.42	
CS-137	30.17Y	1.00	1.454E-01	1.456E-01	0.850E-01	58.43	
TL-208	1.41E+10Y	1.00	4.797E-01	4.797E-01	0.841E-01	17.53	
BI-211	7.04E+08Y	1.00	4.005E+00	4.005E+00	0.553E+00	13.80	
PB-212	1.41E+10Y	1.00	1.304E+00	1.304E+00	0.163E+00	12.53	
PO-212	1.41E+10Y	1.00	1.304E+00	1.304E+00	0.163E+00	12.53	
BI-214	1600.00Y	1.00	1.083E+00	1.083E+00	0.177E+00	16.30	
PB-214	1600.00Y	1.00	1.393E+00	1.393E+00	0.206E+00	14.76	
PO-214	1600.00Y	1.00	1.393E+00	1.393E+00	0.206E+00	14.76	
PO-216	1.41E+10Y	1.00	1.304E+00	1.304E+00	0.163E+00	12.53	
PO-218	1600.00Y	1.00	1.393E+00	1.393E+00	0.206E+00	14.76	
RA-224	1.41E+10Y	1.00	2.207E+00	2.207E+00	0.936E+00	42.41	
RA-226	1600.00Y	1.00	1.083E+00	1.083E+00	0.177E+00	16.30	
AC-228	1.41E+10Y	1.00	1.373E+00	1.373E+00	0.303E+00	22.08	
RA-228	1.41E+10Y	1.00	1.373E+00	1.373E+00	0.303E+00	22.08	
TH-228	1.91Y	1.02	1.304E+00	1.325E+00	0.166E+00	12.53	
TH-230	4.47E+09Y	1.00	1.083E+00	1.083E+00	0.177E+00	16.30	
TH-232	1.41E+10Y	1.00	1.373E+00	1.373E+00	0.303E+00	22.08	
TH-234	4.47E+09Y	1.00	3.459E+00	3.459E+00	2.145E+00	62.00	
U-234	4.47E+09Y	1.00	1.083E+00	1.083E+00	0.177E+00	16.30	
NP-237	2.14E+06Y	1.00	4.757E-01	4.757E-01	4.156E-01	87.38	
U-238	4.47E+09Y	1.00	3.459E+00	3.459E+00	2.145E+00	62.00	
AM-243	7380.00Y	1.00	3.795E-01	3.795E-01	0.984E-01	25.93	
ANH-511	1.00E+09Y	1.00	1.515E-01	1.515E-01	0.754E-01	49.78	

Total Activity : 5.970E+01 5.976E+01

Grand Total Activity : 5.970E+01 5.976E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229005

Page : 5  
Acquisition date : 22-JAN-2010 13:05:11

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	185.88	119	323	1.12	371.76	365	10	1.66E-02	61.3	5.49E+00	T
0	209.16	118	325	1.57	418.32	413	14	1.64E-02	66.9	5.09E+00	T
0	327.15	54	148	0.95	654.31	648	11	7.56E-03	90.8	3.64E+00	
0	726.58	97	46	1.22	1453.16	1448	12	1.35E-02	34.4	1.88E+00	T

Flags: "T" = Tentatively associated



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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229005.CNF;1
* Acquisition date   : 22-JAN-2010 13:05:11  Detector SN#      :
* Detector ID        : GAM23                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.61          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244229005            Analyst initials: MXR1
* Batch Number       : 941239                Sample Quantity : 1.21280E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00.62MS Isotope       :
* MSD ID              :                      MSD Isotope       :
* LCS ID              : 1032-A                LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.472E+01	2.605E+00	5.608E-01	4.195E-02	44.074
CD-109	1.650E+00	1.401E+00	1.644E+00	1.605E-01	1.004
SN-126	1.620E-01	1.375E-01	1.762E-01	1.715E-02	0.919
CS-135	4.589E-01	2.934E-01	2.688E-01	2.054E-02	1.707
BA-137M	1.377E-01	8.044E-02	6.001E-02	3.065E-03	2.295
CS-137	1.456E-01	8.504E-02	6.343E-02	3.258E-03	2.295
TL-208	4.797E-01	8.412E-02	5.999E-02	3.895E-03	7.997
BI-211	4.005E+00	5.528E-01	3.523E-01	2.295E-02	11.370
PB-212	1.304E+00	1.633E-01	1.377E-01	9.897E-03	9.470
PO-212	1.304E+00	1.633E-01	1.377E-01	9.897E-03	9.470
BI-214	1.083E+00	1.765E-01	1.255E-01	9.436E-03	8.629
PB-214	1.393E+00	2.056E-01	1.228E-01	1.025E-02	11.345
PO-214	1.393E+00	2.056E-01	1.228E-01	1.025E-02	11.345
PO-216	1.304E+00	1.633E-01	1.377E-01	9.897E-03	9.470
PO-218	1.393E+00	2.056E-01	1.228E-01	1.025E-02	11.345
RA-224	2.207E+00	9.361E-01	1.567E+00	8.827E-02	1.409
RA-226	1.083E+00	1.765E-01	1.255E-01	9.436E-03	8.629
AC-228	1.373E+00	3.033E-01	2.423E-01	2.796E-02	5.668

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.373E+00	3.033E-01	2.423E-01	2.796E-02	5.668
TH-228	1.325E+00	1.659E-01	1.399E-01	1.006E-02	9.470
TH-230	1.083E+00	1.765E-01	1.255E-01	9.435E-03	8.629
TH-232	1.373E+00	3.033E-01	2.423E-01	2.796E-02	5.668
TH-234	3.459E+00	2.145E+00	2.657E+00	4.787E-01	1.302
U-234	1.083E+00	1.765E-01	1.255E-01	9.435E-03	8.629
NP-237	4.757E-01	4.156E-01	5.013E-01	1.142E-01	0.949
U-238	3.459E+00	2.145E+00	2.657E+00	4.787E-01	1.302
AM-243	3.795E-01	9.841E-02	1.058E-01	9.405E-03	3.586
ANH-511	1.515E-01	7.543E-02	4.818E-02	2.799E-03	3.145

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-6.659E-02		3.684E-01	5.985E-01	4.067E-02	-0.111
NA-22	-1.194E-03		4.867E-02	7.907E-02	5.310E-03	-0.015
NA-24	-9.798E-01		1.246E+00	Half-Life	too short	
AL-26	-6.300E-03		2.842E-02	4.436E-02	2.666E-03	-0.142
TI-44	3.697E-01	+	6.630E-02	9.318E-02	8.447E-03	3.968
SC-46	-1.430E-03		4.294E-02	7.130E-02	6.370E-03	-0.020
V-48	-8.498E-03		8.392E-02	1.376E-01	1.144E-02	-0.062
CR-51	4.560E-01		4.663E-01	7.592E-01	4.978E-02	0.601
MN-52	1.025E-02		3.004E-01	4.883E-01	3.533E-02	0.021
MN-54	4.840E-02		4.842E-02	8.657E-02	6.854E-03	0.559
CO-56	-3.469E-03		4.486E-02	7.441E-02	6.054E-03	-0.047
CO-57	-2.527E-03		2.865E-02	4.694E-02	2.767E-03	-0.054
CO-58	-4.938E-02		4.348E-02	6.453E-02	4.848E-03	-0.765
FE-59	-3.298E-02		1.029E-01	1.633E-01	1.258E-02	-0.202
CO-60	-3.388E-02		4.534E-02	6.578E-02	4.829E-03	-0.515
ZN-65	3.064E-02		1.315E-01	1.911E-01	1.262E-02	0.160
GE-68	-1.960E-02		1.331E+00	2.189E+00	1.567E-01	-0.009
AS-73	-1.699E-01		1.258E+00	2.103E+00	1.857E-01	-0.081
AS-74	3.533E-02		1.054E-01	1.765E-01	9.732E-03	0.200
SE-75	1.418E-02		5.578E-02	7.935E-02	4.619E-03	0.179
BR-77	-3.600E+00		1.582E+01	2.475E+01	1.432E+00	-0.145
SR-82	-3.414E-01		4.288E-01	6.671E-01	4.602E-02	-0.512
RB-83	-2.122E-02		8.015E-02	1.250E-01	7.233E-03	-0.170
RB-84	-4.491E-03		7.203E-02	1.193E-01	1.048E-02	-0.038
KR-85	1.263E+01		7.981E+00	1.326E+01	7.693E-01	0.952
SR-85	6.538E-02		4.132E-02	6.864E-02	3.983E-03	0.952
RB-86	-5.470E-01		8.887E-01	1.360E+00	9.748E-02	-0.402
Y-88	-1.509E-02		3.747E-02	5.638E-02	3.320E-03	-0.268
ZR-88	-1.444E-05		3.312E-02	5.505E-02	3.178E-03	0.000
Y-91	7.057E-01		2.327E+01	3.817E+01	2.277E+00	0.018
NB-94	-1.401E-02		3.862E-02	6.024E-02	3.442E-03	-0.233
NB-95	5.230E-02		5.285E-02	9.157E-02	6.153E-03	0.571
NB-95M	7.241E-01		1.881E-01	3.086E-01	2.277E-02	2.346

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	8.536E-03		8.264E-02	1.341E-01	1.029E-02	0.064
NB-97	1.803E-01		1.607E-01	Half-Life too short		
ZR-97	1.810E+01		3.082E+00	Half-Life too short		
MO-99	1.051E+01		1.601E+01	2.733E+01	3.825E+00	0.385
TC-99M	-3.012E+11		2.861E+11	Half-Life too short		
RH-101	2.961E-02		3.893E-02	6.435E-02	3.430E-03	0.460
RH-102	-5.669E-03		3.227E-02	5.245E-02	3.070E-03	-0.108
RU-103	-2.478E-02		4.959E-02	7.758E-02	9.821E-03	-0.319
RH-106	-9.994E-02		3.517E-01	5.562E-01	6.414E-02	-0.180
RU-106	-9.994E-02		3.516E-01	5.562E-01	2.988E-02	-0.180
AG-108M	-3.029E-02		3.628E-02	5.630E-02	3.569E-03	-0.538
AG-110M	2.098E-02		4.597E-02	6.788E-02	3.772E-03	0.309
IN-111	1.949E+00		1.649E+00	2.509E+00	1.420E-01	0.777
IN-113M	-2.989E-02		4.872E-02	7.761E-02	4.781E-03	-0.385
SN-113	-2.989E-02		4.872E-02	7.761E-02	4.781E-03	-0.385
IN-114M	-4.363E-02		2.321E-01	3.245E-01	1.711E-02	-0.134
CD-115	-8.615E+00		1.644E+01	2.579E+01	1.488E+00	-0.334
SN-117M	8.359E-03		6.382E-02	1.047E-01	5.439E-03	0.080
SB-122	-1.311E+00		3.109E+00	4.907E+00	2.776E-01	-0.267
I-123	8.396E+00		1.019E+01	Half-Life too short		
TE-123M	1.286E-02		3.121E-02	5.180E-02	2.734E-03	0.248
I-124	4.533E-01		1.106E+00	1.613E+00	8.842E-02	0.281
SB-124	3.037E-02		7.310E-02	1.322E-01	9.215E-03	0.230
SB-125	-4.666E-03		1.021E-01	1.686E-01	1.025E-02	-0.028
TE-125M	3.213E+00		1.074E+01	1.792E+01	1.599E+00	0.179
I-126	1.027E-01		2.439E-01	3.586E-01	1.856E-02	0.286
SB-126	4.367E-03		2.104E-01	2.928E-01	1.754E-02	0.015
SB-127	-1.679E+00		1.768E+00	2.569E+00	2.455E-01	-0.653
XE-127	-9.661E-02		6.227E-02	8.436E-02	4.528E-03	-1.145
I-131	2.450E-02		1.403E-01	2.365E-01	1.547E-02	0.104
TE-132	-4.785E-02		9.441E-01	1.514E+00	2.189E-01	-0.032
BA-133	-8.196E-03		4.911E-02	7.010E-02	8.134E-03	-0.117
I-133	-5.982E-03		7.055E-03	Half-Life too short		
CS-134	9.457E-02		5.336E-02	1.009E-01	7.372E-03	0.937
I-135	5.977E+09		3.428E+10	Half-Life too short		
CS-136	1.055E-01		1.172E-01	2.118E-01	1.688E-02	0.498
CE-139	1.315E-02		3.330E-02	5.515E-02	2.812E-03	0.239
BA-140	-6.401E-02		2.884E-01	4.618E-01	1.501E-01	-0.139
LA-140	-3.039E-02		9.550E-02	1.507E-01	1.034E-02	-0.202
CE-141	1.524E-02		7.003E-02	1.156E-01	6.518E-03	0.132
CE-143	1.349E-03		2.203E-04	Half-Life too short		
CE-144	9.828E-02		2.262E-01	3.771E-01	5.325E-02	0.261
PM-144	1.358E-03		4.093E-02	6.626E-02	3.728E-03	0.020
PR-144	9.209E-02		2.775E+00	4.492E+00	2.525E-01	0.020
PM-146	3.856E-02		4.985E-02	8.646E-02	7.488E-03	0.446
ND-147	1.804E-01		6.577E-01	1.101E+00	1.486E-01	0.164
PM-149	2.345E+01		1.374E+02	2.333E+02	3.312E+01	0.101
EU-152	2.940E-02		1.293E-01	1.813E-01	1.202E-02	0.162

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	1.223E-01		9.614E-02	1.490E-01	1.217E-02	0.821
EU-154	-3.330E-03		1.359E-01	2.208E-01	2.192E-02	-0.015
EU-155	8.631E-02		1.216E-01	2.061E-01	1.520E-02	0.419
TB-160	-2.959E-02		1.445E-01	2.357E-01	2.061E-02	-0.126
HO-166M	-1.430E-02		6.997E-02	1.106E-01	6.476E-03	-0.129
TM-171	-4.612E+01		4.307E+01	5.510E+01	4.792E+00	-0.837
LU-176	7.349E-03		2.919E-02	4.548E-02	2.679E-03	0.162
LU-177	3.450E+00	+	2.317E+00	2.344E+00	1.268E-01	1.472
LU-177M	-8.866E-02		2.129E-01	3.438E-01	2.001E-02	-0.258
HF-181	7.432E-03		5.058E-02	8.413E-02	4.921E-03	0.088
W-181	1.637E-02		5.102E-01	7.502E-01	6.518E-02	0.022
TA-182	2.294E-01		2.404E-01	4.255E-01	2.612E-02	0.539
RE-183	-1.626E-01		1.226E-01	1.871E-01	9.625E-03	-0.869
RE-184	4.972E-02		2.810E-01	4.543E-01	2.590E-02	0.109
OS-185	-4.870E-02		4.826E-02	7.052E-02	3.680E-03	-0.691
RE-188	2.729E-02		1.965E-01	3.224E-01	1.692E-02	0.085
W-188	1.807E-01		9.290E+00	1.365E+01	7.993E-01	0.013
IR-192	-2.910E-02		3.848E-02	6.173E-02	3.662E-03	-0.471
AU-195	3.473E-01		2.719E-01	4.219E-01	3.367E-02	0.823
TL-200	-1.701E-04		4.650E-04	Half-Life too short		
TL-201	6.669E+00		9.835E+00	1.647E+01	8.404E-01	0.405
TL-202	6.111E-02		8.093E-02	1.406E-01	8.228E-03	0.435
HG-203	4.914E-02		4.515E-02	7.995E-02	4.939E-03	0.615
BI-207	5.007E-02		6.109E-02	1.086E-01	7.978E-03	0.461
TL-207	-6.560E-02		8.477E-01	1.229E+00	2.034E-01	-0.053
PO-209	7.441E+00		8.644E+00	1.547E+01	1.404E+00	0.481
BI-210	-5.090E+00		6.334E+00	9.972E+00	7.765E-01	-0.510
PB-210	-5.090E+00		6.334E+00	9.972E+00	7.765E-01	-0.510
PO-210	-5.090E+00		6.331E+00	9.972E+00	6.691E-01	-0.510
PB-211	-8.289E-01		1.179E+00	1.669E+00	1.041E+00	-0.497
BI-212	1.355E+00	+	4.781E-01	7.684E-01	6.099E-02	1.763
PO-215	-6.560E-02		8.477E-01	1.229E+00	2.034E-01	-0.053
RN-219	4.455E-02		4.600E-01	7.685E-01	1.045E-01	0.058
RN-220	-8.300E+00		2.940E+01	4.694E+01	2.679E+00	-0.177
RA-223	-6.560E-02		8.477E-01	1.229E+00	2.034E-01	-0.053
AC-227	-9.590E-02		4.646E-01	7.351E-01	1.024E-01	-0.130
TH-227	-9.590E-02		4.647E-01	7.351E-01	1.240E-01	-0.130
TH-229	2.659E-03		5.650E-01	9.148E-01	4.846E-02	0.003
PA-231	-6.567E-01		1.670E+00	2.753E+00	3.798E-01	-0.239
TH-231	-6.560E-02		8.477E-01	1.229E+00	2.034E-01	-0.053
U-231	8.010E-01		1.560E+00	2.330E+00	1.955E-01	0.344
PA-233	4.636E-02		6.979E-02	1.213E-01	7.586E-03	0.382
PA-234	6.336E-02		3.533E-01	5.962E-01	1.121E-01	0.106
PA-234M	1.900E+00		5.197E+00	8.751E+00	8.350E-01	0.217
U-235	1.748E-02		2.369E-01	3.808E-01	6.158E-02	0.046
NP-236	1.450E-02		8.556E-02	1.405E-01	7.268E-03	0.103
NP-239	-1.370E-01		2.196E-01	3.523E-01	2.199E-02	-0.389
AM-241	1.310E-02		2.203E-01	3.264E-01	3.037E-02	0.040

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.814E-02		1.065E-01	1.778E-01	1.318E-02	0.158
AM-246	3.431E-02		1.521E-01	2.568E-01	1.832E-02	0.134
CM-247	1.634E-02		4.053E-02	6.902E-02	4.001E-03	0.237
CF-249	4.497E-03		4.586E-02	7.591E-02	4.392E-03	0.059
CF-251	4.588E-03		1.467E-01	2.387E-01	1.233E-02	0.019

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229005          *
* Acquisition date   : 22-JAN-2010 13:05:11 Detector SN# :                 *
* Detector ID        : GAM23                                           Sensitivity      : 5.000      *
* Geometry           : CAN                                           Energy tolerance : 1.500      *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000     *
* Elapsed real time  : 0 02:00:01.61                               Half life ratio  : 8.000      *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G244229005                               Analyst initials: MXR1        *
* Batch Number      : 941239                                   Sample Quantity : 1.2128E+02 GRAM *
* Recovery          : 1.00000                                   Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME  : 2-JUN-2009 11:17:00 MS Isotope :                 *
* MSD DPM           : 0.000                                       MSD Isotope      :                 *
* LCS DPM           : 0.000                                       LCS Isotope      :                 *
* LCSD DPM          : 0.000                                       LCSD Isotope     :                 *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.472E+01	2.553E+00	2.800E-01	1.302E+00
CD-109	1.650E+00	1.373E+00	8.494E-01	7.006E-01
SN-126	1.620E-01	1.348E-01	9.107E-02	6.877E-02
CS-135	4.589E-01	2.876E-01	1.371E-01	1.467E-01
BA-137M	1.377E-01	7.883E-02	3.026E-02	4.022E-02
CS-137	1.456E-01	8.334E-02	3.199E-02	4.252E-02
TL-208	4.797E-01	8.243E-02	3.030E-02	4.206E-02
BI-211	4.005E+00	5.418E-01	1.790E-01	2.764E-01
PB-212	1.304E+00	1.600E-01	7.029E-02	8.164E-02
PO-212	1.304E+00	1.600E-01	7.029E-02	8.164E-02
BI-214	1.083E+00	1.730E-01	6.336E-02	8.827E-02
PB-214	1.393E+00	2.015E-01	6.241E-02	1.028E-01
PO-214	1.393E+00	2.015E-01	6.241E-02	1.028E-01
PO-216	1.304E+00	1.600E-01	7.029E-02	8.164E-02
PO-218	1.393E+00	2.015E-01	6.241E-02	1.028E-01
RA-224	2.207E+00	9.174E-01	7.999E-01	4.681E-01
RA-226	1.083E+00	1.730E-01	6.336E-02	8.827E-02
AC-228	1.373E+00	2.972E-01	1.217E-01	1.516E-01
RA-228	1.373E+00	2.972E-01	1.217E-01	1.516E-01
TH-228	1.325E+00	1.626E-01	7.142E-02	8.296E-02
TH-230	1.083E+00	1.730E-01	6.335E-02	8.827E-02
TH-232	1.373E+00	2.972E-01	1.217E-01	1.516E-01
TH-234	3.459E+00	2.102E+00	1.378E+00	1.072E+00
U-234	1.083E+00	1.730E-01	6.335E-02	8.827E-02
NP-237	4.757E-01	4.073E-01	2.591E-01	2.078E-01
U-238	3.459E+00	2.102E+00	1.378E+00	1.072E+00
AM-243	3.795E-01	9.644E-02	5.480E-02	4.920E-02
ANH-511	1.515E-01	7.392E-02	2.437E-02	3.772E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-6.659E-02	3.610E-01	3.030E-01	1.842E-01	NOT IDENT.
NA-22	-1.194E-03	4.769E-02	3.955E-02	2.433E-02	NOT IDENT.
NA-24	-9.798E+05	2.442E+06	0.000E+00	1.246E+06	SHORT HLIF
AL-26	-6.300E-03	2.785E-02	2.209E-02	1.421E-02	NOT IDENT.
TI-44	3.697E-01	6.498E-02	4.822E-02	3.315E-02	FAIL ABUN
SC-46	-1.430E-03	4.208E-02	3.582E-02	2.147E-02	FAIL ABUN
V-48	-8.498E-03	8.224E-02	6.903E-02	4.196E-02	NOT IDENT.
CR-51	4.560E-01	4.570E-01	3.863E-01	2.331E-01	NOT IDENT.
MN-52	1.025E-02	2.944E-01	2.438E-01	1.502E-01	NOT IDENT.
MN-54	4.840E-02	4.745E-02	4.353E-02	2.421E-02	NOT IDENT.
CO-56	-3.469E-03	4.396E-02	3.741E-02	2.243E-02	NOT IDENT.
CO-57	-2.527E-03	2.807E-02	2.416E-02	1.432E-02	NOT IDENT.
CO-58	-4.938E-02	4.261E-02	3.246E-02	2.174E-02	NOT IDENT.
FE-59	-3.298E-02	1.008E-01	8.184E-02	5.144E-02	NOT IDENT.
CO-60	-3.388E-02	4.444E-02	3.288E-02	2.267E-02	NOT IDENT.
ZN-65	3.064E-02	1.289E-01	9.576E-02	6.576E-02	NOT IDENT.
GE-68	-1.960E-02	1.305E+00	1.097E+00	6.657E-01	NOT IDENT.
AS-73	-1.699E-01	1.233E+00	1.093E+00	6.292E-01	NOT IDENT.
AS-74	3.533E-02	1.033E-01	8.910E-02	5.271E-02	NOT IDENT.
SE-75	1.418E-02	5.466E-02	4.047E-02	2.789E-02	NOT IDENT.
BR-77	-3.600E+00	1.550E+01	1.252E+01	7.910E+00	FAIL ABUN
SR-82	-3.414E-01	4.202E-01	3.357E-01	2.144E-01	NOT IDENT.
RB-83	-2.122E-02	7.855E-02	6.320E-02	4.008E-02	NOT IDENT.
RB-84	-4.491E-03	7.059E-02	5.992E-02	3.601E-02	NOT IDENT.
KR-85	1.263E+01	7.822E+00	6.706E+00	3.991E+00	NOT IDENT.
SR-85	6.538E-02	4.050E-02	3.472E-02	2.066E-02	NOT IDENT.
RB-86	-5.470E-01	8.710E-01	6.817E-01	4.444E-01	NOT IDENT.
Y-88	-1.509E-02	3.672E-02	2.807E-02	1.873E-02	NOT IDENT.
ZR-88	-1.444E-05	3.246E-02	2.794E-02	1.656E-02	NOT IDENT.
Y-91	7.057E-01	2.281E+01	1.911E+01	1.164E+01	NOT IDENT.
NB-94	-1.401E-02	3.785E-02	3.035E-02	1.931E-02	NOT IDENT.
NB-95	5.230E-02	5.180E-02	4.609E-02	2.643E-02	NOT IDENT.
NB-95M	7.241E-01	1.843E-01	1.576E-01	9.403E-02	NOT IDENT.
ZR-95	8.536E-03	8.099E-02	6.750E-02	4.132E-02	NOT IDENT.
NB-97	1.803E+05	3.150E+05	0.000E+00	1.607E+05	SHORT HLIF
ZR-97	1.810E+07	6.040E+06	0.000E+00	3.082E+06	SHORT HLIF
MO-99	1.051E+01	1.569E+01	1.376E+01	8.005E+00	NOT IDENT.
TC-99M	-3.012E+17	5.607E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.961E-02	3.815E-02	3.293E-02	1.946E-02	NOT IDENT.
RH-102	-5.669E-03	3.163E-02	2.656E-02	1.614E-02	NOT IDENT.
RU-103	-2.478E-02	4.860E-02	3.926E-02	2.479E-02	NOT IDENT.
RH-106	-9.994E-02	3.447E-01	2.807E-01	1.759E-01	NOT IDENT.
RU-106	-9.994E-02	3.445E-01	2.807E-01	1.758E-01	NOT IDENT.
AG-108M	-3.029E-02	3.555E-02	2.854E-02	1.814E-02	NOT IDENT.
AG-110M	2.098E-02	4.505E-02	3.423E-02	2.299E-02	NOT IDENT.
IN-111	1.949E+00	1.616E+00	1.281E+00	8.243E-01	NOT IDENT.
IN-113M	-2.989E-02	4.774E-02	3.939E-02	2.436E-02	NOT IDENT.
SN-113	-2.989E-02	4.774E-02	3.939E-02	2.436E-02	NOT IDENT.
IN-114M	-4.363E-02	2.275E-01	1.662E-01	1.161E-01	NOT IDENT.
CD-115	-8.615E+00	1.611E+01	1.304E+01	8.221E+00	NOT IDENT.
SN-117M	8.359E-03	6.255E-02	5.371E-02	3.191E-02	NOT IDENT.
SB-122	-1.311E+00	3.047E+00	2.480E+00	1.554E+00	NOT IDENT.
I-123	8.396E+06	1.996E+07	0.000E+00	1.019E+07	SHORT HLIF
TE-123M	1.286E-02	3.059E-02	2.658E-02	1.561E-02	NOT IDENT.
I-124	4.533E-01	1.084E+00	8.145E-01	5.529E-01	NOT IDENT.
SB-124	3.037E-02	7.164E-02	6.587E-02	3.655E-02	FAIL ABUN
SB-125	-4.666E-03	1.001E-01	8.545E-02	5.107E-02	NOT IDENT.
TE-125M	3.213E+00	1.052E+01	9.235E+00	5.369E+00	NOT IDENT.
I-126	1.027E-01	2.390E-01	1.808E-01	1.219E-01	NOT IDENT.
SB-126	4.367E-03	2.062E-01	1.475E-01	1.052E-01	NOT IDENT.
SB-127	-1.679E+00	1.732E+00	1.295E+00	8.839E-01	NOT IDENT.
XE-127	-9.661E-02	6.103E-02	4.316E-02	3.114E-02	NOT IDENT.
I-131	2.450E-02	1.375E-01	1.201E-01	7.016E-02	NOT IDENT.
TE-132	-4.785E-02	9.252E-01	7.737E-01	4.720E-01	NOT IDENT.
BA-133	-8.196E-03	4.813E-02	3.562E-02	2.456E-02	NOT IDENT.
I-133	-5.982E+03	1.383E+04	0.000E+00	7.055E+03	SHORT HLIF
CS-134	9.457E-02	5.229E-02	5.078E-02	2.668E-02	NOT IDENT.
I-135	5.977E+15	6.719E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.055E-01	1.148E-01	1.062E-01	5.858E-02	FAIL ABUN
CE-139	1.315E-02	3.263E-02	2.828E-02	1.665E-02	NOT IDENT.
BA-140	-6.401E-02	2.826E-01	2.335E-01	1.442E-01	NOT IDENT.
LA-140	-3.039E-02	9.359E-02	7.517E-02	4.775E-02	NOT IDENT.
CE-141	1.524E-02	6.863E-02	5.937E-02	3.502E-02	NOT IDENT.
CE-143	1.349E+03	4.319E+02	0.000E+00	2.203E+02	SHORT HLIF
CE-144	9.828E-02	2.217E-01	1.939E-01	1.131E-01	NOT IDENT.
PM-144	1.358E-03	4.012E-02	3.339E-02	2.047E-02	NOT IDENT.
PR-144	9.209E-02	2.720E+00	2.264E+00	1.388E+00	NOT IDENT.

PM-146	3.856E-02	4.886E-02	4.380E-02	2.493E-02	NOT IDENT.
ND-147	1.804E-01	6.446E-01	5.565E-01	3.289E-01	NOT IDENT.
PM-149	2.345E+01	1.346E+02	1.189E+02	6.868E+01	NOT IDENT.
EU-152	2.940E-02	1.267E-01	9.217E-02	6.464E-02	NOT IDENT.
GD-153	1.223E-01	9.422E-02	7.690E-02	4.807E-02	NOT IDENT.
EU-154	-3.330E-03	1.331E-01	1.104E-01	6.793E-02	NOT IDENT.
EU-155	8.631E-02	1.191E-01	1.063E-01	6.079E-02	FAIL ABUN
TB-160	-2.959E-02	1.416E-01	1.184E-01	7.226E-02	FAIL ABUN
HO-166M	-1.430E-02	6.857E-02	5.574E-02	3.499E-02	FAIL ABUN
TM-171	-4.612E+01	4.221E+01	2.857E+01	2.153E+01	NOT IDENT.
LU-176	7.349E-03	2.861E-02	2.315E-02	1.460E-02	FAIL ABUN
LU-177	3.450E+00	2.271E+00	1.199E+00	1.159E+00	FAIL ABUN
LU-177M	-8.866E-02	2.086E-01	1.744E-01	1.064E-01	FAIL ABUN
HF-181	7.432E-03	4.957E-02	4.259E-02	2.529E-02	NOT IDENT.
W-181	1.637E-02	5.000E-01	3.891E-01	2.551E-01	NOT IDENT.
TA-182	2.294E-01	2.356E-01	2.129E-01	1.202E-01	NOT IDENT.
RE-183	-1.626E-01	1.202E-01	9.599E-02	6.130E-02	FAIL ABUN
RE-184	4.972E-02	2.754E-01	2.318E-01	1.405E-01	NOT IDENT.
OS-185	-4.870E-02	4.730E-02	3.557E-02	2.413E-02	NOT IDENT.
RE-188	2.729E-02	1.925E-01	1.655E-01	9.823E-02	NOT IDENT.
W-188	1.807E-01	9.104E+00	6.953E+00	4.645E+00	FAIL ABUN
IR-192	-2.910E-02	3.771E-02	3.141E-02	1.924E-02	FAIL ABUN
AU-195	3.473E-01	2.665E-01	2.177E-01	1.360E-01	FAIL ABUN
TL-200	-1.701E+02	9.114E+02	0.000E+00	4.650E+02	SHORT HLIF
TL-201	6.669E+00	9.638E+00	8.444E+00	4.918E+00	NOT IDENT.
TL-202	6.111E-02	7.931E-02	7.128E-02	4.046E-02	NOT IDENT.
HG-203	4.914E-02	4.424E-02	4.075E-02	2.257E-02	NOT IDENT.
BI-207	5.007E-02	5.987E-02	5.444E-02	3.055E-02	FAIL ABUN
TL-207	-6.560E-02	8.307E-01	6.252E-01	4.238E-01	FAIL ABUN
PO-209	7.441E+00	8.471E+00	7.771E+00	4.322E+00	NOT IDENT.
BI-210	-5.090E+00	6.208E+00	5.192E+00	3.167E+00	NOT IDENT.
PB-210	-5.090E+00	6.208E+00	5.192E+00	3.167E+00	NOT IDENT.
PO-210	-5.090E+00	6.205E+00	5.192E+00	3.166E+00	NOT IDENT.
PB-211	-8.289E-01	1.155E+00	8.468E-01	5.893E-01	NOT IDENT.
BI-212	1.355E+00	4.685E-01	3.870E-01	2.390E-01	FAIL ABUN
PO-215	-6.560E-02	8.307E-01	6.252E-01	4.238E-01	FAIL ABUN
RN-219	4.455E-02	4.508E-01	3.899E-01	2.300E-01	NOT IDENT.
RN-220	-8.300E+00	2.881E+01	2.372E+01	1.470E+01	NOT IDENT.
RA-223	-6.560E-02	8.307E-01	6.252E-01	4.238E-01	FAIL ABUN
AC-227	-9.590E-02	4.554E-01	3.750E-01	2.323E-01	FAIL ABUN
TH-227	-9.590E-02	4.554E-01	3.750E-01	2.324E-01	FAIL ABUN
TH-229	2.659E-03	5.537E-01	4.683E-01	2.825E-01	FAIL ABUN
PA-231	-6.567E-01	1.637E+00	1.403E+00	8.351E-01	NOT IDENT.
TH-231	-6.560E-02	8.307E-01	6.252E-01	4.238E-01	FAIL ABUN
U-231	8.010E-01	1.529E+00	1.203E+00	7.799E-01	FAIL ABUN
PA-233	4.636E-02	6.840E-02	6.176E-02	3.490E-02	FAIL ABUN
PA-234	6.336E-02	3.463E-01	2.993E-01	1.767E-01	FAIL ABUN
PA-234M	1.900E+00	5.093E+00	4.390E+00	2.599E+00	NOT IDENT.
U-235	1.748E-02	2.321E-01	1.956E-01	1.184E-01	FAIL ABUN
NP-236	1.450E-02	8.385E-02	7.210E-02	4.278E-02	NOT IDENT.
NP-239	-1.370E-01	2.152E-01	1.814E-01	1.098E-01	FAIL ABUN
AM-241	1.310E-02	2.159E-01	1.695E-01	1.101E-01	NOT IDENT.
CM-243	2.814E-02	1.043E-01	9.170E-02	5.323E-02	FAIL ABUN
AM-246	3.431E-02	1.491E-01	1.287E-01	7.607E-02	NOT IDENT.
CM-247	1.634E-02	3.971E-02	3.502E-02	2.026E-02	NOT IDENT.
CF-249	4.497E-03	4.494E-02	3.853E-02	2.293E-02	NOT IDENT.
CF-251	4.588E-03	1.438E-01	1.223E-01	7.337E-02	NOT IDENT.



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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY MDA COUNTS

46.50	290.0007
46.50	290.0007
46.50	290.0007
48.70	263.0349
49.72	285.3171
51.35	291.5942
52.39	287.5500
52.97	293.3155
53.15	275.1242
53.44	295.3771
54.07	283.7886
56.28	276.5560
56.28	276.5572
57.37	0.0000
57.53	318.8114
57.53	318.8121
57.60	300.9580
57.98	302.1948
57.98	302.1948
59.32	273.2950
59.32	273.2950
59.40	273.3295
59.54	283.7344
59.72	316.3357
60.01	316.4800
61.10	282.9473
61.14	285.9278
61.30	285.9990
63.00	325.9347
63.29	329.7943
63.29	329.7943
63.58	337.3755
64.28	324.5211
65.12	336.8550
65.20	336.8951
65.20	336.8951
66.05	383.5926
66.72	390.3203
66.83	390.3857
66.91	393.5454
67.20	373.7778
67.20	373.7778
67.75	362.8560
67.85	362.9093
68.90	355.9702
68.90	355.9702
69.30	362.9247
69.67	375.1236
70.82	366.7208
70.82	366.7208
70.83	366.7267
72.80	383.3852
72.87	383.4225
72.87	383.4225
74.67	384.3820
74.81	384.4565
74.81	384.4565
74.81	384.4565
74.81	384.4565
74.81	384.4565
74.81	384.4565
74.81	384.4565
74.97	384.5403
75.28	384.7049
75.70	384.9254
77.11	385.6644
77.11	385.6644

77.11	385.6644
77.11	385.6644
77.11	385.6644
77.11	385.6644
77.11	385.6644
78.38	366.0114
79.62	398.5618
79.80	398.6561
79.80	398.6561
80.11	435.3540
80.18	435.3942
80.30	435.4622
80.30	435.4622
80.57	435.9984
81.00	452.1197
81.07	452.1613
81.07	452.1613
81.07	452.1613
81.07	452.1613
82.60	439.0657
83.37	408.9269
83.78	391.5547
83.78	391.5547
83.78	391.5547
83.78	391.5547
84.21	381.0594
84.90	395.1806
85.43	395.4467
86.29	514.9869
86.50	515.1241
86.54	515.1487
86.59	515.1815
86.72	515.2675
86.79	515.3105
86.94	575.8759
87.30	576.1368
87.30	576.1368
87.30	576.1368
87.30	576.1368
87.30	576.1368
87.30	576.1368
87.30	576.1368
87.57	566.0854
87.88	480.4630
88.03	480.5527
88.36	449.9812
88.47	450.0437
89.95	481.6971
91.11	382.0479
92.29	579.6913
92.38	579.7554
92.38	579.7554
93.35	445.9677
94.00	446.3159
94.67	322.4552
94.67	322.4571
94.90	333.4009
94.90	333.4009
94.90	333.4009
94.90	333.4009
95.87	307.3931
95.87	307.3931
96.73	281.2869
97.43	256.6322
98.44	274.0633
98.44	274.0644
98.88	246.1604
99.55	263.7633
99.55	263.7633
99.86	272.9558
100.00	272.9996
100.10	273.0327
103.18	316.0716
103.76	283.9653
105.00	300.0503
105.31	289.3643
108.00	313.8404
109.28	310.3401

111.00	316.8440
111.00	316.8440
111.76	339.8244
112.95	329.3784
115.19	278.6075
116.30	310.6980
117.00	324.8333
117.00	324.8333
117.66	311.1409
121.11	257.3839
121.62	264.5057
121.78	291.5021
122.06	291.5856
122.32	293.6602
122.32	293.6602
122.32	293.6602
122.32	293.6602
123.07	305.8798
127.23	272.0271
129.76	287.8023
131.20	323.4784
133.02	314.9636
133.54	272.7026
135.34	297.4565
136.00	294.6055
136.25	294.6766
136.48	284.6124
140.51	300.9457
140.51	0.0000
142.18	295.3034
142.65	283.2070
143.76	280.4382
144.24	285.6631
144.24	285.6631
144.24	285.6631
144.24	285.6631
145.22	281.8349
145.44	278.8278
147.16	297.6782
152.43	266.1986
152.70	274.4861
153.22	266.3844
154.21	285.1448
154.21	285.1448
154.21	285.1448
154.21	285.1448
155.03	290.5027
156.02	284.5681
158.56	266.5979
159.00	0.0000
159.00	251.1926
160.31	248.3716
161.27	282.7560
162.32	296.4846
162.64	279.9742
163.35	255.2415
163.89	244.9784
165.85	256.8218
167.43	259.2433
171.28	275.7385
171.86	281.0963
172.10	281.1517
176.55	273.7800
176.60	273.7899
181.06	272.8747
184.41	271.2743
185.71	243.4447
186.00	243.5010
190.27	249.3976
192.34	250.6420
193.63	243.4470
197.04	273.9193
198.01	241.0544
198.60	247.5620
200.40	241.4854
201.83	273.8301
202.84	313.9986
205.31	221.3424

208.36	266.5463
208.81	242.9803
209.75	243.1441
209.75	243.1441
210.97	243.3580
215.65	238.5554
216.55	219.1030
218.09	225.1133
222.10	222.4905
223.80	222.7533
226.40	229.6834
227.00	206.9094
227.08	204.7429
227.20	204.7601
228.16	211.4326
228.18	211.4356
228.18	211.4356
231.56	0.0000
235.69	213.8261
236.00	220.8830
236.00	220.8830
238.63	390.7357
238.63	390.7357
238.63	390.7357
238.63	390.7357
239.00	390.8308
240.98	391.3441
241.98	246.4014
241.98	246.4014
241.98	246.4014
244.69	185.1292
245.39	156.9907
247.94	199.4025
248.90	208.8399
249.79	207.8539
252.40	190.4831
252.85	197.1849
252.85	197.1849
254.15	0.0000
256.20	208.7059
256.20	208.7059
260.50	169.1979
260.90	165.9016
262.80	221.1656
264.65	155.3511
268.24	161.0640
268.79	161.1189
269.46	161.1848
269.46	161.1848
269.46	161.1848
269.46	161.1848
271.23	155.9819
273.65	233.4192
276.40	158.0120
277.35	151.8359
277.60	159.7327
277.60	159.7327
278.00	151.2205
278.60	143.1699
279.20	154.0315
279.53	177.4852
280.46	183.8938
281.68	196.6577
283.67	168.8912
284.30	170.7621
285.00	165.4081
285.90	166.4019
286.10	165.5154
286.10	165.5154
287.40	162.9272
288.45	0.0000
290.67	164.7507
290.80	164.7618
291.72	181.4868
293.26	0.0000
293.70	184.7251
295.21	143.6639
295.21	143.6639

295.21	143.6639
295.96	143.7275
296.50	143.7719
297.23	143.8317
298.57	143.9416
299.80	144.0439
299.80	144.0439
300.09	144.0670
300.09	144.0670
300.09	144.0670
300.09	144.0670
300.12	144.0689
301.29	129.2622
302.84	162.8620
303.76	152.2868
303.91	152.2990
304.40	138.6310
304.40	138.6310
304.84	131.0454
306.84	137.2961
308.46	135.5884
311.98	129.4284
316.51	155.5184
318.01	160.2533
319.02	131.0573
319.41	129.0369
320.08	129.0847
323.87	150.9099
323.87	150.9099
323.87	150.9099
323.87	150.9099
325.23	180.2988
328.77	145.1328
333.44	155.5550
334.20	164.1348
334.20	164.1348
334.30	164.1434
338.28	133.1426
338.28	133.1426
338.28	133.1426
338.28	133.1426
338.32	133.1443
338.32	133.1443
338.32	133.1443
340.50	153.8053
340.57	153.8093
344.27	127.0219
345.85	115.2847
350.59	0.0000
351.07	119.0330
351.92	119.0842
351.92	119.0842
351.92	119.0842
355.39	0.0000
356.01	92.3964
364.48	118.8987
366.43	126.5721
367.43	119.0740
367.94	0.0000
369.80	116.3755
374.96	121.4141
383.85	130.5146
387.95	112.6358
388.63	114.5815
391.69	118.5735
391.69	118.5735
392.90	105.2466
398.62	118.0031
400.65	115.2349
401.10	112.3783
401.81	112.4154
402.60	103.8063
404.84	130.8552
410.95	97.4542
411.60	95.5534
413.65	135.2524
414.70	134.3508
415.30	126.6536

415.76	129.5819
417.63	0.0000
418.52	106.5061
423.70	98.9918
427.08	104.0024
427.89	101.1232
432.53	101.3327
433.93	109.1945
439.47	86.0062
439.56	86.0095
439.89	98.7302
443.98	109.6785
444.90	103.8443
445.03	103.8508
445.03	103.8508
445.03	103.8508
445.03	103.8508
453.90	88.5135
463.38	88.8728
468.07	97.9534
473.00	89.2332
475.06	90.3013
475.35	94.2822
476.78	85.4006
477.59	94.3703
477.96	91.4037
482.03	94.5431
484.57	94.6417
487.03	91.7462
490.36	0.0000
492.35	81.9510
497.08	97.1279
507.63	0.0000
510.53	0.0000
510.84	72.4917
511.00	72.4961
511.85	72.5212
511.85	72.5212
513.99	57.1246
513.99	57.1246
520.41	84.2183
520.65	84.2265
527.90	88.1810
528.96	0.0000
529.64	87.2262
529.87	0.0000
531.02	73.0652
537.32	72.2238
543.00	84.6130
546.56	0.0000
549.76	80.7416
552.65	72.6433
555.20	69.6402
563.23	83.2010
563.90	93.4972
568.70	72.0474
569.32	64.8580
569.50	68.9809
569.67	68.9842
573.80	88.6812
574.00	79.4063
574.64	72.2046
578.91	70.5939
579.30	0.0000
583.14	63.8045
585.48	77.6660
591.81	75.7660
592.07	75.7731
593.00	89.2964
595.88	68.5991
600.56	96.8235
602.52	0.0000
602.71	85.0881
602.71	85.0881
603.60	66.0083
604.41	95.5652
604.70	95.5741
609.31	78.3234

609.31	78.3234
609.31	78.3234
609.31	78.3234
610.33	76.6097
612.46	60.9851
614.37	59.2828
618.01	73.3240
621.84	69.2243
621.84	69.2243
631.29	70.5021
633.02	68.4373
633.10	68.4388
634.78	73.7461
635.90	73.7734
636.97	69.5836
645.85	72.9638
646.12	76.1432
656.30	79.5850
657.75	63.6987
657.90	0.0000
661.65	58.4657
661.65	58.4657
664.57	0.0000
666.33	62.1045
666.33	62.1045
675.00	71.5326
677.61	59.8391
685.20	69.6259
692.80	68.7219
695.00	84.8884
696.49	74.1784
696.49	74.1784
697.00	70.9645
697.49	68.8250
698.33	69.9178
698.50	68.8469
699.00	63.4783
702.63	74.3216
706.10	65.7760
706.58	0.0000
706.67	73.3374
709.31	55.0491
711.68	68.0526
713.82	65.9354
717.42	66.0099
720.50	70.4050
721.93	0.0000
722.20	75.8610
722.78	66.8412
722.78	66.8412
722.89	66.8442
722.95	66.8457
723.30	66.8532
724.18	61.4493
727.18	59.6970
733.00	45.3054
735.90	62.0334
739.58	46.8486
742.81	49.0759
744.21	60.0072
747.13	57.8769
751.79	45.9283
752.31	48.1229
753.82	52.5223
755.35	50.3563
756.15	59.1284
756.87	64.6177
763.93	73.5331
765.79	65.8872
766.42	73.5871
766.84	80.1877
776.49	67.0132
778.00	54.1854
778.57	49.6011
778.89	49.6055
783.80	51.5168
785.46	62.5865
792.07	51.6409

795.84	44.3115
796.30	46.1639
798.80	91.4711
801.93	66.5845
805.60	52.7672
810.29	63.9617
810.76	64.8973
815.85	53.8499
817.79	40.8740
818.51	39.0238
819.60	42.7535
826.30	52.1457
828.27	0.0000
831.60	73.6719
831.96	72.7473
834.83	67.2056
836.80	0.0000
846.75	55.2525
848.13	55.2741
856.28	0.0000
856.80	57.2831
860.37	43.2392
867.32	48.0294
867.82	49.9193
871.10	36.7656
873.19	42.4457
874.81	47.1832
875.33	0.0000
876.40	46.2585
879.36	43.4610
880.27	37.8019
880.51	36.8593
881.50	40.6502
883.24	48.2348
884.67	40.6843
889.25	46.4180
896.60	43.6613
898.02	52.2227
899.00	50.3366
903.28	52.1596
911.07	50.6323
911.07	50.6323
911.07	50.6323
919.63	49.6535
920.93	52.5360
925.00	53.5470
925.24	50.6817
926.50	51.6555
935.52	58.4869
937.48	61.3932
944.10	53.8102
946.00	49.9910
949.00	59.6500
962.29	57.9187
964.01	46.3545
966.15	62.9441
968.20	76.3721
969.11	76.3898
969.11	76.3898
969.11	76.3898
977.42	33.7196
980.50	49.4540
983.50	47.5505
989.30	50.5337
996.32	44.7796
1001.03	38.9836
1001.68	52.6355
1004.76	53.6505
1021.30	0.0000
1024.50	0.0000
1034.80	54.0399
1036.00	50.1222
1037.82	47.1953
1038.57	47.2031
1038.76	0.0000
1045.16	54.1720
1046.59	37.4403
1048.07	29.5679



1050.47	45.3636
1050.47	45.3636
1062.04	38.5652
1063.62	39.5687
1076.63	46.6328
1077.35	39.6940
1078.86	37.7217
1085.78	39.7705
1099.22	46.8738
1112.02	53.1537
1112.84	46.3046
1115.52	60.0586
1120.29	51.1058
1120.29	51.1058
1120.29	51.1058
1120.29	51.1058
1120.51	51.1079
1121.28	42.9548
1124.00	0.0000
1129.67	54.2241
1131.51	0.0000
1147.95	0.0000
1167.94	51.6433
1173.22	38.5242
1175.09	48.6816
1177.93	56.8294
1189.05	68.1559
1204.90	59.1989
1205.75	0.0000
1213.00	51.1210
1221.42	50.1883
1230.97	65.6823
1235.34	76.0144
1236.41	0.0000
1238.25	60.6421
1246.25	54.5657
1260.41	0.0000
1271.85	33.1185
1274.45	37.2773
1274.54	37.2788
1291.56	51.9531
1298.22	0.0000
1312.09	30.2567
1325.50	29.2909
1325.50	29.2909
1332.49	35.6173
1333.61	34.5764
1360.21	21.0645
1362.66	0.0000
1365.15	23.1924
1368.21	24.2616
1368.53	0.0000
1376.25	24.2990
1384.27	19.0459
1394.10	21.2012
1395.20	22.2664
1407.95	26.5706
1434.06	21.3607
1436.60	30.9871
1457.56	0.0000
1460.81	17.1732
1489.15	17.2617
1509.49	20.5725
1596.49	18.8456
1620.62	4.7307
1678.03	0.0000
1691.02	7.6582
1691.02	7.6582
1706.46	0.0000
1750.46	0.0000
1764.49	6.7805
1764.49	6.7805
1764.49	6.7805
1764.49	6.7805
1770.23	36.8417
1771.40	12.6060
1791.20	0.0000
1808.65	8.7784

1836.01

12.7334

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229005

Total Uranium Activity	1.0300E+01	ug/g
Total Uranium Counting Unc.	6.2538E+00	ug/g
Total Uranium Tpu	3.1907E-06	ug/g
Total Uranium Mda	4.1009E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON, SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*   BATCH ID      : 941239                SAMPLE ID   : G244229005
*   ANALYST       : MXR1                  DETECTOR    : GAM23
*   SAMPLE DATE   : 6-JAN-2010 12:00:00.00 COUNT TIME   : 0 02:00:00.00
*   ANALYSIS DATE : 22-JAN-2010 13:05:11.40 SAMPLE ALQT : 121.280 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 7.908E+00
GROSS GAMMA ERROR  (pCi/GRAM ) : 1.232E+00
GROSS GAMMA MDA    (pCi/GRAM ) : 2.544E+00
GROSS GAMMA DLC    (pCi/GRAM ) : 1.230E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 15:40:46.79

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229006.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 13:40:14
Sample ID          : G244229006          Sample quantity  : 1.33390E+02 GRAM
Detector name      : GAM12              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.57  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941239             Detector SN#       :
Matrix Spike ID    :                    LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	57.38	54	371	1.28	114.23	112	7	7.51E-03	60.3	
2	0	63.22*	241	643	0.98	125.92	120	11	3.34E-02	21.8	
3	3	74.69	369	465	1.22	148.87	143	16	5.13E-02	11.1	1.77E+00
4	3	77.00*	593	369	1.00	153.50	143	16	8.24E-02	6.9	
5	3	84.06*	101	488	1.25	167.62	164	28	1.41E-02	38.6	2.25E+00
6	3	87.06	274	461	1.26	173.63	164	28	3.81E-02	14.6	
7	3	89.86	180	329	1.08	179.22	164	28	2.50E-02	17.7	
8	3	92.56*	579	354	1.23	184.63	164	28	8.04E-02	7.3	
9	0	128.69	55	337	0.85	256.92	254	8	7.58E-03	60.0	
10	0	185.69*	328	263	1.19	370.97	367	8	4.55E-02	10.7	
11	0	209.00	127	307	1.22	417.63	414	10	1.76E-02	27.2	
12	6	238.46*	1235	168	1.05	476.58	472	16	1.72E-01	3.3	6.07E-01
13	6	241.38	279	255	1.78	482.41	472	16	3.87E-02	16.1	
14	0	269.99	112	183	1.77	539.66	535	9	1.56E-02	23.7	
15	1	295.07*	363	124	1.38	589.85	585	24	5.04E-02	7.4	3.69E+00
16	1	299.77	105	101	1.39	599.25	585	24	1.46E-02	20.7	
17	0	327.62	72	166	0.84	654.97	650	10	1.00E-02	35.5	
18	0	338.16*	204	210	0.99	676.05	671	11	2.84E-02	15.6	
19	0	351.64*	533	160	1.13	703.03	698	10	7.40E-02	6.3	
20	0	462.51	69	123	1.44	924.84	918	11	9.57E-03	33.5	
21	0	510.66*	108	104	1.39	1021.17	1014	13	1.51E-02	26.0	
22	0	582.94*	370	118	1.15	1165.79	1161	12	5.14E-02	7.9	
23	0	609.02*	403	74	1.51	1217.96	1213	10	5.59E-02	6.5	
24	0	661.46*	208	77	1.33	1322.85	1317	11	2.89E-02	11.0	
25	0	727.09	72	97	1.56	1454.16	1446	13	1.00E-02	30.6	
26	0	794.99	39	43	1.27	1589.99	1586	8	5.40E-03	33.9	
27	0	860.04	59	73	2.50	1720.11	1714	15	8.24E-03	33.7	
28	0	910.83*	278	82	2.03	1821.69	1814	19	3.86E-02	9.9	
29	1	964.30	47	70	2.00	1928.64	1923	26	6.47E-03	38.3	1.15E+00
30	1	968.54*	138	59	1.83	1937.14	1923	26	1.91E-02	14.1	
31	0	1120.39*	108	73	1.56	2240.84	2234	14	1.51E-02	19.8	
32	0	1444.82	8	9	1.22	2889.65	2882	9	1.08E-03	78.3	
33	0	1460.22*	1371	22	2.11	2920.45	2913	15	1.90E-01	2.8	
34	0	1763.87*	65	0	2.00	3527.63	3521	14	9.03E-03	13.5	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 15:40:50

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229006.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 13:40:14  
 Sample ID : G244229006 Sample quantity : 133.39 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA12 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.57 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.178E+01	2.889E+00	5.790E-01	4.128E-02	54.881
CD-109	+	88.03	*	3.769E+00	1.140E+00	1.163E+00	8.898E-02	3.241
SN-126	+	64.28		2.206E+00	1.009E+00	7.658E-01	1.075E-01	2.880
	+	86.94		1.538E+00	7.767E-01	4.799E-01	1.975E-01	3.204
	+	87.57	*	3.699E-01	1.119E-01	1.147E-01	8.739E-03	3.226
BA-137M	+	661.65	*	2.890E-01	6.623E-02	5.844E-02	3.788E-03	4.945
CS-137	+	661.65	*	3.055E-01	7.003E-02	6.177E-02	4.018E-03	4.945
W-181	+	56.28		3.723E-01	4.495E-01	5.740E-01	3.651E-02	0.649
	+	57.53		2.135E-01	2.578E-01	3.056E-01	1.932E-02	0.699
	+	65.20	*	2.555E-01	3.698E-01	5.788E-01	3.719E-02	0.442
TL-208		277.35		3.001E-01	3.426E-01	5.842E-01	6.119E-02	0.514
	+	510.84		5.055E-01	2.678E-01	1.882E-01	1.943E-02	2.685
	+	583.14	*	4.942E-01	8.561E-02	6.023E-02	4.309E-03	8.205
	+	860.37		7.462E-01	5.069E-01	4.976E-01	4.348E-02	1.500
BI-211		72.87		3.421E+00	3.315E+00	5.203E+00	3.491E-01	0.658
	+	351.07	*	3.078E+00	4.342E-01	3.060E-01	1.924E-02	10.059
PB-212	+	74.81		2.120E+00	5.305E-01	5.250E-01	6.068E-02	4.039
	+	77.11		1.926E+00	2.971E-01	2.979E-01	2.062E-02	6.464
	+	87.30		1.711E+00	5.450E-01	5.318E-01	6.680E-02	3.217
	+	238.63	*	1.554E+00	1.513E-01	8.224E-02	5.840E-03	18.891
	+	300.09		2.041E+00	8.597E-01	1.067E+00	8.714E-02	1.912
PO-212	+	74.81		2.120E+00	5.305E-01	5.250E-01	6.068E-02	4.039
	+	77.11		1.926E+00	2.971E-01	2.979E-01	2.062E-02	6.464
	+	87.30		1.711E+00	5.450E-01	5.318E-01	6.680E-02	3.217
	+	115.19		8.282E-03	3.370E+00	5.537E+00	3.512E-01	0.001
	+	238.63	*	1.554E+00	1.513E-01	8.224E-02	5.840E-03	18.891
	+	300.09		2.041E+00	8.597E-01	1.067E+00	8.714E-02	1.912
BI-214	+	609.31	*	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
	+	1120.29		1.421E+00	5.764E-01	4.839E-01	4.395E-02	2.936
	+	1764.49		1.169E+00	3.240E-01	2.877E-01	1.705E-02	4.065
PB-214	+	74.81		3.654E+00	8.900E-01	9.046E-01	9.097E-02	4.039
	+	77.11		3.302E+00	5.680E-01	5.108E-01	5.258E-02	6.464
	+	87.30		2.931E+00	9.147E-01	9.111E-01	9.863E-02	3.217
	+	241.98		2.104E+00	6.958E-01	4.953E-01	3.898E-02	4.248

----- Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.235E+00	2.108E-01	1.868E-01	1.577E-02	6.612
	+	351.92	*	1.071E+00	1.610E-01	1.068E-01	8.721E-03	10.030
	+	74.81		3.654E+00	8.900E-01	9.046E-01	9.097E-02	4.039
	+	77.11		3.302E+00	5.680E-01	5.108E-01	5.258E-02	6.464
	+	87.30		2.931E+00	9.147E-01	9.111E-01	9.863E-02	3.217
PO-216	+	241.98		2.104E+00	6.958E-01	4.953E-01	3.898E-02	4.248
	+	295.21		1.235E+00	2.108E-01	1.868E-01	1.577E-02	6.612
	+	351.92	*	1.071E+00	1.610E-01	1.068E-01	8.721E-03	10.030
	+	74.81		2.120E+00	5.305E-01	5.250E-01	6.068E-02	4.039
	+	77.11		1.926E+00	2.971E-01	2.979E-01	2.062E-02	6.464
PO-218	+	87.30		1.711E+00	5.450E-01	5.318E-01	6.680E-02	3.217
	+	238.63	*	1.554E+00	1.513E-01	8.224E-02	5.840E-03	18.891
	+	300.09		2.041E+00	8.597E-01	1.067E+00	8.714E-02	1.912
	+	74.81		3.654E+00	8.900E-01	9.046E-01	9.097E-02	4.039
	+	77.11		3.302E+00	5.680E-01	5.108E-01	5.258E-02	6.464
RA-224	+	87.30		2.931E+00	9.147E-01	9.111E-01	9.863E-02	3.217
	+	241.98		2.104E+00	6.958E-01	4.953E-01	3.898E-02	4.248
	+	295.21		1.235E+00	2.108E-01	1.868E-01	1.577E-02	6.612
	+	351.92	*	1.071E+00	1.610E-01	1.068E-01	8.721E-03	10.030
	+	240.98	*	3.989E+00	1.300E+00	9.361E-01	5.163E-02	4.262
RA-226	+	609.31	*	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
	+	1120.29		1.421E+00	5.764E-01	4.839E-01	4.395E-02	2.936
	+	1764.49		1.169E+00	3.240E-01	2.877E-01	1.705E-02	4.065
	+	338.32		1.299E+00	6.671E-01	3.629E-01	1.479E-01	3.580
	+	911.07	*	1.654E+00	3.758E-01	2.083E-01	2.287E-02	7.939
RA-228	+	969.11		1.442E+00	5.241E-01	3.380E-01	7.792E-02	4.266
	+	338.32		1.299E+00	6.671E-01	3.629E-01	1.479E-01	3.580
	+	911.07	*	1.654E+00	3.758E-01	2.083E-01	2.287E-02	7.939
	+	969.11		1.442E+00	5.241E-01	3.380E-01	7.792E-02	4.266
	+	74.81		2.155E+00	5.006E-01	5.335E-01	3.678E-02	4.039
TH-228	+	77.11		1.957E+00	3.019E-01	3.027E-01	2.096E-02	6.464
	+	87.30		1.738E+00	5.258E-01	5.404E-01	4.107E-02	3.217
	+	238.63	*	1.579E+00	1.538E-01	8.357E-02	5.934E-03	18.891
	+	300.09		2.074E+00	1.493E+00	1.085E+00	6.391E-01	1.912
	+	609.31	*	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
TH-230	+	1120.29		1.421E+00	5.764E-01	4.839E-01	4.395E-02	2.936
	+	1764.49		1.169E+00	3.240E-01	2.877E-01	1.705E-02	4.065
	+	338.32		1.299E+00	4.126E-01	3.629E-01	2.055E-02	3.580
	+	911.07	*	1.654E+00	3.758E-01	2.083E-01	2.287E-02	7.939
	+	969.11		1.442E+00	5.241E-01	3.380E-01	7.792E-02	4.266
TH-234	+	63.29	*	5.572E+00	2.605E+00	1.957E+00	3.332E-01	2.848
	+	92.38		5.046E+00	1.148E+00	7.511E-01	1.313E-01	6.718
	+	609.31	*	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
	+	1120.29		1.421E+00	5.764E-01	4.839E-01	4.395E-02	2.936
	+	1764.49		1.169E+00	3.240E-01	2.877E-01	1.705E-02	4.065
NP-237	+	86.50	*	1.086E+00	3.977E-01	3.406E-01	7.483E-02	3.189
	+	95.87		-2.241E-01	9.807E-01	1.437E+00	3.468E-01	-0.156
	+	63.29	*	5.572E+00	2.605E+00	1.957E+00	3.332E-01	2.848
	+	92.38		5.046E+00	8.214E-01	7.511E-01	5.468E-02	6.718

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.438E-01	7.978E-02	8.537E-02	5.801E-03	4.027
	+	86.72		4.073E+01	1.232E+01	1.274E+01	9.627E-01	3.197
		117.66		-2.436E+00	3.489E+00	5.540E+00	3.490E-01	-0.440
		142.18		-6.900E+00	1.698E+01	2.708E+01	1.533E+00	-0.255
ANH-511	+	511.00	*	1.092E-01	5.712E-02	4.067E-02	2.479E-03	2.685

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.255E-01	3.325E-01	5.499E-01	3.784E-02	0.228
NA-22		1274.54	*	5.658E-02	4.432E-02	8.150E-02	5.248E-03	0.694
NA-24		1368.53	*	-2.994E-01	4.432E-02	Half-Life too short		
AL-26		1129.67		8.756E-01	1.813E+00	3.131E+00	1.909E-01	0.280
		1808.65	*	7.066E-03	2.947E-02	5.036E-02	2.890E-03	0.140
TI-44		67.85		-1.164E-02	4.786E-02	7.169E-02	4.667E-03	-0.162
	+	78.38	*	3.554E-01	5.483E-02	6.795E-02	4.753E-03	5.230
SC-46		889.25	*	-3.367E-02	4.357E-02	6.534E-02	5.416E-03	-0.515
	+	1120.51		2.451E-01	9.812E-02	1.398E-01	8.689E-03	1.753
V-48		944.10		-6.286E-01	9.155E-01	1.363E+00	1.095E-01	-0.461
		983.50	*	-1.492E-03	7.897E-02	1.266E-01	9.751E-03	-0.012
		1312.09		-3.721E-02	8.449E-02	1.314E-01	8.921E-03	-0.283
CR-51		320.08	*	3.320E-01	3.468E-01	6.056E-01	3.850E-02	0.548
MN-52		744.21		8.268E-02	2.764E-01	4.654E-01	3.324E-02	0.178
		848.13		-4.956E-01	7.531E+00	1.217E+01	9.697E-01	-0.041
		935.52		3.294E-01	2.886E-01	5.132E-01	4.155E-02	0.642
		1246.25		2.508E+00	8.767E+00	1.479E+01	9.112E-01	0.170
		1333.61		-4.175E+00	5.739E+00	8.535E+00	5.960E-01	-0.489
		1434.06	*	3.099E-01	2.476E-01	4.717E-01	3.240E-02	0.657
MN-54		834.83	*	5.066E-03	3.947E-02	6.497E-02	5.108E-03	0.078
CO-56		846.75	*	-2.810E-02	4.055E-02	6.154E-02	4.895E-03	-0.457
		977.42		1.913E-01	3.495E+00	4.875E+00	3.782E-01	0.039
		1037.82		-4.403E-01	3.299E-01	4.813E-01	3.718E-02	-0.915
		1175.09		-1.640E+00	2.378E+00	3.696E+00	2.038E-01	-0.444
		1238.25		1.737E-01	9.934E-02	1.828E-01	1.176E-02	0.951
		1360.21		4.618E-01	8.956E-01	1.567E+00	1.091E-01	0.295
		1771.40		-4.295E-01	2.832E-01	3.494E-01	2.060E-02	-1.229
CO-57		122.06	*	-1.390E-02	2.309E-02	3.673E-02	2.297E-03	-0.378
		136.48		-1.655E-01	1.952E-01	3.048E-01	2.050E-02	-0.543
CO-58		810.76	*	-6.409E-03	3.405E-02	5.447E-02	4.192E-03	-0.118
FE-59		142.65		-7.707E-01	2.704E+00	4.313E+00	2.437E-01	-0.179
		192.34		8.845E-01	8.969E-01	1.491E+00	1.722E-01	0.593
		1099.22	*	-7.590E-02	9.162E-02	1.402E-01	1.035E-02	-0.541
		1291.56		4.899E-02	1.331E-01	2.264E-01	1.823E-02	0.216
CO-60		1173.22		-2.947E-02	4.716E-02	7.376E-02	4.054E-03	-0.400
		1332.49	*	-1.273E-02	3.930E-02	6.179E-02	4.316E-03	-0.206
ZN-65		1115.52	*	-1.348E-02	1.125E-01	1.583E-01	9.956E-03	-0.085
GE-68		1077.35	*	-3.255E-01	1.267E+00	2.064E+00	1.392E-01	-0.158
AS-73		53.44	*	2.793E-01	7.933E-01	1.311E+00	8.465E-02	0.213



## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-74	595.88	*	-6.170E-02	8.978E-02	1.422E-01	9.054E-03	-0.434	
	634.78		-2.109E-01	3.690E-01	5.870E-01	3.783E-02	-0.359	
SE-75	66.05		1.141E+00	4.874E+00	7.474E+00	6.525E-01	0.153	
	96.73		-9.339E-01	8.477E-01	1.174E+00	1.487E-01	-0.795	
	121.11		-5.624E-04	1.228E-01	2.012E-01	1.916E-02	-0.003	
	136.00		-2.594E-02	3.704E-02	5.833E-02	3.444E-03	-0.445	
	198.60		5.176E-01	1.733E+00	2.742E+00	1.843E-01	0.189	
	264.65	*	1.835E-02	4.235E-02	6.470E-02	3.668E-03	0.284	
	279.53		-1.073E-01	9.744E-02	1.529E-01	9.371E-03	-0.702	
	303.91		-1.431E+00	2.067E+00	2.841E+00	2.690E-01	-0.504	
	400.65		1.393E-01	2.427E-01	4.107E-01	3.670E-02	0.339	
BR-77	+ 87.88		1.073E+03	3.247E+02	4.392E+02	3.358E+01	2.444	
	+ 200.40		8.861E+01	2.036E+02	3.306E+02	1.753E+01	0.268	
	+ 239.00		3.294E+02	2.848E+01	4.823E+01	2.656E+00	6.829	
	249.79		4.831E+01	7.712E+01	1.339E+02	7.434E+00	0.361	
	281.68		-5.201E+01	1.067E+02	1.736E+02	9.812E+00	-0.300	
	297.23		1.812E+02	6.807E+01	1.260E+02	7.152E+00	1.438	
	303.76		-1.572E+02	2.311E+02	3.184E+02	1.809E+01	-0.494	
	439.47		-2.884E+01	1.718E+02	2.747E+02	1.582E+01	-0.105	
	484.57		-1.449E+02	2.986E+02	4.615E+02	2.761E+01	-0.314	
	520.65	*	-1.422E+00	1.259E+01	1.992E+01	1.222E+00	-0.071	
	574.64		6.707E+01	2.690E+02	4.593E+02	2.898E+01	0.146	
	578.91		-9.793E+00	1.323E+02	1.917E+02	1.212E+01	-0.051	
	585.48		1.022E+03	2.885E+02	5.232E+02	3.317E+01	1.954	
	755.35		2.982E+01	2.209E+02	3.670E+02	2.654E+01	0.081	
	817.79		-7.489E+01	1.707E+02	2.665E+02	2.059E+01	-0.281	
SR-82	698.33		-1.510E+01	3.566E+01	5.702E+01	3.864E+00	-0.265	
	776.49	*	-1.999E-01	3.886E-01	6.073E-01	4.494E-02	-0.329	
	1395.20		-4.606E+00	1.161E+01	1.792E+01	1.241E+00	-0.257	
RB-83	520.41	*	-2.622E-02	6.531E-02	1.007E-01	6.175E-03	-0.260	
	529.64		5.981E-02	1.002E-01	1.680E-01	1.036E-02	0.356	
	552.65		-3.186E-02	1.763E-01	2.925E-01	1.827E-02	-0.109	
RB-84	881.50	*	-2.249E-02	7.058E-02	1.107E-01	9.108E-03	-0.203	
KR-85	513.99	*	3.503E+00	7.570E+00	1.108E+01	6.768E-01	0.316	
SR-85	513.99	*	1.814E-02	3.920E-02	5.739E-02	3.505E-03	0.316	
RB-86	1076.63	*	2.952E-02	8.259E-01	1.382E+00	9.329E-02	0.021	
Y-88	898.02		1.216E-02	4.725E-02	7.816E-02	6.565E-03	0.156	
	1836.01	*	4.464E-02	3.757E-02	7.343E-02	4.134E-03	0.608	
ZR-88	392.90	*	-7.519E-04	3.167E-02	5.167E-02	2.834E-03	-0.015	
Y-91	1204.90	*	-4.859E+00	2.054E+01	3.326E+01	1.923E+00	-0.146	
NB-94	702.63	*	-6.994E-03	3.263E-02	5.299E-02	3.609E-03	-0.132	
	871.10		-7.792E-03	3.510E-02	5.574E-02	4.540E-03	-0.140	
NB-95	765.79	*	3.821E-03	4.788E-02	7.827E-02	5.725E-03	0.049	
NB-95M	235.69	*	7.461E-02	1.256E-01	1.939E-01	1.415E-02	0.385	
ZR-95	724.18		4.587E-02	1.129E-01	1.681E-01	1.325E-02	0.273	
	756.15	*	5.357E-02	7.216E-02	1.255E-01	1.036E-02	0.427	
NB-97	657.90	*	1.443E-01	7.216E-02	Half-Life	too short		
	1024.50		2.327E+01	7.216E-02	Half-Life	too short		
ZR-97	254.15		9.067E-01	7.216E-02	Half-Life	too short		

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		355.39		-7.964E+00	7.216E-02	Half-Life	too short	
		507.63	*	6.716E+00	7.216E-02	Half-Life	too short	
		602.52		-2.717E+00	7.216E-02	Half-Life	too short	
		1021.30		-5.368E+00	7.216E-02	Half-Life	too short	
		1147.95		8.892E+00	7.216E-02	Half-Life	too short	
		1362.66		-5.887E+00	7.216E-02	Half-Life	too short	
		1750.46		1.388E+01	7.216E-02	Half-Life	too short	
MO-99		140.51		-9.362E+00	3.280E+01	5.249E+01	1.413E+01	-0.178
		181.06		-7.846E+00	2.307E+01	3.206E+01	5.433E+00	-0.245
		366.43		3.505E+01	9.739E+01	1.637E+02	9.155E+00	0.214
		739.58	*	6.676E+00	1.538E+01	2.613E+01	3.757E+00	0.256
		778.00		1.285E+01	4.275E+01	7.185E+01	5.326E+00	0.179
TC-99M		140.51	*	-1.489E+11	4.275E+01	Half-Life	too short	
RH-101	+	127.23		3.433E-02	4.126E-02	5.013E-02	3.042E-03	0.685
		198.01	*	-1.471E-02	3.183E-02	4.846E-02	2.564E-03	-0.304
		325.23		-4.325E-02	2.390E-01	3.427E-01	1.947E-02	-0.126
RH-102		418.52		1.081E-01	2.741E-01	4.578E-01	2.583E-02	0.236
		475.06	*	-3.569E-03	2.839E-02	4.528E-02	2.689E-03	-0.079
		631.29		3.758E-02	5.633E-02	9.823E-02	6.324E-03	0.383
		697.49		5.901E-03	7.879E-02	1.310E-01	8.866E-03	0.045
		766.84		5.713E-02	1.229E-01	2.061E-01	1.509E-02	0.277
		1046.59		-1.267E-01	1.169E-01	1.751E-01	1.241E-02	-0.723
		1112.84		-8.218E-02	2.639E-01	3.793E-01	2.394E-02	-0.217
RU-103		497.08	*	-1.125E-02	4.014E-02	6.290E-02	8.023E-03	-0.179
	+	610.33		1.112E+01	2.268E+00	2.762E+00	4.323E-01	4.028
RH-106	+	511.85		5.464E-01	2.858E-01	4.083E-01	2.490E-02	1.338
		621.84	*	-2.657E-01	3.189E-01	4.954E-01	5.972E-02	-0.536
		1050.47		5.905E-02	2.288E+00	3.833E+00	2.700E-01	0.015
RU-106	+	511.85		5.464E-01	2.858E-01	4.083E-01	2.490E-02	1.338
		621.84	*	-2.657E-01	3.177E-01	4.954E-01	3.181E-02	-0.536
		1050.47		5.905E-02	2.288E+00	3.833E+00	2.700E-01	0.015
AG-108M		433.93	*	1.835E-02	3.058E-02	5.173E-02	3.224E-03	0.355
		614.37		-7.152E-03	4.207E-02	5.996E-02	4.110E-03	-0.119
		722.95		-3.252E-02	4.884E-02	6.431E-02	4.750E-03	-0.506
AG-110M		657.75	*	1.874E-02	3.984E-02	6.035E-02	4.113E-03	0.311
		677.61		-1.395E-01	2.971E-01	4.729E-01	3.274E-02	-0.295
		706.67		-6.006E-02	2.123E-01	3.429E-01	2.448E-02	-0.175
		763.93		-1.718E-01	1.826E-01	2.775E-01	2.105E-02	-0.619
		884.67		-1.398E-02	5.077E-02	8.004E-02	6.837E-03	-0.175
		937.48		-1.137E-01	1.185E-01	1.723E-01	1.450E-02	-0.660
		1384.27		-2.356E-02	1.561E-01	2.494E-01	1.805E-02	-0.094
IN-111		171.28		-5.784E-01	1.147E+00	1.793E+00	9.224E-02	-0.323
		245.39	*	-5.706E-01	1.288E+00	1.855E+00	1.027E-01	-0.308
IN-113M		391.69	*	-2.536E-02	4.505E-02	7.093E-02	4.176E-03	-0.357
SN-113		391.69	*	-2.536E-02	4.505E-02	7.093E-02	4.176E-03	-0.357
IN-114M		190.27	*	1.593E-02	1.788E-01	2.726E-01	1.430E-02	0.058
CD-115		260.90		-1.187E+02	1.570E+02	2.533E+02	1.417E+01	-0.469
		492.35		2.589E+01	4.707E+01	7.883E+01	4.743E+00	0.328
		527.90	*	3.742E+00	1.338E+01	2.190E+01	1.349E+00	0.171

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M	156.02			-6.377E-01	2.193E+00	3.492E+00	1.864E-01	-0.183
	158.56	*		-1.472E-02	5.246E-02	8.345E-02	4.408E-03	-0.176
SB-122	563.90	*		2.673E+00	2.664E+00	4.758E+00	2.988E-01	0.562
	692.80			9.654E+00	5.668E+01	9.495E+01	6.392E+00	0.102
I-123	159.00	*		9.801E-01	5.668E+01	Half-Life	too short	
	528.96			8.615E+01	5.668E+01	Half-Life	too short	
TE-123M	159.00	*		1.456E-03	2.599E-02	4.203E-02	2.252E-03	0.035
I-124	602.71	*		-1.888E-01	8.643E-01	1.290E+00	8.232E-02	-0.146
	722.78			-4.098E+00	5.965E+00	7.834E+00	5.462E-01	-0.523
	1325.50			3.519E+01	4.450E+01	7.875E+01	5.446E+00	0.447
	1376.25			2.533E+01	3.831E+01	6.602E+01	4.585E+00	0.384
	1509.49			2.750E+01	1.680E+01	3.342E+01	2.249E+00	0.823
	1691.02			-6.287E-02	4.729E+00	8.264E+00	5.129E-01	-0.008
SB-124	602.71			-9.474E-03	4.337E-02	6.473E-02	4.132E-03	-0.146
	645.85			1.262E-02	4.906E-01	8.177E-01	5.836E-02	0.015
	709.31			1.005E+00	2.837E+00	4.810E+00	3.301E-01	0.209
	713.82			-3.994E-01	1.612E+00	2.604E+00	2.832E-01	-0.153
	722.78			-2.980E-01	4.339E-01	5.698E-01	4.103E-02	-0.523
+	968.20			1.501E+01	4.378E+00	7.259E+00	5.688E-01	2.067
	1045.16			-1.144E+00	2.502E+00	4.006E+00	2.845E-01	-0.286
	1325.50			2.734E+00	3.456E+00	6.117E+00	4.231E-01	0.447
	1368.21			-5.318E-01	1.616E+00	2.509E+00	3.131E-01	-0.212
	1436.60			2.798E+00	3.833E+00	6.355E+00	4.363E-01	0.440
	1691.02	*		-1.079E-03	8.114E-02	1.418E-01	9.460E-03	-0.008
SB-125	427.89	*		2.725E-02	8.888E-02	1.474E-01	8.762E-03	0.185
+	463.38			6.251E-01	4.210E-01	5.332E-01	3.644E-02	1.172
	600.56			1.659E-01	1.725E-01	3.069E-01	2.214E-02	0.541
	635.90			-1.810E-01	2.693E-01	4.244E-01	3.120E-02	-0.427
TE-125M	109.28	*		-2.688E-02	8.784E+00	1.447E+01	1.248E+00	-0.002
I-126	388.63			8.857E-02	2.106E-01	3.534E-01	1.941E-02	0.251
	666.33	*		7.546E-02	2.001E-01	3.007E-01	1.961E-02	0.251
	753.82			1.748E-01	1.578E+00	2.616E+00	1.888E-01	0.067
SB-126	223.80			7.736E-03	3.798E+00	6.443E+00	3.500E-01	0.001
	278.60			-1.519E+00	2.388E+00	3.778E+00	2.132E-01	-0.402
+	296.50			1.297E+01	2.059E+00	3.374E+00	1.915E-01	3.844
	414.70			-6.121E-02	7.434E-02	1.136E-01	6.383E-03	-0.539
	415.30			-3.308E+00	6.229E+00	9.746E+00	5.480E-01	-0.339
	555.20			-3.664E+00	3.815E+00	5.926E+00	3.705E-01	-0.618
	573.80			-3.427E-01	1.094E+00	1.796E+00	1.133E-01	-0.191
	593.00			9.807E-02	8.921E-01	1.506E+00	9.577E-02	0.065
	656.30			1.147E+00	4.059E+00	6.033E+00	3.907E-01	0.190
	666.33			3.160E-02	8.378E-02	1.259E-01	8.211E-03	0.251
	675.00			-2.582E+00	2.109E+00	3.061E+00	2.017E-01	-0.843
	695.00			5.131E-02	8.508E-02	1.467E-01	9.904E-03	0.350
	697.00			2.463E-02	2.895E-01	4.816E-01	3.258E-02	0.051
	720.50	*		8.571E-02	1.689E-01	2.554E-01	1.776E-02	0.336
	856.80			2.209E-01	6.279E-01	9.178E-01	7.373E-02	0.241
	989.30			4.978E-01	1.313E+00	2.191E+00	1.677E-01	0.227
	1034.80			8.755E+00	8.941E+00	1.625E+01	1.172E+00	0.539

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	1213.00			-2.634E+00	5.344E+00	8.463E+00	4.955E-01	-0.311
	61.10			3.418E+01	8.573E+01	1.073E+02	1.054E+01	0.319
	252.40			-2.966E+00	4.870E+00	7.684E+00	3.196E+00	-0.386
	290.80			-6.230E+00	2.557E+01	3.683E+01	3.472E+00	-0.169
	411.60			-1.713E+01	1.502E+01	2.172E+01	3.155E+00	-0.789
	444.90			3.607E+00	1.107E+01	1.834E+01	2.032E+00	0.197
	473.00			-1.065E+00	1.889E+00	2.897E+00	3.340E-01	-0.368
	543.00			9.459E-01	1.892E+01	3.199E+01	4.268E+00	0.030
	603.60			-2.060E+00	1.516E+01	2.173E+01	2.472E+00	-0.095
	685.20	*		-1.094E+00	1.549E+00	2.403E+00	2.477E-01	-0.455
	698.50			-9.206E+00	1.830E+01	2.899E+01	4.381E+00	-0.318
	722.20			7.325E+00	3.889E+01	5.678E+01	5.826E+00	0.129
	783.80			5.232E+00	4.571E+00	8.074E+00	9.621E-01	0.648
XE-127	+	57.60		6.585E+00	7.950E+00	1.028E+01	6.499E-01	0.640
		145.22		-2.981E-01	6.683E-01	1.056E+00	5.899E-02	-0.282
		172.10		-3.502E-03	1.117E-01	1.789E-01	9.211E-03	-0.020
		202.84	*	-3.302E-02	4.680E-02	7.164E-02	3.810E-03	-0.461
		374.96		-1.336E-01	1.954E-01	3.059E-01	1.700E-02	-0.437
I-131		80.18		-3.200E-01	6.206E+00	7.376E+00	5.294E-01	-0.043
		284.30		-2.184E-01	1.507E+00	2.499E+00	1.582E-01	-0.087
		364.48	*	-4.847E-02	1.112E-01	1.771E-01	1.117E-02	-0.274
		636.97		-1.877E+00	1.691E+00	2.561E+00	1.815E-01	-0.733
		722.89		-6.018E+00	8.923E+00	1.174E+01	8.275E-01	-0.513
TE-132		49.72		-4.314E+00	2.126E+01	3.599E+01	3.451E+00	-0.120
		111.76		3.126E+00	3.547E+01	5.856E+01	5.566E+00	0.053
		116.30		-2.523E+00	3.141E+01	5.138E+01	4.852E+00	-0.049
BA-133		228.16	*	2.770E-01	7.605E-01	1.307E+00	1.886E-01	0.212
		53.15		7.045E-01	3.275E+00	5.620E+00	3.634E-01	0.125
		79.62		5.325E-01	1.563E+00	1.913E+00	2.755E-01	0.278
		81.00		8.386E-02	1.171E-01	1.466E-01	2.218E-02	0.572
		276.40		3.432E-01	3.338E-01	5.823E-01	7.508E-02	0.589
		302.84		-2.542E-02	1.400E-01	2.018E-01	2.341E-02	-0.126
		356.01	*	5.969E-03	4.508E-02	6.584E-02	7.553E-03	0.091
I-133	+	383.85		-8.152E-02	2.860E-01	4.590E-01	4.922E-02	-0.178
		510.53		2.380E+00	2.860E-01	Half-Life	too short	
		529.87	*	6.190E-03	2.860E-01	Half-Life	too short	
		706.58		-2.662E-01	2.860E-01	Half-Life	too short	
		856.28		2.830E-01	2.860E-01	Half-Life	too short	
		875.33		-2.534E-01	2.860E-01	Half-Life	too short	
		1236.41		1.816E+00	2.860E-01	Half-Life	too short	
		1298.22		-6.525E-01	2.860E-01	Half-Life	too short	
		475.35		3.685E-01	1.846E+00	3.019E+00	1.793E-01	0.122
		563.23		4.362E-01	3.659E-01	6.599E-01	4.217E-02	0.661
CS-134		569.32		3.570E-02	1.890E-01	3.216E-01	2.076E-02	0.111
		604.70		-2.802E-02	3.884E-02	5.233E-02	3.357E-03	-0.536
	+	795.84	*	7.519E-02	5.130E-02	8.785E-02	6.698E-03	0.856
		801.93		1.432E-01	3.793E-01	6.410E-01	4.907E-02	0.223
		1038.57		-2.736E+00	4.000E+00	6.271E+00	4.497E-01	-0.436
		1167.94		8.376E-01	2.594E+00	4.415E+00	2.460E-01	0.190

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	1365.15			1.086E-01	1.049E+00	1.741E+00	1.295E-01	0.062
	268.24	*		2.204E-01	1.615E-01	2.593E-01	1.950E-02	0.850
	288.45			2.048E+10	1.615E-01	Half-Life	too short	
	417.63			6.743E+10	1.615E-01	Half-Life	too short	
	546.56			8.884E+10	1.615E-01	Half-Life	too short	
	836.80			1.563E+11	1.615E-01	Half-Life	too short	
	1038.76			-1.278E+11	1.615E-01	Half-Life	too short	
	1124.00			-3.224E+11	1.615E-01	Half-Life	too short	
	1131.51			9.656E+09	1.615E-01	Half-Life	too short	
	1260.41	*		4.663E+10	1.615E-01	Half-Life	too short	
	1457.56			1.153E+13	1.615E-01	Half-Life	too short	
	1678.03			-8.233E+10	1.615E-01	Half-Life	too short	
	1706.46			-1.165E+11	1.615E-01	Half-Life	too short	
	1791.20			5.096E+10	1.615E-01	Half-Life	too short	
	66.91			-6.156E-01	8.493E-01	1.237E+00	1.776E-01	-0.498
CS-136 + CE-139 BA-140	86.29			5.075E+00	1.609E+00	2.068E+00	2.511E-01	2.454
	153.22			6.372E-01	6.393E-01	1.077E+00	7.444E-02	0.591
	163.89			-2.369E-01	1.085E+00	1.712E+00	1.157E-01	-0.138
	176.55			-2.497E-01	3.630E-01	5.611E-01	3.347E-02	-0.445
	273.65			-2.686E-01	4.990E-01	7.084E-01	4.583E-02	-0.379
	340.57			1.148E-01	1.465E-01	2.243E-01	1.354E-02	0.512
	818.51			-1.672E-02	7.734E-02	1.236E-01	9.568E-03	-0.135
	1048.07	*		-1.208E-01	1.123E-01	1.676E-01	1.259E-02	-0.721
	1235.34			-1.027E-01	6.721E-01	1.095E+00	1.110E-01	-0.094
	165.85	*		-8.218E-03	2.799E-02	4.438E-02	2.274E-03	-0.185
	162.64			-1.871E-01	7.608E-01	1.200E+00	7.184E-02	-0.156
	304.84			2.878E-01	1.264E+00	1.881E+00	5.129E-01	0.153
	423.70			-5.894E-01	1.924E+00	3.043E+00	9.664E-01	-0.194
	537.32	*		2.531E-02	2.462E-01	4.181E-01	1.363E-01	0.061
	328.77			5.973E-01	4.256E-01	5.259E-01	3.359E-02	1.136
LA-140 + CE-141 CE-143 + CE-144 PM-144	432.53			2.242E+00	2.088E+00	3.634E+00	2.302E-01	0.617
	487.03			-1.771E-03	1.436E-01	2.307E-01	1.554E-02	-0.008
	751.79			4.099E-01	1.756E+00	2.942E+00	2.437E-01	0.139
	815.85			-4.440E-02	3.168E-01	5.097E-01	4.489E-02	-0.087
	867.82			-1.006E-01	1.713E+00	2.381E+00	2.048E-01	-0.042
	919.63			8.724E-01	3.162E+00	4.589E+00	4.736E-01	0.190
	925.24			-1.967E-01	1.136E+00	1.799E+00	1.573E-01	-0.109
	1596.49	*		-8.954E-02	9.187E-02	1.317E-01	8.576E-03	-0.680
	145.44	*		-2.974E-02	5.909E-02	9.357E-02	5.447E-03	-0.318
	57.37			1.811E-03	5.909E-02	Half-Life	too short	
	231.56			-2.436E-03	5.909E-02	Half-Life	too short	
	293.26	*		9.183E-04	5.909E-02	Half-Life	too short	
	350.59			3.944E-02	5.909E-02	Half-Life	too short	
	490.36			-1.559E-03	5.909E-02	Half-Life	too short	
	664.57			3.122E-03	5.909E-02	Half-Life	too short	
	721.93			8.970E-04	5.909E-02	Half-Life	too short	
	80.11			-1.158E-01	2.638E+00	3.138E+00	2.228E-01	-0.037
	133.54	*		1.169E-01	1.944E-01	3.101E-01	4.415E-02	0.377
	476.78			4.157E-02	6.712E-02	1.129E-01	7.978E-03	0.368

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		8.463E-03	3.142E-02	5.346E-02	3.598E-03	0.158
		696.49	*	1.536E-03	3.501E-02	5.808E-02	3.930E-03	0.026
		778.57		6.988E-01	2.287E+00	3.845E+00	2.853E-01	0.182
PR-144		696.49	*	1.042E-01	2.374E+00	3.938E+00	2.662E-01	0.026
		1489.15		-5.984E+00	1.146E+01	1.693E+01	1.147E+00	-0.353
PM-146		453.90	*	-2.577E-02	4.127E-02	6.335E-02	5.477E-03	-0.407
		633.02		3.246E-02	1.413E+00	2.358E+00	8.708E-01	0.014
		735.90		-4.656E-02	1.545E-01	2.471E-01	6.963E-02	-0.188
		747.13		3.190E-02	9.224E-02	1.558E-01	2.056E-02	0.205
ND-147	+	91.11		8.602E-01	3.120E-01	5.978E-01	4.902E-02	1.439
		319.41		2.145E+00	3.204E+00	5.515E+00	3.136E-01	0.389
		439.89		-5.314E-01	5.692E+00	9.156E+00	5.278E-01	-0.058
		531.02	*	2.735E-01	5.646E-01	9.367E-01	1.282E-01	0.292
PM-149		285.90	*	1.799E+01	1.140E+02	1.919E+02	2.710E+01	0.094
EU-152		121.78		-4.597E-02	6.732E-02	1.066E-01	8.482E-03	-0.431
		244.69		-1.581E-02	3.036E-01	4.503E-01	2.491E-02	-0.035
		344.27	*	3.391E-02	1.019E-01	1.593E-01	1.021E-02	0.213
		443.98		2.133E-01	9.157E-01	1.508E+00	8.720E-02	0.141
		778.89		1.162E-01	2.608E-01	4.435E-01	3.290E-02	0.262
		867.32		-1.871E-01	1.000E+00	1.348E+00	1.094E-01	-0.139
	+	964.01		5.625E-01	4.333E-01	5.923E-01	4.662E-02	0.950
		1085.78		3.322E-03	4.123E-01	6.878E-01	4.569E-02	0.005
		1112.02		1.398E-02	3.535E-01	5.477E-01	3.462E-02	0.026
		1407.95		1.453E-01	1.691E-01	3.069E-01	2.120E-02	0.473
GD-153		69.67		2.305E+00	1.673E+00	2.679E+00	1.762E-01	0.860
	+	83.37		2.504E+01	1.942E+01	2.465E+01	1.802E+00	1.016
		97.43	*	4.104E-03	8.438E-02	1.256E-01	8.732E-03	0.033
		103.18		-4.602E-02	9.779E-02	1.583E-01	1.058E-02	-0.291
EU-154		123.07		-5.240E-03	4.723E-02	7.691E-02	7.431E-03	-0.068
		247.94		5.999E-02	3.166E-01	5.387E-01	5.057E-02	0.111
		591.81		2.604E-01	5.560E-01	9.637E-01	9.747E-02	0.270
		723.30		-1.114E-01	2.038E-01	2.726E-01	2.200E-02	-0.409
		756.87		-1.543E-01	7.969E-01	1.287E+00	1.420E-01	-0.120
		873.19		1.805E-01	2.891E-01	4.966E-01	5.923E-02	0.363
		996.32		-6.643E-01	3.845E-01	5.100E-01	8.817E-02	-1.303
		1004.76		-1.161E-01	2.237E-01	3.582E-01	3.884E-02	-0.324
		1274.45	*	1.557E-01	1.240E-01	2.269E-01	2.211E-02	0.686
EU-155		48.70		-1.776E+00	2.142E+00	3.532E+00	2.308E-01	-0.503
		60.01		-2.208E+00	6.548E+00	7.761E+00	4.877E-01	-0.284
	+	86.54		4.456E-01	1.349E-01	1.834E-01	1.402E-02	2.429
		105.31	*	1.426E-01	1.018E-01	1.767E-01	1.191E-02	0.807
TB-160	+	86.79		1.201E+00	3.632E-01	4.943E-01	3.738E-02	2.429
		197.04		-3.534E-01	5.483E-01	8.267E-01	4.369E-02	-0.427
		215.65		-5.045E-01	7.210E-01	1.096E+00	5.908E-02	-0.460
	+	298.57		2.997E-01	1.250E-01	1.999E-01	1.135E-02	1.499
		879.36	*	-5.279E-03	1.386E-01	2.238E-01	1.838E-02	-0.024
		962.29		1.022E+00	6.457E-01	1.053E+00	8.300E-02	0.971
		966.15		1.262E+00	2.832E-01	5.488E-01	4.310E-02	2.299
		1177.93		1.770E-01	4.067E-01	6.637E-01	3.676E-02	0.267

---- Non-Identified Nuclides ----

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HO-166M		1271.85		-5.235E-01	7.358E-01	1.119E+00	7.164E-02	-0.468
		80.57		-1.934E-02	3.366E-01	3.998E-01	2.850E-02	-0.048
	+	184.41		2.184E-01	4.801E-02	7.247E-02	3.778E-03	3.013
		280.46		-8.764E-02	7.622E-02	1.192E-01	6.736E-03	-0.735
		410.95		-9.170E-02	2.468E-01	3.922E-01	2.195E-02	-0.234
		711.68	*	1.947E-02	5.874E-02	9.955E-02	6.852E-03	0.196
TM-171		752.31		1.538E-01	2.689E-01	4.627E-01	3.335E-02	0.332
		810.29		-2.851E-02	5.166E-02	7.928E-02	6.079E-03	-0.360
		51.35		1.609E+00	2.791E+01	4.767E+01	3.107E+00	0.034
		52.39		-9.160E-01	1.432E+01	2.432E+01	1.579E+00	-0.038
		59.40		-1.774E+01	3.533E+01	4.134E+01	2.593E+00	-0.429
		66.72	*	-1.955E+01	2.885E+01	4.231E+01	2.738E+00	-0.462
LU-176	+	88.36		8.773E-01	2.653E-01	3.497E-01	2.665E-02	2.508
		201.83		-1.872E-02	2.809E-02	4.310E-02	2.290E-03	-0.434
		306.84	*	2.227E-02	2.352E-02	3.708E-02	2.107E-03	0.601
LU-177		401.10		2.122E+00	6.403E+00	1.067E+01	5.909E-01	0.199
		112.95		6.102E-01	1.730E+00	2.885E+00	1.843E-01	0.211
	+	208.36	*	3.137E+00	1.713E+00	2.051E+00	1.097E-01	1.529
LU-177M		52.97		1.774E-01	1.482E+00	2.534E+00	1.640E-01	0.070
		54.07		3.340E-01	8.588E-01	1.342E+00	8.636E-02	0.249
		61.30		1.109E+00	1.883E+00	2.387E+00	1.508E-01	0.465
		121.62		-2.243E-01	3.469E-01	5.510E-01	3.441E-02	-0.407
		147.16		-3.715E-01	5.937E-01	9.331E-01	5.171E-02	-0.398
		171.86		-1.012E-01	4.397E-01	6.975E-01	3.590E-02	-0.145
		218.09		2.695E-01	8.019E-01	1.290E+00	6.970E-02	0.209
	+	268.79		2.167E+00	1.033E+00	1.387E+00	7.792E-02	1.563
		319.02		9.856E-02	2.366E-01	4.017E-01	2.284E-02	0.245
		367.43		1.379E-01	8.403E-01	1.394E+00	7.790E-02	0.099
		413.65	*	-1.589E-01	1.709E-01	2.522E-01	1.415E-02	-0.630
	+	56.28		9.605E-01	1.160E+00	1.499E+00	9.535E-02	0.641
	+	57.53		5.507E-01	6.649E-01	8.614E-01	5.445E-02	0.639
		65.20		6.642E-01	9.611E-01	1.504E+00	9.666E-02	0.442
		133.02		4.924E-02	6.380E-02	9.727E-02	5.737E-03	0.506
HF-181		136.25		-2.366E-01	4.308E-01	6.831E-01	3.969E-02	-0.346
		345.85		1.251E-01	1.986E-01	3.169E-01	1.790E-02	0.395
		482.03	*	2.294E-02	4.243E-02	7.102E-02	4.240E-03	0.323
		67.75		-2.561E-02	1.150E-01	1.724E-01	1.122E-02	-0.149
		100.10		7.085E-02	1.702E-01	2.862E-01	1.951E-02	0.248
		152.43		1.199E-01	3.111E-01	5.118E-01	2.774E-02	0.234
		222.10		-1.048E-01	3.128E-01	5.230E-01	2.837E-02	-0.200
		1001.68		2.101E+00	2.161E+00	3.891E+00	2.933E-01	0.540
	+	1121.28		6.755E-01	2.704E-01	3.757E-01	2.331E-02	1.798
		1189.05		-3.988E-02	3.555E-01	5.829E-01	3.286E-02	-0.068
TA-182		1221.42	*	2.329E-02	2.268E-01	3.771E-01	2.237E-02	0.062
		1230.97		-1.227E-01	5.286E-01	8.558E-01	5.152E-02	-0.143
	+	57.98		2.177E-01	2.628E-01	3.357E-01	2.118E-02	0.649
		59.32		-7.128E-02	1.466E-01	1.718E-01	1.078E-02	-0.415
		67.20		-9.971E-02	2.098E-01	3.110E-01	2.017E-02	-0.321
		162.32	*	1.174E-02	1.058E-01	1.697E-01	8.821E-03	0.069

---- Non-Identified Nuclides ----

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RE-184	+	208.81		2.580E+00	1.409E+00	1.717E+00	9.189E-02	1.503
		291.72		-4.663E-01	9.563E-01	1.350E+00	7.656E-02	-0.345
	+	57.98		7.977E-01	9.632E-01	1.230E+00	7.760E-02	0.649
		59.32		-2.610E-01	5.369E-01	6.292E-01	3.947E-02	-0.415
		67.20		-3.653E-01	7.686E-01	1.139E+00	7.390E-02	-0.321
		161.27		6.544E-02	3.321E-01	5.401E-01	2.820E-02	0.121
		216.55		-6.883E-02	2.534E-01	3.948E-01	2.130E-02	-0.174
		252.85	*	-3.368E-02	2.097E-01	3.502E-01	1.949E-02	-0.096
		318.01		5.263E-02	3.999E-01	6.685E-01	3.800E-02	0.079
		792.07		-1.204E-01	1.212E+00	1.727E+00	1.299E-01	-0.070
OS-185		903.28		-1.064E+00	1.309E+00	1.627E+00	1.354E-01	-0.654
		920.93		7.851E-02	4.402E-01	7.054E-01	5.786E-02	0.111
		59.72		-2.104E-01	3.909E-01	4.558E-01	2.860E-02	-0.462
		61.14		8.294E-02	2.068E-01	2.588E-01	1.634E-02	0.320
		69.30		8.093E-02	3.168E-01	4.848E-01	3.181E-02	0.167
		592.07		4.887E-01	2.322E+00	3.950E+00	2.511E-01	0.124
		646.12	*	-1.596E-02	4.205E-02	6.781E-02	4.382E-03	-0.235
		717.42		2.385E-02	8.868E-01	1.466E+00	1.016E-01	0.016
		874.81		-4.443E-01	6.074E-01	9.124E-01	7.459E-02	-0.487
		880.27		7.596E-03	7.671E-01	1.245E+00	1.023E-01	0.006
RE-188		155.03	*	1.002E-01	1.599E-01	2.656E-01	1.424E-02	0.377
		477.96		2.779E+00	3.156E+00	5.395E+00	3.211E-01	0.515
		633.10		-5.677E-03	2.877E+00	4.792E+00	3.087E-01	-0.001
W-188	+	63.58		2.261E+02	9.950E+01	1.019E+02	6.502E+00	2.218
		227.08		3.737E+00	1.199E+01	2.036E+01	1.110E+00	0.184
IR-192		290.67	*	-1.779E+00	7.531E+00	1.086E+01	6.153E-01	-0.164
	+	295.96		9.504E-01	1.512E-01	2.655E-01	1.531E-02	3.580
		308.46		5.986E-04	8.431E-02	1.402E-01	8.062E-03	0.004
		316.51	*	-2.732E-02	3.077E-02	4.815E-02	2.751E-03	-0.567
		468.07		2.528E-02	7.106E-02	1.136E-01	7.698E-03	0.223
		604.41		-2.663E-01	5.165E-01	7.102E-01	8.281E-02	-0.375
		612.46		-1.028E-01	7.501E-01	1.073E+00	8.633E-02	-0.096
		65.12		1.855E-01	1.693E-01	2.695E-01	1.731E-02	0.688
AU-195		66.83		-5.740E-02	9.583E-02	1.411E-01	9.137E-03	-0.407
	+	75.70		1.116E+00	2.591E-01	4.328E-01	2.963E-02	2.580
		98.88	*	2.967E-01	2.273E-01	3.782E-01	2.601E-02	0.785
	+	129.76		3.035E+00	3.648E+00	4.567E+00	2.736E-01	0.665
TL-200		367.94	*	2.480E-04	3.648E+00	Half-Life	too short	
		579.30		1.566E-03	3.648E+00	Half-Life	too short	
		828.27		7.919E-03	3.648E+00	Half-Life	too short	
		1205.75		-5.792E-04	3.648E+00	Half-Life	too short	
TL-201		68.90		-2.537E-01	5.861E+00	9.416E+00	6.164E-01	-0.027
		70.82		9.265E-01	3.490E+00	5.337E+00	3.534E-01	0.174
		80.30		-5.005E-01	7.733E+00	9.181E+00	6.528E-01	-0.055
		135.34		-1.479E+01	2.899E+01	4.607E+01	2.688E+00	-0.321
TL-202		167.43	*	4.273E+00	7.819E+00	1.290E+01	6.614E-01	0.331
		68.90		-1.939E-02	4.478E-01	7.195E-01	4.710E-02	-0.027
		70.82		7.060E-02	2.660E-01	4.067E-01	2.693E-02	0.174
		80.30		-3.815E-02	5.895E-01	6.999E-01	4.976E-02	-0.055



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203		439.56	*	-8.532E-03	6.669E-02	1.070E-01	6.161E-03	-0.080
		70.83		2.973E-01	1.108E+00	1.694E+00	2.107E-01	0.175
		72.87		6.902E-01	6.723E-01	1.050E+00	1.264E-01	0.658
	+	82.60		1.883E+00	1.474E+00	1.772E+00	2.292E-01	1.062
BI-207		279.20	*	-3.960E-02	3.809E-02	5.873E-02	3.532E-03	-0.674
		72.80		1.625E-01	1.923E-01	3.000E-01	2.011E-02	0.542
	+	74.97		6.171E-01	1.432E-01	2.176E-01	1.482E-02	2.836
	+	84.90		3.230E-01	2.505E-01	3.146E-01	2.334E-02	1.027
TL-207		569.67		1.038E-02	2.891E-02	4.976E-02	3.133E-03	0.209
		1063.62	*	-3.236E-02	5.058E-02	7.913E-02	5.459E-03	-0.409
		1770.23		3.137E-01	3.842E-01	6.880E-01	4.061E-02	0.456
		81.07		1.891E-01	2.573E-01	3.238E-01	2.318E-02	0.584
	+	83.78		2.130E-01	1.651E-01	2.105E-01	1.545E-02	1.012
		94.90		2.827E-01	2.351E-01	3.691E-01	2.623E-02	0.766
		122.32		-9.037E-01	1.595E+00	2.542E+00	1.799E-01	-0.356
		144.24		7.967E-01	6.409E-01	1.086E+00	7.688E-02	0.734
		154.21		2.054E-01	3.671E-01	6.078E-01	4.054E-02	0.338
	+	269.46		5.054E-01	2.410E-01	3.399E-01	2.002E-02	1.487
		323.87	*	-2.506E-01	6.975E-01	9.834E-01	1.620E-01	-0.255
	+	338.28		5.425E+00	1.788E+00	2.396E+00	2.506E-01	2.264
PO-209		445.03		2.235E-01	2.196E+00	3.581E+00	3.675E-01	0.062
		260.50		-4.375E+00	8.566E+00	1.401E+01	7.835E-01	-0.312
		262.80		-4.966E+00	2.347E+01	3.897E+01	2.182E+00	-0.127
		896.60	*	3.988E+00	8.472E+00	1.425E+01	1.190E+00	0.280
BI-210		46.50	*	9.589E-01	3.087E+00	5.215E+00	3.928E-01	0.184
PB-210		46.50	*	9.589E-01	3.087E+00	5.215E+00	3.928E-01	0.184
PO-210		46.50	*	9.589E-01	3.087E+00	5.215E+00	3.345E-01	0.184
PB-211		404.84	*	-1.205E+00	1.216E+00	1.432E+00	8.922E-01	-0.842
		427.08		5.033E-01	1.957E+00	3.197E+00	1.976E+00	0.157
		831.96		-8.978E-01	1.377E+00	1.917E+00	1.199E+00	-0.468
	+	727.18	*	8.274E-01	5.111E-01	6.497E-01	5.624E-02	1.274
		785.46		1.459E+00	1.870E+00	3.243E+00	2.423E-01	0.450
PO-215		1620.62		6.599E-01	1.136E+00	2.067E+00	1.331E-01	0.319
		81.07		1.891E-01	2.573E-01	3.238E-01	2.318E-02	0.584
	+	83.78		2.130E-01	1.651E-01	2.105E-01	1.545E-02	1.012
		94.90		2.827E-01	2.351E-01	3.691E-01	2.623E-02	0.766
		122.32		-9.037E-01	1.595E+00	2.542E+00	1.799E-01	-0.356
		144.24		7.967E-01	6.409E-01	1.086E+00	7.688E-02	0.734
		154.21		2.054E-01	3.671E-01	6.078E-01	4.054E-02	0.338
	+	269.46		5.054E-01	2.410E-01	3.399E-01	2.002E-02	1.487
		323.87	*	-2.506E-01	6.975E-01	9.834E-01	1.620E-01	-0.255
	+	338.28		5.425E+00	1.788E+00	2.396E+00	2.506E-01	2.264
		445.03		2.235E-01	2.196E+00	3.581E+00	3.675E-01	0.062
	+	271.23		6.484E-01	3.112E-01	4.381E-01	3.496E-02	1.480
RN-219		401.81	*	-9.142E-02	4.046E-01	6.499E-01	8.772E-02	-0.141
RN-220		549.76	*	8.108E+00	2.384E+01	4.113E+01	2.565E+00	0.197
RA-223		81.07		1.891E-01	2.573E-01	3.238E-01	2.318E-02	0.584
	+	83.78		2.130E-01	1.651E-01	2.105E-01	1.545E-02	1.012
		94.90		2.827E-01	2.351E-01	3.691E-01	2.623E-02	0.766

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-9.037E-01	1.595E+00	2.542E+00	1.799E-01	-0.356
		144.24		7.967E-01	6.409E-01	1.086E+00	7.688E-02	0.734
		154.21		2.054E-01	3.671E-01	6.078E-01	4.054E-02	0.338
	+	269.46		5.054E-01	2.410E-01	3.399E-01	2.002E-02	1.487
		323.87	*	-2.506E-01	6.975E-01	9.834E-01	1.620E-01	-0.255
	+	338.28		5.425E+00	1.788E+00	2.396E+00	2.506E-01	2.264
		445.03		2.235E-01	2.196E+00	3.581E+00	3.675E-01	0.062
		79.80		6.455E-01	1.983E+00	2.421E+00	5.068E-01	0.267
		236.00		5.356E-01	2.466E-01	4.021E-01	4.136E-02	1.332
		256.20	*	1.284E-01	3.470E-01	5.935E-01	8.231E-02	0.216
		286.10		3.601E-01	1.413E+00	2.391E+00	2.747E-01	0.151
	+	299.80		3.782E+00	1.679E+00	2.538E+00	4.122E-01	1.490
TH-227		304.40		-8.363E-01	1.818E+00	2.547E+00	4.396E-01	-0.328
		334.20		1.384E+00	2.358E+00	3.567E+00	6.524E-01	0.388
		79.80		6.455E-01	1.983E+00	2.421E+00	5.136E-01	0.267
	+	94.00		1.950E+01	5.028E+00	4.089E+00	8.688E-01	4.768
		236.00		5.356E-01	2.450E-01	4.021E-01	3.564E-02	1.332
		256.20	*	1.284E-01	3.472E-01	5.935E-01	9.985E-02	0.216
		286.10		3.601E-01	1.458E+00	2.391E+00	2.394E+00	0.151
	+	299.80		3.782E+00	1.679E+00	2.538E+00	4.122E-01	1.490
		304.40		-8.363E-01	1.818E+00	2.547E+00	4.396E-01	-0.328
		334.20		1.384E+00	2.358E+00	3.567E+00	6.524E-01	0.388
	+	85.43		3.188E-01	2.472E-01	3.146E-01	2.346E-02	1.013
	+	88.47		3.214E-01	1.160E-01	2.005E-01	1.526E-02	1.603
PA-231		100.00		1.000E-01	1.757E-01	2.971E-01	2.026E-02	0.337
		193.63	*	1.353E-02	4.775E-01	7.617E-01	4.011E-02	0.018
		210.97		6.551E-01	8.190E-01	1.211E+00	6.497E-02	0.541
		283.67	*	7.660E-01	1.396E+00	2.393E+00	3.283E-01	0.320
TH-231		301.29		1.118E+00	5.528E-01	9.898E-01	1.028E-01	1.129
		81.07		1.891E-01	2.573E-01	3.238E-01	2.318E-02	0.584
	+	83.78		2.130E-01	1.651E-01	2.105E-01	1.545E-02	1.012
		94.90		2.827E-01	2.351E-01	3.691E-01	2.623E-02	0.766
U-231		122.32		-9.037E-01	1.595E+00	2.542E+00	1.799E-01	-0.356
		144.24		7.967E-01	6.409E-01	1.086E+00	7.688E-02	0.734
		154.21		2.054E-01	3.671E-01	6.078E-01	4.054E-02	0.338
	+	269.46		5.054E-01	2.410E-01	3.399E-01	2.002E-02	1.487
		323.87	*	-2.506E-01	6.975E-01	9.834E-01	1.620E-01	-0.255
	+	338.28		5.425E+00	1.788E+00	2.396E+00	2.506E-01	2.264
		445.03		2.235E-01	2.196E+00	3.581E+00	3.675E-01	0.062
	+	84.21		1.073E+01	8.322E+00	1.059E+01	7.810E-01	1.013
	+	92.29		2.253E+01	3.668E+00	5.676E+00	4.136E-01	3.970
		95.87	*	-2.972E-01	1.299E+00	1.906E+00	1.343E-01	-0.156
		108.00		-1.766E+00	2.301E+00	3.667E+00	2.390E-01	-0.482
	+	75.28		1.801E+01	4.763E+00	6.590E+00	9.500E-01	2.732
PA-233	+	86.59		7.241E+00	2.860E+00	2.986E+00	7.912E-01	2.425
	+	300.12		1.054E+00	4.580E-01	7.133E-01	9.548E-02	1.478
		311.98	*	3.047E-02	5.492E-02	9.423E-02	5.702E-03	0.323
		340.50		6.269E-01	6.949E-01	1.051E+00	2.410E-01	0.596
		398.62		-1.911E+00	2.147E+00	3.206E+00	8.269E-01	-0.596

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-2.330E-01	1.552E+00	2.496E+00	5.127E-01	-0.093
		63.00		6.495E+00	2.978E+00	2.959E+00	4.252E-01	2.195
		94.67		3.728E-01	1.784E-01	2.836E-01	3.237E-02	1.314
		98.44		2.013E-01	1.463E-01	1.555E-01	8.637E-02	1.295
		99.86		2.649E-01	4.461E-01	7.549E-01	5.154E-02	0.351
		111.00		-3.534E-02	1.763E-01	2.877E-01	3.061E-02	-0.123
		131.20		-1.976E-03	1.045E-01	1.521E-01	9.048E-03	-0.013
		152.70		2.604E-01	2.988E-01	4.979E-01	7.802E-02	0.523
		186.00		7.862E+00	2.924E+00	2.762E+00	8.411E-01	2.846
		226.40		-1.237E-01	3.765E-01	6.215E-01	7.077E-02	-0.199
		227.20		3.125E-01	3.903E-01	6.836E-01	3.726E-02	0.457
		248.90		2.034E-01	7.236E-01	1.234E+00	2.644E-01	0.165
		293.70		5.929E+00	1.295E+00	1.542E+00	2.472E-01	3.846
		369.80		4.161E-02	8.366E-01	1.377E+00	2.859E-01	0.030
		568.70		1.578E-01	9.598E-01	1.630E+00	1.026E-01	0.097
		569.50		4.212E-02	2.607E-01	4.428E-01	2.788E-02	0.095
		574.00		-4.002E-01	1.494E+00	2.461E+00	1.553E-01	-0.163
		699.00		-2.783E-01	7.033E-01	1.123E+00	2.058E-01	-0.248
		706.10		-1.581E-01	1.045E+00	1.702E+00	7.537E-01	-0.093
		733.00		-1.372E-01	4.288E-01	6.179E-01	1.337E-01	-0.222
		742.81		-3.198E-01	1.443E+00	2.304E+00	1.545E+00	-0.139
		796.30		1.460E+00	1.064E+00	1.666E+00	4.454E-01	0.876
		805.60		-2.162E-01	9.211E-01	1.466E+00	4.455E-01	-0.147
		819.60		7.405E-01	1.220E+00	2.051E+00	7.760E-01	0.361
		826.30		3.409E-02	8.987E-01	1.470E+00	6.553E-01	0.023
		831.60		-9.548E-01	7.330E-01	9.635E-01	2.855E-01	-0.991
		876.40		-2.731E-01	8.772E-01	1.304E+00	1.340E+00	-0.210
		880.51		3.469E-02	2.758E-01	4.527E-01	3.721E-02	0.077
		883.24		-1.758E-01	3.153E-01	4.455E-01	2.993E-01	-0.395
		899.00		-1.245E-01	9.464E-01	1.512E+00	6.600E-01	-0.082
		925.00		-4.166E-01	1.136E+00	1.761E+00	1.439E-01	-0.237
		926.50		-2.930E-02	1.669E-01	2.640E-01	6.633E-02	-0.111
		946.00	*	1.001E-01	3.114E-01	5.165E-01	9.553E-02	0.194
		949.00		4.059E-01	4.661E-01	8.103E-01	6.477E-02	0.501
		980.50		3.207E-01	7.690E-01	1.285E+00	9.935E-02	0.250
		1394.10		-3.485E-01	1.155E+00	1.766E+00	1.146E+00	-0.197
PA-234M	+	766.42		6.139E+00	1.304E+01	2.129E+01	1.076E+01	0.288
		1001.03	*	4.343E+00	5.287E+00	8.871E+00	8.029E-01	0.489
U-235	+	89.95		3.226E+00	1.507E+00	1.844E+00	5.634E-01	1.750
		93.35		6.066E+00	1.895E+00	1.507E+00	4.162E-01	4.027
		105.00		1.032E+00	1.047E+00	1.722E+00	5.051E-01	0.599
		143.76	*	1.894E-01	2.016E-01	3.346E-01	5.435E-02	0.566
		163.35		-8.749E-02	4.599E-01	7.268E-01	1.293E-01	-0.120
NP-236	+	185.71		2.912E-01	6.401E-02	1.026E-01	5.354E-03	2.839
		205.31		4.027E-01	5.488E-01	8.049E-01	1.436E-01	0.500
		94.67		2.856E-01	1.331E-01	2.155E-01	1.534E-02	1.325
		98.44		1.522E-01	7.209E-02	1.175E-01	8.110E-03	1.295
		111.00		-2.673E-02	1.333E-01	2.176E-01	1.400E-02	-0.123
		160.31	*	-2.646E-02	7.436E-02	1.178E-01	6.178E-03	-0.225

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.016E-01	1.495E-01	2.537E-01	1.736E-02	0.401
		117.00	*	-7.078E-02	1.762E-01	2.840E-01	1.792E-02	-0.249
	+	209.75		2.017E+00	1.101E+00	1.349E+00	7.227E-02	1.495
		228.18		9.504E-02	2.018E-01	3.489E-01	1.904E-02	0.272
		277.60		9.397E-02	1.646E-01	2.775E-01	1.566E-02	0.339
		334.30		7.982E-01	1.330E+00	2.024E+00	1.148E-01	0.394
AM-241		59.54	*	-1.077E-01	2.048E-01	2.391E-01	1.699E-02	-0.451
CM-243		99.55		1.046E-01	1.538E-01	2.611E-01	1.787E-02	0.401
		103.76	*	-7.138E-03	9.073E-02	1.494E-01	9.948E-03	-0.048
		117.00		-7.283E-02	1.813E-01	2.922E-01	1.844E-02	-0.249
	+	209.75		1.988E+00	1.085E+00	1.330E+00	7.125E-02	1.495
		228.18		9.604E-02	2.040E-01	3.526E-01	1.924E-02	0.272
		277.60		9.474E-02	1.659E-01	2.798E-01	1.579E-02	0.339
AM-246		798.80		-3.394E-02	1.563E-01	2.147E-01	1.627E-02	-0.158
		1036.00		-1.261E-01	2.999E-01	4.823E-01	3.471E-02	-0.261
		1062.04		-1.555E-01	2.216E-01	3.445E-01	2.382E-02	-0.451
		1078.86	*	-3.366E-02	1.448E-01	2.364E-01	1.590E-02	-0.142
CM-247		278.00		1.939E-01	6.796E-01	1.130E+00	6.376E-02	0.172
		287.40		-3.508E-02	1.143E+00	1.905E+00	1.079E-01	-0.018
		402.60	*	-5.976E-03	3.550E-02	5.725E-02	3.175E-03	-0.104
CF-249		252.85		-1.259E-01	7.837E-01	1.309E+00	7.284E-02	-0.096
		333.44		1.284E-01	1.862E-01	2.680E-01	1.520E-02	0.479
		387.95	*	2.693E-02	3.881E-02	6.620E-02	3.639E-03	0.407
CF-251		176.60	*	-8.373E-02	1.189E-01	1.837E-01	9.501E-03	-0.456
		227.00		9.831E-02	3.558E-01	6.032E-01	3.287E-02	0.163
		285.00		-2.988E-01	1.634E+00	2.703E+00	1.529E-01	-0.111

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229006      *
* Acquisition date   : 22-JAN-2010 13:40:14 Detector SN#                   *
* Detector ID        : GAM12 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.57 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229006 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.3339E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                             *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.178E+01	2.832E+00	5.800E-01	0.000E+00
CD-109	3.769E+00	1.117E+00	1.223E+00	0.000E+00
SN-126	3.699E-01	1.096E-01	1.206E-01	0.000E+00
BA-137M	2.890E-01	6.490E-02	5.938E-02	0.000E+00
CS-137	3.055E-01	6.863E-02	6.277E-02	0.000E+00
W-181	2.555E-01	3.624E-01	6.119E-01	0.000E+00
TL-208	4.942E-01	8.390E-02	6.134E-02	0.000E+00
BI-211	3.078E+00	4.255E-01	3.144E-01	0.000E+00
PB-212	1.554E+00	1.483E-01	8.507E-02	0.000E+00
PO-212	1.554E+00	1.483E-01	8.507E-02	0.000E+00
BI-214	1.013E+00	1.533E-01	1.009E-01	0.000E+00
PB-214	1.071E+00	1.578E-01	1.097E-01	0.000E+00
PO-214	1.071E+00	1.578E-01	1.097E-01	0.000E+00
PO-216	1.554E+00	1.483E-01	8.507E-02	0.000E+00
PO-218	1.071E+00	1.578E-01	1.097E-01	0.000E+00
RA-224	3.989E+00	1.274E+00	9.681E-01	0.000E+00
RA-226	1.013E+00	1.533E-01	1.009E-01	0.000E+00
AC-228	1.654E+00	3.682E-01	2.105E-01	0.000E+00
RA-228	1.654E+00	3.682E-01	2.105E-01	0.000E+00
TH-228	1.579E+00	1.507E-01	8.644E-02	0.000E+00
TH-230	1.013E+00	1.533E-01	1.009E-01	0.000E+00
TH-232	1.654E+00	3.682E-01	2.105E-01	0.000E+00
TH-234	5.572E+00	2.553E+00	2.070E+00	0.000E+00
U-234	1.013E+00	1.533E-01	1.009E-01	0.000E+00
NP-237	1.086E+00	3.897E-01	3.584E-01	0.000E+00
U-238	5.572E+00	2.553E+00	2.070E+00	0.000E+00
AM-243	3.438E-01	7.818E-02	9.005E-02	0.000E+00
ANH-511	1.092E-01	5.598E-02	4.152E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	1.255E-01	3.259E-01	5.620E-01	0.000E+00	NOT IDENT.
NA-22	5.658E-02	4.344E-02	8.184E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.906E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	7.066E-03	2.889E-02	5.025E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.373E-02	7.162E-02	0.000E+00	FAIL ABUN
SC-46	-3.367E-02	4.269E-02	6.605E-02	0.000E+00	FAIL ABUN
V-48	-1.492E-03	7.739E-02	1.277E-01	0.000E+00	NOT IDENT.
CR-51	3.320E-01	3.399E-01	6.232E-01	0.000E+00	NOT IDENT.
MN-52	3.099E-01	2.427E-01	4.726E-01	0.000E+00	NOT IDENT.
MN-54	5.066E-03	3.868E-02	6.575E-02	0.000E+00	NOT IDENT.
CO-56	-2.810E-02	3.974E-02	6.226E-02	0.000E+00	NOT IDENT.
CO-57	-1.390E-02	2.263E-02	3.843E-02	0.000E+00	NOT IDENT.
CO-58	-6.409E-03	3.337E-02	5.515E-02	0.000E+00	NOT IDENT.
FE-59	-7.590E-02	8.978E-02	1.411E-01	0.000E+00	NOT IDENT.
CO-60	-1.273E-02	3.852E-02	6.200E-02	0.000E+00	NOT IDENT.
ZN-65	-1.348E-02	1.103E-01	1.593E-01	0.000E+00	NOT IDENT.
GE-68	-3.255E-01	1.242E+00	2.079E+00	0.000E+00	NOT IDENT.
AS-73	2.793E-01	7.775E-01	1.391E+00	0.000E+00	NOT IDENT.
AS-74	-6.170E-02	8.798E-02	1.448E-01	0.000E+00	NOT IDENT.
SE-75	1.835E-02	4.151E-02	6.681E-02	0.000E+00	NOT IDENT.
BR-77	-1.422E+00	1.234E+01	2.033E+01	0.000E+00	FAIL ABUN
SR-82	-1.999E-01	3.808E-01	6.154E-01	0.000E+00	NOT IDENT.
RB-83	-2.622E-02	6.400E-02	1.028E-01	0.000E+00	NOT IDENT.
RB-84	-2.249E-02	6.916E-02	1.119E-01	0.000E+00	NOT IDENT.
KR-85	3.503E+00	7.419E+00	1.131E+01	0.000E+00	NOT IDENT.
SR-85	1.814E-02	3.842E-02	5.858E-02	0.000E+00	NOT IDENT.
RB-86	2.952E-02	8.094E-01	1.392E+00	0.000E+00	NOT IDENT.
Y-88	4.464E-02	3.682E-02	7.325E-02	0.000E+00	NOT IDENT.
ZR-88	-7.519E-04	3.104E-02	5.299E-02	0.000E+00	NOT IDENT.
Y-91	-4.859E+00	2.012E+01	3.344E+01	0.000E+00	NOT IDENT.
NB-94	-6.994E-03	3.198E-02	5.379E-02	0.000E+00	NOT IDENT.
NB-95	3.821E-03	4.692E-02	7.933E-02	0.000E+00	NOT IDENT.
NB-95M	7.461E-02	1.231E-01	2.007E-01	0.000E+00	NOT IDENT.
ZR-95	5.357E-02	7.071E-02	1.272E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.781E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.896E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	6.676E+00	1.507E+01	2.649E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.116E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.471E-02	3.120E-02	5.029E-02	0.000E+00	FAIL ABUN
RH-102	-3.569E-03	2.782E-02	4.628E-02	0.000E+00	NOT IDENT.
RU-103	-1.125E-02	3.933E-02	6.424E-02	0.000E+00	FAIL ABUN
RH-106	-2.657E-01	3.125E-01	5.039E-01	0.000E+00	FAIL ABUN
RU-106	-2.657E-01	3.114E-01	5.039E-01	0.000E+00	FAIL ABUN
AG-108M	1.835E-02	2.997E-02	5.296E-02	0.000E+00	NOT IDENT.
AG-110M	1.874E-02	3.905E-02	6.133E-02	0.000E+00	NOT IDENT.
IN-111	-5.706E-01	1.262E+00	1.918E+00	0.000E+00	NOT IDENT.
IN-113M	-2.536E-02	4.415E-02	7.274E-02	0.000E+00	NOT IDENT.
SN-113	-2.536E-02	4.415E-02	7.274E-02	0.000E+00	NOT IDENT.
IN-114M	1.593E-02	1.753E-01	2.831E-01	0.000E+00	NOT IDENT.
CD-115	3.742E+00	1.312E+01	2.234E+01	0.000E+00	NOT IDENT.
SN-117M	-1.472E-02	5.141E-02	8.693E-02	0.000E+00	NOT IDENT.
SB-122	2.673E+00	2.611E+00	4.849E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.714E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.456E-03	2.547E-02	4.378E-02	0.000E+00	NOT IDENT.
I-124	-1.888E-01	8.470E-01	1.313E+00	0.000E+00	NOT IDENT.
SB-124	-1.079E-03	7.951E-02	1.416E-01	0.000E+00	FAIL ABUN
SB-125	2.725E-02	8.711E-02	1.509E-01	0.000E+00	FAIL ABUN
TE-125M	-2.688E-02	8.609E+00	1.517E+01	0.000E+00	NOT IDENT.
I-126	7.546E-02	1.961E-01	3.055E-01	0.000E+00	NOT IDENT.
SB-126	8.571E-02	1.655E-01	2.592E-01	0.000E+00	FAIL ABUN
SB-127	-1.094E+00	1.518E+00	2.440E+00	0.000E+00	NOT IDENT.
XE-127	-3.302E-02	4.587E-02	7.431E-02	0.000E+00	FAIL ABUN
I-131	-4.847E-02	1.090E-01	1.819E-01	0.000E+00	NOT IDENT.
TE-132	2.770E-01	7.453E-01	1.353E+00	0.000E+00	NOT IDENT.
BA-133	5.969E-03	4.418E-02	6.763E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.189E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.519E-02	5.028E-02	8.897E-02	0.000E+00	FAIL ABUN
CS-135	2.204E-01	1.583E-01	2.677E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.500E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.208E-01	1.100E-01	1.689E-01	0.000E+00	FAIL ABUN
CE-139	-8.218E-03	2.743E-02	4.619E-02	0.000E+00	NOT IDENT.
BA-140	2.531E-02	2.413E-01	4.264E-01	0.000E+00	NOT IDENT.
LA-140	-8.954E-02	9.003E-02	1.317E-01	0.000E+00	FAIL ABUN
CE-141	-2.974E-02	5.791E-02	9.760E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.136E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.169E-01	1.906E-01	3.240E-01	0.000E+00	NOT IDENT.
PM-144	1.536E-03	3.431E-02	5.896E-02	0.000E+00	NOT IDENT.

PR-144	1.042E-01	2.326E+00	3.998E+00	0.000E+00	NOT IDENT.
PM-146	-2.577E-02	4.044E-02	6.480E-02	0.000E+00	NOT IDENT.
ND-147	2.735E-01	5.533E-01	9.555E-01	0.000E+00	FAIL ABUN
PM-149	1.799E+01	1.117E+02	1.979E+02	0.000E+00	NOT IDENT.
EU-152	3.391E-02	9.985E-02	1.638E-01	0.000E+00	FAIL ABUN
GD-153	4.104E-03	8.269E-02	1.319E-01	0.000E+00	FAIL ABUN
EU-154	1.557E-01	1.215E-01	2.278E-01	0.000E+00	NOT IDENT.
EU-155	1.426E-01	9.975E-02	1.853E-01	0.000E+00	FAIL ABUN
TB-160	-5.279E-03	1.358E-01	2.263E-01	0.000E+00	FAIL ABUN
HO-166M	1.947E-02	5.757E-02	1.010E-01	0.000E+00	FAIL ABUN
TM-171	-1.955E+01	2.827E+01	4.471E+01	0.000E+00	NOT IDENT.
LU-176	2.227E-02	2.304E-02	3.818E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.678E+00	2.127E+00	0.000E+00	FAIL ABUN
LU-177M	-1.589E-01	1.675E-01	2.584E-01	0.000E+00	FAIL ABUN
HF-181	2.294E-02	4.158E-02	7.257E-02	0.000E+00	FAIL ABUN
TA-182	2.329E-02	2.223E-01	3.790E-01	0.000E+00	FAIL ABUN
RE-183	1.174E-02	1.037E-01	1.767E-01	0.000E+00	FAIL ABUN
RE-184	-3.368E-02	2.055E-01	3.618E-01	0.000E+00	FAIL ABUN
OS-185	-1.596E-02	4.121E-02	6.893E-02	0.000E+00	NOT IDENT.
RE-188	1.002E-01	1.567E-01	2.767E-01	0.000E+00	NOT IDENT.
W-188	-1.779E+00	7.380E+00	1.119E+01	0.000E+00	FAIL ABUN
IR-192	-2.732E-02	3.015E-02	4.956E-02	0.000E+00	FAIL ABUN
AU-195	2.967E-01	2.227E-01	3.971E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	7.528E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	4.273E+00	7.662E+00	1.343E+01	0.000E+00	NOT IDENT.
TL-202	-8.532E-03	6.535E-02	1.095E-01	0.000E+00	NOT IDENT.
HG-203	-3.960E-02	3.733E-02	6.059E-02	0.000E+00	FAIL ABUN
BI-207	-3.236E-02	4.956E-02	7.973E-02	0.000E+00	FAIL ABUN
TL-207	-2.506E-01	6.835E-01	1.012E+00	0.000E+00	FAIL ABUN
PO-209	3.988E+00	8.302E+00	1.441E+01	0.000E+00	NOT IDENT.
BI-210	9.589E-01	3.026E+00	5.543E+00	0.000E+00	NOT IDENT.
PB-210	9.589E-01	3.026E+00	5.543E+00	0.000E+00	NOT IDENT.
PO-210	9.589E-01	3.026E+00	5.543E+00	0.000E+00	NOT IDENT.
PB-211	-1.205E+00	1.192E+00	1.467E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.009E-01	6.590E-01	0.000E+00	FAIL ABUN
PO-215	-2.506E-01	6.835E-01	1.012E+00	0.000E+00	FAIL ABUN
RN-219	-9.142E-02	3.965E-01	6.662E-01	0.000E+00	FAIL ABUN
RN-220	8.108E+00	2.337E+01	4.193E+01	0.000E+00	NOT IDENT.
RA-223	-2.506E-01	6.835E-01	1.012E+00	0.000E+00	FAIL ABUN
AC-227	1.284E-01	3.401E-01	6.131E-01	0.000E+00	FAIL ABUN
TH-227	1.284E-01	3.403E-01	6.131E-01	0.000E+00	FAIL ABUN
TH-229	1.353E-02	4.680E-01	7.908E-01	0.000E+00	FAIL ABUN
PA-231	7.660E-01	1.368E+00	2.468E+00	0.000E+00	NOT IDENT.
TH-231	-2.506E-01	6.835E-01	1.012E+00	0.000E+00	FAIL ABUN
U-231	-2.972E-01	1.273E+00	2.002E+00	0.000E+00	FAIL ABUN
PA-233	3.047E-02	5.382E-02	9.702E-02	0.000E+00	FAIL ABUN
PA-234	1.001E-01	3.051E-01	5.215E-01	0.000E+00	FAIL ABUN
PA-234M	4.343E+00	5.181E+00	8.948E+00	0.000E+00	NOT IDENT.
U-235	1.894E-01	1.976E-01	3.491E-01	0.000E+00	FAIL ABUN
NP-236	-2.646E-02	7.288E-02	1.227E-01	0.000E+00	NOT IDENT.
NP-239	-7.078E-02	1.727E-01	2.973E-01	0.000E+00	FAIL ABUN
AM-241	-1.077E-01	2.007E-01	2.531E-01	0.000E+00	NOT IDENT.
CM-243	-7.138E-03	8.892E-02	1.567E-01	0.000E+00	FAIL ABUN
AM-246	-3.366E-02	1.419E-01	2.382E-01	0.000E+00	NOT IDENT.
CM-247	-5.976E-03	3.479E-02	5.868E-02	0.000E+00	NOT IDENT.
CF-249	2.693E-02	3.803E-02	6.790E-02	0.000E+00	NOT IDENT.
CF-251	-8.373E-02	1.166E-01	1.910E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229006.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 13:40:14
Sample ID          : G244229006          Sample quantity  : 1.33390E+02 GRAM
Detector name      : GAM12              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.57  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941239             Detector SN#      :
Matrix Spike ID    :                   LCS ID            : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1371	10.67*	1.138E+00	3.178E+01	3.178E+01	9.09
CD-109	88.03	274	3.72*	5.641E+00	3.679E+00	3.769E+00	30.25
SN-126	64.28	241	9.60	3.197E+00	2.206E+00	2.206E+00	45.75
	86.94	274	8.90	5.641E+00	1.538E+00	1.538E+00	50.51
	87.57	274	37.00*	5.641E+00	3.699E-01	3.699E-01	30.25
BA-137M	661.65	208	89.98*	2.253E+00	2.887E-01	2.890E-01	22.92
CS-137	661.65	208	85.12*	2.253E+00	3.052E-01	3.055E-01	22.92
W-181	56.28	54	18.70	2.397E+00	3.394E-01	3.723E-01	120.74
	57.53	54	32.60	2.397E+00	1.947E-01	2.135E-01	120.74
	65.20	-----	13.80*	3.458E+00	-----	Line Not Found	-----
TL-208	277.35	-----	6.80	4.505E+00	-----	Line Not Found	-----
	510.84	108	21.60	2.795E+00	5.055E-01	5.055E-01	52.97
	583.14	370	84.20*	2.505E+00	4.942E-01	4.942E-01	17.32
	860.37	59	12.46	1.795E+00	7.462E-01	7.462E-01	67.93
BI-211	72.87	-----	1.27	4.387E+00	-----	Line Not Found	-----
	351.07	533	12.94*	3.763E+00	3.078E+00	3.078E+00	14.11
PB-212	74.81	369	10.70	4.582E+00	2.120E+00	2.120E+00	25.02
	77.11	593	18.00	4.816E+00	1.926E+00	1.926E+00	15.43
	87.30	274	8.00	5.641E+00	1.711E+00	1.711E+00	31.86
	238.63	1235	44.60*	5.016E+00	1.554E+00	1.554E+00	9.74
	300.09	105	3.41	4.252E+00	2.041E+00	2.041E+00	42.12
PO-212	74.81	369	10.70	4.582E+00	2.120E+00	2.120E+00	25.02
	77.11	593	18.00	4.816E+00	1.926E+00	1.926E+00	15.43
	87.30	274	8.00	5.641E+00	1.711E+00	1.711E+00	31.86
	115.19	-----	0.60	6.604E+00	-----	Line Not Found	-----
	238.63	1235	44.60*	5.016E+00	1.554E+00	1.554E+00	9.74
	300.09	105	3.41	4.252E+00	2.041E+00	2.041E+00	42.12
BI-214	609.31	403	46.30*	2.415E+00	1.013E+00	1.013E+00	15.44
	1120.29	108	15.10	1.423E+00	1.421E+00	1.421E+00	40.57
	1764.49	65	15.80	9.903E-01	1.169E+00	1.169E+00	27.71
PB-214	74.81	369	6.21	4.582E+00	3.654E+00	3.654E+00	24.36
	77.11	593	10.50	4.816E+00	3.302E+00	3.302E+00	17.21



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	274	4.67	5.641E+00	2.931E+00	2.931E+00	31.21
	241.98	279	7.49	4.974E+00	2.104E+00	2.104E+00	33.07
	295.21	363	19.20	4.302E+00	1.235E+00	1.235E+00	17.06
	351.92	533	37.20*	3.763E+00	1.071E+00	1.071E+00	15.04
	74.81	369	6.21	4.582E+00	3.654E+00	3.654E+00	24.36
	77.11	593	10.50	4.816E+00	3.302E+00	3.302E+00	17.21
	87.30	274	4.67	5.641E+00	2.931E+00	2.931E+00	31.21
PO-216	241.98	279	7.49	4.974E+00	2.104E+00	2.104E+00	33.07
	295.21	363	19.20	4.302E+00	1.235E+00	1.235E+00	17.06
	351.92	533	37.20*	3.763E+00	1.071E+00	1.071E+00	15.04
	74.81	369	10.70	4.582E+00	2.120E+00	2.120E+00	25.02
	77.11	593	18.00	4.816E+00	1.926E+00	1.926E+00	15.43
	87.30	274	8.00	5.641E+00	1.711E+00	1.711E+00	31.86
	238.63	1235	44.60*	5.016E+00	1.554E+00	1.554E+00	9.74
PO-218	300.09	105	3.41	4.252E+00	2.041E+00	2.041E+00	42.12
	74.81	369	6.21	4.582E+00	3.654E+00	3.654E+00	24.36
	77.11	593	10.50	4.816E+00	3.302E+00	3.302E+00	17.21
	87.30	274	4.67	5.641E+00	2.931E+00	2.931E+00	31.21
	241.98	279	7.49	4.974E+00	2.104E+00	2.104E+00	33.07
	295.21	363	19.20	4.302E+00	1.235E+00	1.235E+00	17.06
	351.92	533	37.20*	3.763E+00	1.071E+00	1.071E+00	15.04
RA-224	240.98	279	3.95*	4.974E+00	3.989E+00	3.989E+00	32.59
RA-226	609.31	403	46.30*	2.415E+00	1.013E+00	1.013E+00	15.44
	1120.29	108	15.10	1.423E+00	1.421E+00	1.421E+00	40.57
	1764.49	65	15.80	9.903E-01	1.169E+00	1.169E+00	27.71
AC-228	338.32	204	11.40	3.879E+00	1.299E+00	1.299E+00	51.35
	911.07	278	27.70*	1.707E+00	1.654E+00	1.654E+00	22.72
	969.11	138	16.60	1.617E+00	1.442E+00	1.442E+00	36.35
RA-228	338.32	204	11.40	3.879E+00	1.299E+00	1.299E+00	51.35
	911.07	278	27.70*	1.707E+00	1.654E+00	1.654E+00	22.72
	969.11	138	16.60	1.617E+00	1.442E+00	1.442E+00	36.35
TH-228	74.81	369	10.70	4.582E+00	2.120E+00	2.155E+00	23.23
	77.11	593	18.00	4.816E+00	1.926E+00	1.957E+00	15.43
	87.30	274	8.00	5.641E+00	1.711E+00	1.738E+00	30.25
	238.63	1235	44.60*	5.016E+00	1.554E+00	1.579E+00	9.74
TH-230	300.09	105	3.41	4.252E+00	2.041E+00	2.074E+00	71.97
	609.31	403	46.30*	2.415E+00	1.013E+00	1.013E+00	15.44
	1120.29	108	15.10	1.423E+00	1.421E+00	1.421E+00	40.57
	1764.49	65	15.80	9.903E-01	1.169E+00	1.169E+00	27.71
TH-232	338.32	204	11.40	3.879E+00	1.299E+00	1.299E+00	31.76
	911.07	278	27.70*	1.707E+00	1.654E+00	1.654E+00	22.72
	969.11	138	16.60	1.617E+00	1.442E+00	1.442E+00	36.35
TH-234	63.29	241	3.80*	3.197E+00	5.572E+00	5.572E+00	46.75
	92.38	579	5.41	5.966E+00	5.046E+00	5.046E+00	22.75
U-234	609.31	403	46.30*	2.415E+00	1.013E+00	1.013E+00	15.44
	1120.29	108	15.10	1.423E+00	1.421E+00	1.421E+00	40.57
	1764.49	65	15.80	9.903E-01	1.169E+00	1.169E+00	27.71
NP-237	86.50	274	12.60*	5.641E+00	1.086E+00	1.086E+00	36.61
	95.87	-----	2.60	6.124E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-238	63.29	241	3.80*	3.197E+00	5.572E+00	5.572E+00	46.75
	92.38	579	5.41	5.966E+00	5.046E+00	5.046E+00	16.28
AM-243	74.67	369	66.00*	4.582E+00	3.438E-01	3.438E-01	23.21
	86.72	274	0.34	5.641E+00	4.073E+01	4.073E+01	30.25
	117.66	-----	0.55	6.624E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.534E+00	-----	Line Not Found	-----
ANH-511	511.00	108	100.00*	2.795E+00	1.092E-01	1.092E-01	52.31

Flag: "\*" = Keyline

Total number of lines in spectrum 34  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 33 97.06%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.178E+01	3.178E+01	0.289E+01	9.09	
CD-109	464.00D	1.02	3.679E+00	3.769E+00	1.140E+00	30.25	
SN-126	1.00E+05Y	1.00	3.699E-01	3.699E-01	1.119E-01	30.25	
BA-137M	30.17Y	1.00	2.887E-01	2.890E-01	0.662E-01	22.92	
CS-137	30.17Y	1.00	3.052E-01	3.055E-01	0.700E-01	22.92	
W-181	120.95D	1.10	1.947E-01	2.135E-01	2.578E-01	120.74	K
TL-208	1.41E+10Y	1.00	4.942E-01	4.942E-01	0.856E-01	17.32	
BI-211	7.04E+08Y	1.00	3.078E+00	3.078E+00	0.434E+00	14.11	
PB-212	1.41E+10Y	1.00	1.554E+00	1.554E+00	0.151E+00	9.74	
PO-212	1.41E+10Y	1.00	1.554E+00	1.554E+00	0.151E+00	9.74	
BI-214	1600.00Y	1.00	1.013E+00	1.013E+00	0.156E+00	15.44	
PB-214	1600.00Y	1.00	1.071E+00	1.071E+00	0.161E+00	15.04	
PO-214	1600.00Y	1.00	1.071E+00	1.071E+00	0.161E+00	15.04	
PO-216	1.41E+10Y	1.00	1.554E+00	1.554E+00	0.151E+00	9.74	
PO-218	1600.00Y	1.00	1.071E+00	1.071E+00	0.161E+00	15.04	
RA-224	1.41E+10Y	1.00	3.989E+00	3.989E+00	1.300E+00	32.59	
RA-226	1600.00Y	1.00	1.013E+00	1.013E+00	0.156E+00	15.44	
AC-228	1.41E+10Y	1.00	1.654E+00	1.654E+00	0.376E+00	22.72	
RA-228	1.41E+10Y	1.00	1.654E+00	1.654E+00	0.376E+00	22.72	
TH-228	1.91Y	1.02	1.554E+00	1.579E+00	0.154E+00	9.74	
TH-230	4.47E+09Y	1.00	1.013E+00	1.013E+00	0.156E+00	15.44	
TH-232	1.41E+10Y	1.00	1.654E+00	1.654E+00	0.376E+00	22.72	
TH-234	4.47E+09Y	1.00	5.572E+00	5.572E+00	2.605E+00	46.75	
U-234	4.47E+09Y	1.00	1.013E+00	1.013E+00	0.156E+00	15.44	
NP-237	2.14E+06Y	1.00	1.086E+00	1.086E+00	0.398E+00	36.61	
U-238	4.47E+09Y	1.00	5.572E+00	5.572E+00	2.605E+00	46.75	
AM-243	7380.00Y	1.00	3.438E-01	3.438E-01	0.798E-01	23.21	
ANH-511	1.00E+09Y	1.00	1.092E-01	1.092E-01	0.571E-01	52.31	

Total Activity : 7.530E+01 7.543E+01

Grand Total Activity : 7.530E+01 7.543E+01

Flags: "K" = Keyline not found.  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	84.06	101	488	1.25	167.62	164	28	1.41E-02	77.2	5.43E+00	T
3	89.86	180	329	1.08	179.22	164	28	2.50E-02	35.3	5.82E+00	T
0	128.69	55	337	0.85	256.92	254	8	7.58E-03	****	6.64E+00	T
0	185.69	328	263	1.19	370.97	367	8	4.55E-02	21.4	5.86E+00	T
0	209.00	127	307	1.22	417.63	414	10	1.76E-02	54.3	5.47E+00	T
0	269.99	112	183	1.77	539.66	535	9	1.56E-02	47.3	4.59E+00	T
0	327.62	72	166	0.84	654.97	650	10	1.00E-02	71.0	3.97E+00	T
0	462.51	69	123	1.44	924.84	918	11	9.57E-03	67.0	3.03E+00	T
0	727.09	72	97	1.56	1454.16	1446	13	1.00E-02	61.2	2.08E+00	T
0	794.99	39	43	1.27	1589.99	1586	8	5.40E-03	67.8	1.92E+00	T
1	964.30	47	70	2.00	1928.64	1923	26	6.47E-03	76.6	1.62E+00	T
0	1444.82	8	9	1.22	2889.65	2882	9	1.08E-03	****	1.15E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229006.CNF;1
* Acquisition date   : 22-JAN-2010 13:40:14   Detector SN#      :
* Detector ID        : GAM12                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.57          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229006             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity  : 1.33390E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24.5MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope     :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.178E+01	2.889E+00	5.790E-01	4.128E-02	54.881
CD-109	3.769E+00	1.140E+00	1.163E+00	8.898E-02	3.241
SN-126	3.699E-01	1.119E-01	1.147E-01	8.739E-03	3.226
BA-137M	2.890E-01	6.623E-02	5.844E-02	3.788E-03	4.945
CS-137	3.055E-01	7.003E-02	6.177E-02	4.018E-03	4.945
W-181	2.135E-01	2.578E-01	5.788E-01	3.719E-02	0.369
TL-208	4.942E-01	8.561E-02	6.023E-02	4.309E-03	8.205
BI-211	3.078E+00	4.342E-01	3.060E-01	1.924E-02	10.059
PB-212	1.554E+00	1.513E-01	8.224E-02	5.840E-03	18.891
PO-212	1.554E+00	1.513E-01	8.224E-02	5.840E-03	18.891
BI-214	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
PB-214	1.071E+00	1.610E-01	1.068E-01	8.721E-03	10.030
PO-214	1.071E+00	1.610E-01	1.068E-01	8.721E-03	10.030
PO-216	1.554E+00	1.513E-01	8.224E-02	5.840E-03	18.891
PO-218	1.071E+00	1.610E-01	1.068E-01	8.721E-03	10.030
RA-224	3.989E+00	1.300E+00	9.361E-01	5.163E-02	4.262
RA-226	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
AC-228	1.654E+00	3.758E-01	2.083E-01	2.287E-02	7.939

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.654E+00	3.758E-01	2.083E-01	2.287E-02	7.939
TH-228	1.579E+00	1.538E-01	8.357E-02	5.934E-03	18.891
TH-230	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
TH-232	1.654E+00	3.758E-01	2.083E-01	2.287E-02	7.939
TH-234	5.572E+00	2.605E+00	1.957E+00	3.332E-01	2.848
U-234	1.013E+00	1.564E-01	9.920E-02	8.167E-03	10.212
NP-237	1.086E+00	3.977E-01	3.406E-01	7.483E-02	3.189
U-238	5.572E+00	2.605E+00	1.957E+00	3.332E-01	2.848
AM-243	3.438E-01	7.978E-02	8.537E-02	5.801E-03	4.027
ANH-511	1.092E-01	5.712E-02	4.067E-02	2.479E-03	2.685

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.255E-01		3.325E-01	5.499E-01	3.784E-02	0.228
NA-22	5.658E-02		4.432E-02	8.150E-02	5.248E-03	0.694
NA-24	-2.994E-01		9.724E-01	Half-Life	too short	
AL-26	7.066E-03		2.947E-02	5.036E-02	2.890E-03	0.140
TI-44	3.554E-01	+	5.483E-02	6.795E-02	4.753E-03	5.230
SC-46	-3.367E-02		4.357E-02	6.534E-02	5.416E-03	-0.515
V-48	-1.492E-03		7.897E-02	1.266E-01	9.751E-03	-0.012
CR-51	3.320E-01		3.468E-01	6.056E-01	3.850E-02	0.548
MN-52	3.099E-01		2.476E-01	4.717E-01	3.240E-02	0.657
MN-54	5.066E-03		3.947E-02	6.497E-02	5.108E-03	0.078
CO-56	-2.810E-02		4.055E-02	6.154E-02	4.895E-03	-0.457
CO-57	-1.390E-02		2.309E-02	3.673E-02	2.297E-03	-0.378
CO-58	-6.409E-03		3.405E-02	5.447E-02	4.192E-03	-0.118
FE-59	-7.590E-02		9.162E-02	1.402E-01	1.035E-02	-0.541
CO-60	-1.273E-02		3.930E-02	6.179E-02	4.316E-03	-0.206
ZN-65	-1.348E-02		1.125E-01	1.583E-01	9.956E-03	-0.085
GE-68	-3.255E-01		1.267E+00	2.064E+00	1.392E-01	-0.158
AS-73	2.793E-01		7.933E-01	1.311E+00	8.465E-02	0.213
AS-74	-6.170E-02		8.978E-02	1.422E-01	9.054E-03	-0.434
SE-75	1.835E-02		4.235E-02	6.470E-02	3.668E-03	0.284
BR-77	-1.422E+00		1.259E+01	1.992E+01	1.222E+00	-0.071
SR-82	-1.999E-01		3.886E-01	6.073E-01	4.494E-02	-0.329
RB-83	-2.622E-02		6.531E-02	1.007E-01	6.175E-03	-0.260
RB-84	-2.249E-02		7.058E-02	1.107E-01	9.108E-03	-0.203
KR-85	3.503E+00		7.570E+00	1.108E+01	6.768E-01	0.316
SR-85	1.814E-02		3.920E-02	5.739E-02	3.505E-03	0.316
RB-86	2.952E-02		8.259E-01	1.382E+00	9.329E-02	0.021
Y-88	4.464E-02		3.757E-02	7.343E-02	4.134E-03	0.608
ZR-88	-7.519E-04		3.167E-02	5.167E-02	2.834E-03	-0.015
Y-91	-4.859E+00		2.054E+01	3.326E+01	1.923E+00	-0.146
NB-94	-6.994E-03		3.263E-02	5.299E-02	3.609E-03	-0.132
NB-95	3.821E-03		4.788E-02	7.827E-02	5.725E-03	0.049
NB-95M	7.461E-02		1.256E-01	1.939E-01	1.415E-02	0.385

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	5.357E-02		7.216E-02	1.255E-01	1.036E-02	0.427
NB-97	1.443E-01		1.419E-01	Half-Life too short		
ZR-97	6.716E+00		2.498E+00	Half-Life too short		
MO-99	6.676E+00		1.538E+01	2.613E+01	3.757E+00	0.256
TC-99M	-1.489E+11		2.610E+11	Half-Life too short		
RH-101	-1.471E-02		3.183E-02	4.846E-02	2.564E-03	-0.304
RH-102	-3.569E-03		2.839E-02	4.528E-02	2.689E-03	-0.079
RU-103	-1.125E-02		4.014E-02	6.290E-02	8.023E-03	-0.179
RH-106	-2.657E-01		3.189E-01	4.954E-01	5.972E-02	-0.536
RU-106	-2.657E-01		3.177E-01	4.954E-01	3.181E-02	-0.536
AG-108M	1.835E-02		3.058E-02	5.173E-02	3.224E-03	0.355
AG-110M	1.874E-02		3.984E-02	6.035E-02	4.113E-03	0.311
IN-111	-5.706E-01		1.288E+00	1.855E+00	1.027E-01	-0.308
IN-113M	-2.536E-02		4.505E-02	7.093E-02	4.176E-03	-0.357
SN-113	-2.536E-02		4.505E-02	7.093E-02	4.176E-03	-0.357
IN-114M	1.593E-02		1.788E-01	2.726E-01	1.430E-02	0.058
CD-115	3.742E+00		1.338E+01	2.190E+01	1.349E+00	0.171
SN-117M	-1.472E-02		5.246E-02	8.345E-02	4.408E-03	-0.176
SB-122	2.673E+00		2.664E+00	4.758E+00	2.988E-01	0.562
I-123	9.801E-01		8.747E+00	Half-Life too short		
TE-123M	1.456E-03		2.599E-02	4.203E-02	2.252E-03	0.035
I-124	-1.888E-01		8.643E-01	1.290E+00	8.232E-02	-0.146
SB-124	-1.079E-03		8.114E-02	1.418E-01	9.460E-03	-0.008
SB-125	2.725E-02		8.888E-02	1.474E-01	8.762E-03	0.185
TE-125M	-2.688E-02		8.784E+00	1.447E+01	1.248E+00	-0.002
I-126	7.546E-02		2.001E-01	3.007E-01	1.961E-02	0.251
SB-126	8.571E-02		1.689E-01	2.554E-01	1.776E-02	0.336
SB-127	-1.094E+00		1.549E+00	2.403E+00	2.477E-01	-0.455
XE-127	-3.302E-02		4.680E-02	7.164E-02	3.810E-03	-0.461
I-131	-4.847E-02		1.112E-01	1.771E-01	1.117E-02	-0.274
TE-132	2.770E-01		7.605E-01	1.307E+00	1.886E-01	0.212
BA-133	5.969E-03		4.508E-02	6.584E-02	7.553E-03	0.091
I-133	6.190E-03		6.069E-03	Half-Life too short		
CS-134	7.519E-02	+	5.130E-02	8.785E-02	6.698E-03	0.856
CS-135	2.204E-01		1.615E-01	2.593E-01	1.950E-02	0.850
I-135	4.663E+10		3.316E+10	Half-Life too short		
CS-136	-1.208E-01		1.123E-01	1.676E-01	1.259E-02	-0.721
CE-139	-8.218E-03		2.799E-02	4.438E-02	2.274E-03	-0.185
BA-140	2.531E-02		2.462E-01	4.181E-01	1.363E-01	0.061
LA-140	-8.954E-02		9.187E-02	1.317E-01	8.576E-03	-0.680
CE-141	-2.974E-02		5.909E-02	9.357E-02	5.447E-03	-0.318
CE-143	9.183E-04		1.600E-04	Half-Life too short		
CE-144	1.169E-01		1.944E-01	3.101E-01	4.415E-02	0.377
PM-144	1.536E-03		3.501E-02	5.808E-02	3.930E-03	0.026
PR-144	1.042E-01		2.374E+00	3.938E+00	2.662E-01	0.026
PM-146	-2.577E-02		4.127E-02	6.335E-02	5.477E-03	-0.407
ND-147	2.735E-01		5.646E-01	9.367E-01	1.282E-01	0.292
PM-149	1.799E+01		1.140E+02	1.919E+02	2.710E+01	0.094

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	3.391E-02		1.019E-01	1.593E-01	1.021E-02	0.213
GD-153	4.104E-03		8.438E-02	1.256E-01	8.732E-03	0.033
EU-154	1.557E-01		1.240E-01	2.269E-01	2.211E-02	0.686
EU-155	1.426E-01		1.018E-01	1.767E-01	1.191E-02	0.807
TB-160	-5.279E-03		1.386E-01	2.238E-01	1.838E-02	-0.024
HO-166M	1.947E-02		5.874E-02	9.955E-02	6.852E-03	0.196
TM-171	-1.955E+01		2.885E+01	4.231E+01	2.738E+00	-0.462
LU-176	2.227E-02		2.352E-02	3.708E-02	2.107E-03	0.601
LU-177	3.137E+00	+	1.713E+00	2.051E+00	1.097E-01	1.529
LU-177M	-1.589E-01		1.709E-01	2.522E-01	1.415E-02	-0.630
HF-181	2.294E-02		4.243E-02	7.102E-02	4.240E-03	0.323
TA-182	2.329E-02		2.268E-01	3.771E-01	2.237E-02	0.062
RE-183	1.174E-02		1.058E-01	1.697E-01	8.821E-03	0.069
RE-184	-3.368E-02		2.097E-01	3.502E-01	1.949E-02	-0.096
OS-185	-1.596E-02		4.205E-02	6.781E-02	4.382E-03	-0.235
RE-188	1.002E-01		1.599E-01	2.656E-01	1.424E-02	0.377
W-188	-1.779E+00		7.531E+00	1.086E+01	6.153E-01	-0.164
IR-192	-2.732E-02		3.077E-02	4.815E-02	2.751E-03	-0.567
AU-195	2.967E-01		2.273E-01	3.782E-01	2.601E-02	0.785
TL-200	2.480E-04		3.841E-04	Half-Life too short		
TL-201	4.273E+00		7.819E+00	1.290E+01	6.614E-01	0.331
TL-202	-8.532E-03		6.669E-02	1.070E-01	6.161E-03	-0.080
HG-203	-3.960E-02		3.809E-02	5.873E-02	3.532E-03	-0.674
BI-207	-3.236E-02		5.058E-02	7.913E-02	5.459E-03	-0.409
TL-207	-2.506E-01		6.975E-01	9.834E-01	1.620E-01	-0.255
PO-209	3.988E+00		8.472E+00	1.425E+01	1.190E+00	0.280
BI-210	9.589E-01		3.087E+00	5.215E+00	3.928E-01	0.184
PB-210	9.589E-01		3.087E+00	5.215E+00	3.928E-01	0.184
PO-210	9.589E-01		3.087E+00	5.215E+00	3.345E-01	0.184
PB-211	-1.205E+00		1.216E+00	1.432E+00	8.922E-01	-0.842
BI-212	8.274E-01	+	5.111E-01	6.497E-01	5.624E-02	1.274
PO-215	-2.506E-01		6.975E-01	9.834E-01	1.620E-01	-0.255
RN-219	-9.142E-02		4.046E-01	6.499E-01	8.772E-02	-0.141
RN-220	8.108E+00		2.384E+01	4.113E+01	2.565E+00	0.197
RA-223	-2.506E-01		6.975E-01	9.834E-01	1.620E-01	-0.255
AC-227	1.284E-01		3.470E-01	5.935E-01	8.231E-02	0.216
TH-227	1.284E-01		3.472E-01	5.935E-01	9.985E-02	0.216
TH-229	1.353E-02		4.775E-01	7.617E-01	4.011E-02	0.018
PA-231	7.660E-01		1.396E+00	2.393E+00	3.283E-01	0.320
TH-231	-2.506E-01		6.975E-01	9.834E-01	1.620E-01	-0.255
U-231	-2.972E-01		1.299E+00	1.906E+00	1.343E-01	-0.156
PA-233	3.047E-02		5.492E-02	9.423E-02	5.702E-03	0.323
PA-234	1.001E-01		3.114E-01	5.165E-01	9.553E-02	0.194
PA-234M	4.343E+00		5.287E+00	8.871E+00	8.029E-01	0.489
U-235	1.894E-01		2.016E-01	3.346E-01	5.435E-02	0.566
NP-236	-2.646E-02		7.436E-02	1.178E-01	6.178E-03	-0.225
NP-239	-7.078E-02		1.762E-01	2.840E-01	1.792E-02	-0.249
AM-241	-1.077E-01		2.048E-01	2.391E-01	1.699E-02	-0.451



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-7.138E-03		9.073E-02	1.494E-01	9.948E-03	-0.048
AM-246	-3.366E-02		1.448E-01	2.364E-01	1.590E-02	-0.142
CM-247	-5.976E-03		3.550E-02	5.725E-02	3.175E-03	-0.104
CF-249	2.693E-02		3.881E-02	6.620E-02	3.639E-03	0.407
CF-251	-8.373E-02		1.189E-01	1.837E-01	9.501E-03	-0.456

# VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                          *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229006
* Acquisition date   : 22-JAN-2010 13:40:14 Detector SN#      :
* Detector ID        : GAM12                               Sensitivity      : 5.000
* Geometry           : CAN                               Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00                     Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.57                     Half life ratio  : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244229006                     Analyst initials: MXR1
* Batch Number       : 941239                         Sample Quantity : 1.3339E+02 GRAM
* Recovery           : 1.00000                         Carrier Weight  : 0.00000
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24 MS Isotope      :
* MSD DPM             : 0.000                           MSD Isotope      :
* LCS DPM             : 0.000                           LCS Isotope      :
* LCSD DPM            : 0.000                           LCSD Isotope     :
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.178E+01	2.832E+00	2.902E-01	1.445E+00
CD-109	3.769E+00	1.117E+00	6.120E-01	5.699E-01
SN-126	3.699E-01	1.096E-01	6.035E-02	5.594E-02
BA-137M	2.890E-01	6.490E-02	2.971E-02	3.311E-02
CS-137	3.055E-01	6.863E-02	3.140E-02	3.501E-02
W-181	2.555E-01	3.624E-01	3.061E-01	1.849E-01
TL-208	4.942E-01	8.390E-02	3.069E-02	4.281E-02
BI-211	3.078E+00	4.255E-01	1.573E-01	2.171E-01
PB-212	1.554E+00	1.483E-01	4.256E-02	7.566E-02
PO-212	1.554E+00	1.483E-01	4.256E-02	7.566E-02
BI-214	1.013E+00	1.533E-01	5.050E-02	7.821E-02
PB-214	1.071E+00	1.578E-01	5.488E-02	8.052E-02
PO-214	1.071E+00	1.578E-01	5.488E-02	8.052E-02
PO-216	1.554E+00	1.483E-01	4.256E-02	7.566E-02
PO-218	1.071E+00	1.578E-01	5.488E-02	8.052E-02
RA-224	3.989E+00	1.274E+00	4.843E-01	6.501E-01
RA-226	1.013E+00	1.533E-01	5.050E-02	7.821E-02
AC-228	1.654E+00	3.682E-01	1.053E-01	1.879E-01
RA-228	1.654E+00	3.682E-01	1.053E-01	1.879E-01
TH-228	1.579E+00	1.507E-01	4.325E-02	7.688E-02
TH-230	1.013E+00	1.533E-01	5.050E-02	7.821E-02
TH-232	1.654E+00	3.682E-01	1.053E-01	1.879E-01
TH-234	5.572E+00	2.553E+00	1.035E+00	1.303E+00
U-234	1.013E+00	1.533E-01	5.050E-02	7.821E-02
NP-237	1.086E+00	3.897E-01	1.793E-01	1.988E-01
U-238	5.572E+00	2.553E+00	1.035E+00	1.303E+00
AM-243	3.438E-01	7.818E-02	4.505E-02	3.989E-02
ANH-511	1.092E-01	5.598E-02	2.077E-02	2.856E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	1.255E-01	3.259E-01	2.811E-01	1.663E-01	NOT IDENT.
NA-22	5.658E-02	4.344E-02	4.095E-02	2.216E-02	NOT IDENT.
NA-24	-2.994E+05	1.906E+06	0.000E+00	9.724E+05	SHORT HLIF
AL-26	7.066E-03	2.889E-02	2.514E-02	1.474E-02	NOT IDENT.
TI-44	3.554E-01	5.373E-02	3.583E-02	2.741E-02	FAIL ABUN
SC-46	-3.367E-02	4.269E-02	3.304E-02	2.178E-02	FAIL ABUN
V-48	-1.492E-03	7.739E-02	6.389E-02	3.949E-02	NOT IDENT.
CR-51	3.320E-01	3.399E-01	3.118E-01	1.734E-01	NOT IDENT.
MN-52	3.099E-01	2.427E-01	2.365E-01	1.238E-01	NOT IDENT.
MN-54	5.066E-03	3.868E-02	3.289E-02	1.974E-02	NOT IDENT.
CO-56	-2.810E-02	3.974E-02	3.115E-02	2.028E-02	NOT IDENT.
CO-57	-1.390E-02	2.263E-02	1.923E-02	1.154E-02	NOT IDENT.
CO-58	-6.409E-03	3.337E-02	2.759E-02	1.702E-02	NOT IDENT.
FE-59	-7.590E-02	8.978E-02	7.061E-02	4.581E-02	NOT IDENT.
CO-60	-1.273E-02	3.852E-02	3.102E-02	1.965E-02	NOT IDENT.
ZN-65	-1.348E-02	1.103E-01	7.971E-02	5.626E-02	NOT IDENT.
GE-68	-3.255E-01	1.242E+00	1.040E+00	6.337E-01	NOT IDENT.
AS-73	2.793E-01	7.775E-01	6.957E-01	3.967E-01	NOT IDENT.
AS-74	-6.170E-02	8.798E-02	7.244E-02	4.489E-02	NOT IDENT.
SE-75	1.835E-02	4.151E-02	3.342E-02	2.118E-02	NOT IDENT.
BR-77	-1.422E+00	1.234E+01	1.017E+01	6.294E+00	FAIL ABUN
SR-82	-1.999E-01	3.808E-01	3.079E-01	1.943E-01	NOT IDENT.
RB-83	-2.622E-02	6.400E-02	5.141E-02	3.266E-02	NOT IDENT.
RB-84	-2.249E-02	6.916E-02	5.598E-02	3.529E-02	NOT IDENT.
KR-85	3.503E+00	7.419E+00	5.659E+00	3.785E+00	NOT IDENT.
SR-85	1.814E-02	3.842E-02	2.931E-02	1.960E-02	NOT IDENT.
RB-86	2.952E-02	8.094E-01	6.965E-01	4.129E-01	NOT IDENT.
Y-88	4.464E-02	3.682E-02	3.665E-02	1.878E-02	NOT IDENT.
ZR-88	-7.519E-04	3.104E-02	2.651E-02	1.584E-02	NOT IDENT.
Y-91	-4.859E+00	2.012E+01	1.673E+01	1.027E+01	NOT IDENT.
NB-94	-6.994E-03	3.198E-02	2.691E-02	1.632E-02	NOT IDENT.
NB-95	3.821E-03	4.692E-02	3.969E-02	2.394E-02	NOT IDENT.
NB-95M	7.461E-02	1.231E-01	1.004E-01	6.281E-02	NOT IDENT.
ZR-95	5.357E-02	7.071E-02	6.363E-02	3.608E-02	NOT IDENT.
NB-97	1.443E+05	2.781E+05	0.000E+00	1.419E+05	SHORT HLIF
ZR-97	6.716E+06	4.896E+06	0.000E+00	2.498E+06	SHORT HLIF
MO-99	6.676E+00	1.507E+01	1.326E+01	7.689E+00	NOT IDENT.
TC-99M	-1.489E+17	5.116E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.471E-02	3.120E-02	2.516E-02	1.592E-02	FAIL ABUN
RH-102	-3.569E-03	2.782E-02	2.315E-02	1.420E-02	NOT IDENT.
RU-103	-1.125E-02	3.933E-02	3.214E-02	2.007E-02	FAIL ABUN
RH-106	-2.657E-01	3.125E-01	2.521E-01	1.595E-01	FAIL ABUN
RU-106	-2.657E-01	3.114E-01	2.521E-01	1.589E-01	FAIL ABUN
AG-108M	1.835E-02	2.997E-02	2.650E-02	1.529E-02	NOT IDENT.
AG-110M	1.874E-02	3.905E-02	3.068E-02	1.992E-02	NOT IDENT.
IN-111	-5.706E-01	1.262E+00	9.596E-01	6.439E-01	NOT IDENT.
IN-113M	-2.536E-02	4.415E-02	3.639E-02	2.253E-02	NOT IDENT.
SN-113	-2.536E-02	4.415E-02	3.639E-02	2.253E-02	NOT IDENT.
IN-114M	1.593E-02	1.753E-01	1.416E-01	8.942E-02	NOT IDENT.
CD-115	3.742E+00	1.312E+01	1.118E+01	6.692E+00	NOT IDENT.
SN-117M	-1.472E-02	5.141E-02	4.349E-02	2.623E-02	NOT IDENT.
SB-122	2.673E+00	2.611E+00	2.426E+00	1.332E+00	NOT IDENT.
I-123	9.801E+05	1.714E+07	0.000E+00	8.747E+06	SHORT HLIF
TE-123M	1.456E-03	2.547E-02	2.190E-02	1.299E-02	NOT IDENT.
I-124	-1.888E-01	8.470E-01	6.569E-01	4.321E-01	NOT IDENT.
SB-124	-1.079E-03	7.951E-02	7.086E-02	4.057E-02	FAIL ABUN
SB-125	2.725E-02	8.711E-02	7.551E-02	4.444E-02	FAIL ABUN
TE-125M	-2.688E-02	8.609E+00	7.587E+00	4.392E+00	NOT IDENT.
I-126	7.546E-02	1.961E-01	1.529E-01	1.000E-01	NOT IDENT.
SB-126	8.571E-02	1.655E-01	1.297E-01	8.443E-02	FAIL ABUN
SB-127	-1.094E+00	1.518E+00	1.221E+00	7.743E-01	NOT IDENT.
XE-127	-3.302E-02	4.587E-02	3.718E-02	2.340E-02	FAIL ABUN
I-131	-4.847E-02	1.090E-01	9.099E-02	5.561E-02	NOT IDENT.
TE-132	2.770E-01	7.453E-01	6.770E-01	3.803E-01	NOT IDENT.
BA-133	5.969E-03	4.418E-02	3.384E-02	2.254E-02	NOT IDENT.
I-133	6.190E+03	1.189E+04	0.000E+00	6.069E+03	SHORT HLIF
CS-134	7.519E-02	5.028E-02	4.451E-02	2.565E-02	FAIL ABUN
CS-135	2.204E-01	1.583E-01	1.339E-01	8.077E-02	NOT IDENT.
I-135	4.663E+16	6.500E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.208E-01	1.100E-01	8.450E-02	5.614E-02	FAIL ABUN
CE-139	-8.218E-03	2.743E-02	2.311E-02	1.399E-02	NOT IDENT.
BA-140	2.531E-02	2.413E-01	2.133E-01	1.231E-01	NOT IDENT.
LA-140	-8.954E-02	9.003E-02	6.588E-02	4.594E-02	FAIL ABUN
CE-141	-2.974E-02	5.791E-02	4.883E-02	2.955E-02	NOT IDENT.
CE-143	9.183E+02	3.136E+02	0.000E+00	1.600E+02	SHORT HLIF
CE-144	1.169E-01	1.906E-01	1.621E-01	9.722E-02	NOT IDENT.
PM-144	1.536E-03	3.431E-02	2.950E-02	1.751E-02	NOT IDENT.

PR-144	1.042E-01	2.326E+00	2.000E+00	1.187E+00	NOT IDENT.
PM-146	-2.577E-02	4.044E-02	3.242E-02	2.063E-02	NOT IDENT.
ND-147	2.735E-01	5.533E-01	4.780E-01	2.823E-01	FAIL ABUN
PM-149	1.799E+01	1.117E+02	9.901E+01	5.699E+01	NOT IDENT.
EU-152	3.391E-02	9.985E-02	8.193E-02	5.095E-02	FAIL ABUN
GD-153	4.104E-03	8.269E-02	6.598E-02	4.219E-02	FAIL ABUN
EU-154	1.557E-01	1.215E-01	1.140E-01	6.201E-02	NOT IDENT.
EU-155	1.426E-01	9.975E-02	9.271E-02	5.089E-02	FAIL ABUN
TB-160	-5.279E-03	1.358E-01	1.132E-01	6.928E-02	FAIL ABUN
HO-166M	1.947E-02	5.757E-02	5.054E-02	2.937E-02	FAIL ABUN
TM-171	-1.955E+01	2.827E+01	2.237E+01	1.442E+01	NOT IDENT.
LU-176	2.227E-02	2.304E-02	1.910E-02	1.176E-02	FAIL ABUN
LU-177	3.137E+00	1.678E+00	1.064E+00	8.564E-01	FAIL ABUN
LU-177M	-1.589E-01	1.675E-01	1.293E-01	8.545E-02	FAIL ABUN
HF-181	2.294E-02	4.158E-02	3.631E-02	2.121E-02	FAIL ABUN
TA-182	2.329E-02	2.223E-01	1.896E-01	1.134E-01	FAIL ABUN
RE-183	1.174E-02	1.037E-01	8.839E-02	5.290E-02	FAIL ABUN
RE-184	-3.368E-02	2.055E-01	1.810E-01	1.048E-01	FAIL ABUN
OS-185	-1.596E-02	4.121E-02	3.448E-02	2.102E-02	NOT IDENT.
RE-188	1.002E-01	1.567E-01	1.384E-01	7.996E-02	NOT IDENT.
W-188	-1.779E+00	7.380E+00	5.599E+00	3.765E+00	FAIL ABUN
IR-192	-2.732E-02	3.015E-02	2.480E-02	1.538E-02	FAIL ABUN
AU-195	2.967E-01	2.227E-01	1.987E-01	1.136E-01	FAIL ABUN
TL-200	2.480E+02	7.528E+02	0.000E+00	3.841E+02	SHORT HLIF
TL-201	4.273E+00	7.662E+00	6.718E+00	3.909E+00	NOT IDENT.
TL-202	-8.532E-03	6.535E-02	5.477E-02	3.334E-02	NOT IDENT.
HG-203	-3.960E-02	3.733E-02	3.031E-02	1.904E-02	FAIL ABUN
BI-207	-3.236E-02	4.956E-02	3.989E-02	2.529E-02	FAIL ABUN
TL-207	-2.506E-01	6.835E-01	5.063E-01	3.487E-01	FAIL ABUN
PO-209	3.988E+00	8.302E+00	7.207E+00	4.236E+00	NOT IDENT.
BI-210	9.589E-01	3.026E+00	2.773E+00	1.544E+00	NOT IDENT.
PB-210	9.589E-01	3.026E+00	2.773E+00	1.544E+00	NOT IDENT.
PO-210	9.589E-01	3.026E+00	2.773E+00	1.544E+00	NOT IDENT.
PB-211	-1.205E+00	1.192E+00	7.341E-01	6.079E-01	NOT IDENT.
BI-212	8.274E-01	5.009E-01	3.297E-01	2.556E-01	FAIL ABUN
PO-215	-2.506E-01	6.835E-01	5.063E-01	3.487E-01	FAIL ABUN
RN-219	-9.142E-02	3.965E-01	3.333E-01	2.023E-01	FAIL ABUN
RN-220	8.108E+00	2.337E+01	2.098E+01	1.192E+01	NOT IDENT.
RA-223	-2.506E-01	6.835E-01	5.063E-01	3.487E-01	FAIL ABUN
AC-227	1.284E-01	3.401E-01	3.067E-01	1.735E-01	FAIL ABUN
TH-227	1.284E-01	3.403E-01	3.067E-01	1.736E-01	FAIL ABUN
TH-229	1.353E-02	4.680E-01	3.956E-01	2.388E-01	FAIL ABUN
PA-231	7.660E-01	1.368E+00	1.235E+00	6.978E-01	NOT IDENT.
TH-231	-2.506E-01	6.835E-01	5.063E-01	3.487E-01	FAIL ABUN
U-231	-2.972E-01	1.273E+00	1.002E+00	6.493E-01	FAIL ABUN
PA-233	3.047E-02	5.382E-02	4.854E-02	2.746E-02	FAIL ABUN
PA-234	1.001E-01	3.051E-01	2.609E-01	1.557E-01	FAIL ABUN
PA-234M	4.343E+00	5.181E+00	4.477E+00	2.643E+00	NOT IDENT.
U-235	1.894E-01	1.976E-01	1.747E-01	1.008E-01	FAIL ABUN
NP-236	-2.646E-02	7.288E-02	6.139E-02	3.718E-02	NOT IDENT.
NP-239	-7.078E-02	1.727E-01	1.488E-01	8.811E-02	FAIL ABUN
AM-241	-1.077E-01	2.007E-01	1.266E-01	1.024E-01	NOT IDENT.
CM-243	-7.138E-03	8.892E-02	7.840E-02	4.537E-02	FAIL ABUN
AM-246	-3.366E-02	1.419E-01	1.191E-01	7.242E-02	NOT IDENT.
CM-247	-5.976E-03	3.479E-02	2.936E-02	1.775E-02	NOT IDENT.
CF-249	2.693E-02	3.803E-02	3.397E-02	1.940E-02	NOT IDENT.
CF-251	-8.373E-02	1.166E-01	9.558E-02	5.947E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	243.8547
46.50	243.8547
46.50	243.8547
48.70	275.5484
49.72	268.7833
51.35	268.5011
52.39	270.2651
52.97	268.1698
53.15	268.3228
53.44	261.9845
54.07	260.4210
56.28	281.8676
56.28	281.8701
57.37	0.0000
57.53	281.6219
57.53	281.6236
57.60	281.6815
57.98	282.0024
57.98	282.0024
59.32	349.2755
59.32	349.2755
59.40	349.3571
59.54	349.5011
59.72	349.6854
60.01	349.9825
61.10	319.1734
61.14	319.2105
61.30	319.3570
63.00	354.3373
63.29	331.8768
63.29	331.8768
63.58	332.1479
64.28	351.5863
65.12	313.3995
65.20	330.9585
65.20	330.9585
66.05	345.2168
66.72	376.9178
66.83	377.0327
66.91	389.2808
67.20	390.9389
67.20	390.9389
67.75	379.3240
67.85	379.4287
68.90	392.4531
68.90	392.4531
69.30	394.5020
69.67	326.8048
70.82	387.8847
70.82	387.8847
70.83	387.8956
72.80	422.8209
72.87	422.8984
72.87	422.8984
74.67	388.9699
74.81	389.1076
74.81	389.1076
74.81	389.1076
74.81	389.1076
74.81	389.1076
74.81	389.1076
74.97	389.2636
75.28	389.5659
75.70	389.9746
77.11	391.3387
77.11	391.3387

77.11	391.3387
77.11	391.3387
77.11	391.3387
77.11	391.3387
77.11	391.3387
78.38	367.4996
79.62	329.5091
79.80	329.6513
79.80	329.6513
80.11	357.8555
80.18	357.9141
80.30	358.0176
80.30	358.0176
80.57	358.2480
81.00	313.7883
81.07	313.8413
81.07	313.8413
81.07	313.8413
81.07	313.8413
82.60	358.5665
83.37	369.0712
83.78	335.5863
83.78	335.5863
83.78	335.5863
83.78	335.5863
84.21	335.9204
84.90	336.4561
85.43	336.8665
86.29	337.5274
86.50	337.6890
86.54	337.7199
86.59	337.7580
86.72	337.8579
86.79	337.9106
86.94	338.0268
87.30	338.3009
87.30	338.3009
87.30	338.3009
87.30	338.3009
87.30	338.3009
87.30	338.3009
87.57	338.5079
87.88	338.7440
88.03	338.8584
88.36	339.1090
88.47	339.1925
89.95	340.3092
91.11	341.1808
92.29	342.0596
92.38	342.1268
92.38	342.1268
93.35	342.8441
94.00	343.3234
94.67	300.4742
94.67	300.4774
94.90	300.6250
94.90	300.6250
94.90	300.6250
94.90	300.6250
95.87	318.6234
95.87	318.6234
96.73	358.3792
97.43	312.4055
98.44	240.2566
98.44	240.2578
98.88	275.1638
99.55	286.0522
99.55	286.0522
99.86	286.2346
100.00	285.3430
100.10	289.3004
103.18	290.1314
103.76	285.5621
105.00	266.5933
105.31	252.9765
108.00	316.6553
109.28	283.7133

111.00	298.5840
111.00	298.5840
111.76	306.9896
112.95	291.6970
115.19	282.8893
116.30	271.4090
117.00	272.7643
117.00	272.7643
117.66	273.0952
121.11	241.3411
121.62	265.9205
121.78	265.9965
122.06	261.0509
122.32	261.1712
122.32	261.1712
122.32	261.1712
122.32	261.1712
123.07	253.3782
127.23	258.3042
129.76	259.4290
131.20	247.6807
133.02	211.1740
133.54	236.2220
135.34	270.1827
136.00	284.0001
136.25	273.7122
136.48	283.1839
140.51	311.2451
140.51	0.0000
142.18	305.7744
142.65	294.4352
143.76	242.2857
144.24	228.7634
144.24	228.7634
144.24	228.7634
144.24	228.7634
145.22	271.3501
145.44	277.7814
147.16	268.9991
152.43	247.6965
152.70	233.9128
153.22	236.2333
154.21	247.2915
154.21	247.2915
154.21	247.2915
154.21	247.2915
155.03	243.3096
156.02	260.8448
158.56	246.7439
159.00	0.0000
159.00	238.2769
160.31	260.3405
161.27	246.6428
162.32	240.5181
162.64	252.5518
163.35	258.2352
163.89	253.0068
165.85	255.8958
167.43	217.1826
171.28	234.8179
171.86	230.6146
172.10	230.6915
176.55	255.3163
176.60	255.3339
181.06	260.2103
184.41	271.4222
185.71	251.7448
186.00	230.0148
190.27	229.6058
192.34	207.6458
193.63	232.8543
197.04	244.0774
198.01	238.6896
198.60	218.3906
200.40	224.5809
201.83	266.0903
202.84	266.4221
205.31	218.4828

208.36	248.6448
208.81	232.6543
209.75	232.9173
209.75	232.9173
210.97	228.6374
215.65	234.5509
216.55	222.0115
218.09	201.4497
222.10	223.7359
223.80	211.8624
226.40	227.4782
227.00	209.9859
227.08	210.0059
227.20	197.6782
228.16	203.1925
228.18	198.7804
228.18	198.7804
231.56	0.0000
235.69	219.5064
236.00	208.1748
236.00	208.1748
238.63	197.5127
238.63	197.5127
238.63	197.5127
238.63	197.5127
239.00	197.5902
240.98	198.0151
241.98	198.2276
241.98	198.2276
241.98	198.2276
244.69	162.6403
245.39	178.6057
247.94	167.8955
248.90	167.1622
249.79	159.1791
252.40	194.0746
252.85	178.7417
252.85	178.7417
254.15	0.0000
256.20	172.0772
256.20	172.0772
260.50	177.4081
260.90	182.9681
262.80	164.9899
264.65	141.0539
268.24	156.3060
268.79	156.3914
269.46	178.0868
269.46	178.0868
269.46	178.0868
269.46	178.0868
271.23	167.1219
273.65	201.6160
276.40	153.2877
277.35	144.1323
277.60	149.7460
277.60	149.7460
278.00	153.5268
278.60	173.1660
279.20	177.9259
279.53	183.5723
280.46	183.7376
281.68	169.0108
283.67	148.7495
284.30	167.5612
285.00	169.5466
285.90	159.3776
286.10	156.5956
286.10	156.5956
287.40	164.2975
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290.67	159.7169
290.80	159.7375
291.72	165.9077
293.26	0.0000
293.70	152.6121
295.21	139.0193
295.21	139.0193



295.21	139.0193
295.96	139.1157
296.50	139.1830
297.23	139.2772
298.57	139.4477
299.80	139.6047
299.80	139.6047
300.09	139.6428
300.09	139.6428
300.09	139.6428
300.12	139.6451
301.29	139.7953
302.84	140.1810
303.76	146.3977
303.91	146.4164
304.40	138.8528
304.40	138.8528
304.84	120.5907
306.84	107.0439
308.46	129.2136
311.98	114.2553
316.51	142.6659
318.01	127.4097
319.02	129.4547
319.41	124.6656
320.08	119.9036
323.87	150.5631
323.87	150.5631
323.87	150.5631
323.87	150.5631
325.23	156.9569
328.77	130.9321
333.44	127.1455
334.20	128.4013
334.20	128.4013
334.30	128.4113
338.28	150.2452
338.28	150.2452
338.28	150.2452
338.28	150.2452
338.32	150.2522
338.32	150.2522
338.32	150.2522
340.50	155.8356
340.57	155.8428
344.27	139.4765
345.85	126.4805
350.59	0.0000
351.07	129.9946
351.92	130.2831
351.92	130.2831
351.92	130.2831
355.39	0.0000
356.01	121.1454
364.48	113.3345
366.43	105.4710
367.43	112.5896
367.94	0.0000
369.80	128.9102
374.96	136.5017
383.85	123.1731
387.95	113.3424
388.63	119.5297
391.69	140.2799
391.69	140.2799
392.90	135.2811
398.62	142.0240
400.65	105.1299
401.10	112.3813
401.81	126.8813
402.60	120.7598
404.84	156.1058
410.95	137.0616
411.60	143.3590
413.65	120.6799
414.70	118.6862
415.30	115.6120

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423.70	111.0561
427.08	97.6645
427.89	101.9228
432.53	87.4909
433.93	88.6284
439.47	93.1992
439.56	93.2046
439.89	94.2855
443.98	95.6071
444.90	93.5403
445.03	98.8636
445.03	98.8636
445.03	98.8636
445.03	98.8636
453.90	103.7241
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468.07	104.8374
473.00	97.4350
475.06	96.4787
475.35	91.0752
476.78	90.0733
477.59	98.8050
477.96	90.1404
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484.57	101.4207
487.03	95.0228
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497.08	92.3172
507.63	0.0000
510.53	0.0000
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511.00	75.3649
511.85	74.5162
511.85	74.5162
513.99	88.8226
513.99	88.8226
520.41	83.5876
520.65	75.7986
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528.96	0.0000
529.64	70.5943
529.87	0.0000
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537.32	77.4378
543.00	87.6268
546.56	0.0000
549.76	74.3605
552.65	75.3890
555.20	89.1403
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563.90	84.0893
568.70	87.0609
569.32	86.1743
569.50	86.1835
569.67	80.6889
573.80	98.3324
574.00	98.3428
574.64	86.4245
578.91	101.3687
579.30	0.0000
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591.81	65.8830
592.07	71.4619
593.00	72.4242
595.88	90.2034
600.56	76.4426
602.52	0.0000
602.71	102.6604
602.71	102.6604
603.60	93.3716
604.41	102.7517
604.70	110.5533
609.31	71.7983

609.31	71.7983
609.31	71.7983
609.31	71.7983
610.33	78.0823
612.46	85.9867
614.37	86.0718
618.01	79.9614
621.84	94.2554
621.84	94.2554
631.29	77.6618
633.02	84.3631
633.10	84.3675
634.78	88.2342
635.90	88.2842
636.97	95.9278
645.85	74.4123
646.12	81.1007
656.30	78.3111
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661.65	81.7191
664.57	0.0000
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666.33	65.8442
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677.61	77.5039
685.20	78.7555
692.80	81.9636
695.00	80.0941
696.49	84.0600
696.49	84.0600
697.00	85.0565
697.49	86.0535
698.33	91.9575
698.50	91.9644
699.00	85.1372
702.63	80.3784
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706.58	0.0000
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713.82	74.8793
717.42	72.0429
720.50	65.8838
721.93	0.0000
722.20	70.8793
722.78	90.6842
722.78	90.6842
722.89	90.6887
722.95	90.6909
723.30	89.0552
724.18	84.1409
727.18	84.2550
733.00	82.3454
735.90	79.6074
739.58	70.7677
742.81	79.8516
744.21	70.9116
747.13	67.0033
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752.31	61.1415
753.82	72.2145
755.35	70.2546
756.15	62.2467
756.87	77.3309
763.93	106.7815
765.79	94.7688
766.42	90.7603
766.84	94.8124
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778.57	63.8629
778.89	60.8306
783.80	65.0203
785.46	70.1489
792.07	73.0629

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796.30	54.4674
798.80	66.4520
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805.60	57.4123
810.29	53.4143
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836.80	0.0000
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860.37	72.3102
867.32	59.5457
867.82	59.5567
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873.19	46.3407
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880.27	53.8588
880.51	52.8076
881.50	58.1112
883.24	64.4923
884.67	61.3545
889.25	76.2979
896.60	66.9452
898.02	69.1085
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903.28	81.6736
911.07	56.6256
911.07	56.6256
911.07	56.6256
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920.93	46.4670
925.00	53.6963
925.24	50.4791
926.50	50.5020
935.52	45.2782
937.48	73.3606
944.10	58.3967
946.00	54.1077
949.00	49.8330
962.29	56.2380
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966.15	47.9585
968.20	47.9929
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969.11	48.0090
969.11	48.0090
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983.50	59.2181
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996.32	78.0239
1001.03	53.3260
1001.68	56.0966
1004.76	69.9651
1021.30	0.0000
1024.50	0.0000
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1036.00	59.5443
1037.82	75.4069
1038.57	66.1118
1038.76	0.0000
1045.16	60.6598
1046.59	69.0889
1048.07	65.3886

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1050.47	54.2216
1062.04	59.1189
1063.62	58.2108
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1077.35	59.4137
1078.86	59.4419
1085.78	58.6296
1099.22	63.6304
1112.02	62.3001
1112.84	68.6748
1115.52	72.0033
1120.29	63.0969
1120.29	63.0969
1120.29	63.0969
1120.29	63.0969
1120.51	63.1023
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1124.00	0.0000
1129.67	60.4058
1131.51	0.0000
1147.95	0.0000
1167.94	60.1458
1173.22	72.8729
1175.09	73.8879
1177.93	57.4083
1189.05	82.0039
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1205.75	0.0000
1213.00	81.6018
1221.42	84.7577
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1235.34	89.0588
1236.41	0.0000
1238.25	65.3635
1246.25	63.5286
1260.41	0.0000
1271.85	56.9907
1274.45	36.0205
1274.54	36.0220
1291.56	46.2452
1298.22	0.0000
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1325.50	36.5303
1325.50	36.5303
1332.49	38.6324
1333.61	42.7109
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1362.66	0.0000
1365.15	21.5358
1368.21	27.7119
1368.53	0.0000
1376.25	31.8842
1384.27	29.8897
1394.10	28.9331
1395.20	34.1091
1407.95	19.7035
1434.06	14.6152
1436.60	17.2358
1457.56	0.0000
1460.81	28.8259
1489.15	24.3420
1509.49	10.6360
1596.49	31.6390
1620.62	14.0358
1678.03	0.0000
1691.02	14.2582
1691.02	14.2582
1706.46	0.0000
1750.46	0.0000
1764.49	11.8296
1764.49	11.8296
1764.49	11.8296
1764.49	11.8296
1770.23	5.0759
1771.40	32.8806
1791.20	0.0000
1808.65	10.7207

1836.01

9.8012

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229006

Total Uranium Activity	1.6665E+01	ug/g
Total Uranium Counting Unc.	7.5960E+00	ug/g
Total Uranium Tpu	3.8755E-06	ug/g
Total Uranium Mda	3.0814E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941239                          SAMPLE ID   : G244229006
*  ANALYST       : MXR1                             DETECTOR    : GAM12
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 13:40:14.22          SAMPLE ALQT  : 133.390 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.620E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.428E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.063E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.483E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 15:41:44.68

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229007.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 13:40:43
Sample ID          : G244229007      Sample quantity   : 1.31270E+02 GRAM
Detector name      : GAM25            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:02.12  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941239            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.47*	131	381	0.92	92.50	90	6	1.82E-02	26.8	
2	0	63.23*	197	544	0.70	126.02	123	6	2.73E-02	21.0	
3	2	74.86*	847	567	0.84	149.27	145	13	1.18E-01	5.4	2.46E+00
4	2	77.09*	1372	498	0.82	153.74	145	13	1.91E-01	3.7	
5	6	84.16*	245	607	1.44	167.87	164	27	3.40E-02	19.2	2.08E+00
6	6	87.18	540	452	1.17	173.92	164	27	7.50E-02	7.9	
7	6	89.93	298	365	0.94	179.42	164	27	4.13E-02	11.8	
8	6	92.88*	506	519	1.48	185.31	164	27	7.03E-02	10.0	
9	0	129.56	167	518	1.25	258.67	254	12	2.32E-02	28.3	
10	0	185.77*	321	380	1.11	371.07	366	11	4.46E-02	13.4	
11	0	209.32	187	268	1.23	418.17	413	9	2.60E-02	17.4	
12	4	238.61*	1650	202	0.97	476.75	472	17	2.29E-01	2.8	1.69E+00
13	4	241.65	407	235	1.61	482.82	472	17	5.66E-02	10.3	
14	0	270.16	226	251	1.49	539.84	534	14	3.14E-02	16.2	
15	0	277.31	53	139	1.00	554.14	551	6	7.31E-03	38.0	
16	0	295.18	503	131	1.03	589.89	586	8	6.98E-02	6.0	
17	0	299.96	87	187	1.13	599.43	595	9	1.21E-02	30.4	
18	0	328.45	100	248	1.19	656.41	649	14	1.39E-02	35.0	
19	0	338.31*	332	159	0.98	676.15	671	9	4.61E-02	8.9	
20	0	351.79*	844	192	1.14	703.10	696	14	1.17E-01	4.9	
21	0	463.46	82	157	1.15	926.42	920	12	1.14E-02	32.7	
22	0	510.67*	187	131	1.42	1020.85	1013	16	2.60E-02	17.3	
23	0	583.17*	393	94	1.31	1165.83	1161	9	5.46E-02	6.9	
24	0	609.27*	571	131	1.38	1218.02	1211	15	7.93E-02	6.1	
25	0	661.58*	38	78	1.47	1322.64	1319	9	5.29E-03	48.7	
26	0	727.54	129	96	1.54	1454.57	1449	15	1.80E-02	18.6	
27	0	768.54	52	77	1.98	1536.56	1530	10	7.17E-03	34.8	
28	0	795.02	38	78	1.02	1589.53	1584	10	5.32E-03	46.0	
29	0	807.07	14	79	1.06	1613.63	1608	12	2.00E-03	124.1	
30	0	860.31*	75	52	1.32	1720.10	1714	13	1.04E-02	23.4	
31	0	911.07*	320	68	1.54	1821.63	1813	16	4.45E-02	8.1	
32	0	934.15	49	35	0.79	1867.79	1863	9	6.74E-03	26.5	
33	1	964.67	63	61	1.97	1928.83	1923	21	8.73E-03	28.7	1.45E+00
34	1	968.91*	161	53	1.74	1937.30	1923	21	2.23E-02	12.1	
35	0	1120.87*	132	75	2.17	2241.24	2236	18	1.83E-02	18.4	
36	0	1243.77	16	162	0.54	2487.03	2470	19	2.15E-03	198.2	
37	0	1377.76	41	7	1.24	2755.03	2750	10	5.70E-03	19.9	
38	0	1460.60*	1486	10	2.31	2920.72	2911	19	2.06E-01	2.7	

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
39	0	1729.11	36	6	3.20	3457.80	3451	13	4.96E-03	22.2	
40	0	1764.45*	92	7	2.23	3528.49	3521	14	1.27E-02	12.8	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 15:41:48

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229007.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 13:40:43
Sample ID        : G244229007             Sample quantity  : 131.27 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA25                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:02.12   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                 Half life ratio   : 8.00
Errors propagated: Yes                       Systematic Error  : 0.00 %
Efficiency type  : Empirical                 Efficiencies at   : Peak Energy
Abundance limit  : 75.00                     WTM error limit  : 3.00
    
```

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.591E+01	3.607E+00	4.764E-01	4.057E-02	75.387
CD-109	+	88.03	*	4.522E+00	8.597E-01	7.251E-01	7.792E-02	6.237
SN-126	+	64.28		5.993E-01	2.688E-01	3.086E-01	4.918E-02	1.942
	+	86.94		1.845E+00	8.247E-01	2.944E-01	1.232E-01	6.267
	+	87.57	*	4.439E-01	8.438E-02	7.102E-02	7.615E-03	6.250
BA-137M	+	661.65	*	5.436E-02	5.328E-02	6.686E-02	7.406E-03	0.813
CS-137	+	661.65	*	5.746E-02	5.633E-02	7.067E-02	7.838E-03	0.813
TL-208	+	277.35		4.674E-01	3.617E-01	5.455E-01	7.748E-02	0.857
	+	510.84		8.815E-01	3.259E-01	2.131E-01	2.821E-02	4.137
	+	583.14	*	5.347E-01	9.519E-02	6.080E-02	6.854E-03	8.795
	+	860.37		9.764E-01	4.691E-01	4.670E-01	4.882E-02	2.091
BI-210	+	46.50	*	1.011E+00	5.525E-01	5.921E-01	6.105E-02	1.707
PB-210	+	46.50	*	1.011E+00	5.525E-01	5.921E-01	6.105E-02	1.707
PO-210	+	46.50	*	1.011E+00	5.511E-01	5.921E-01	5.639E-02	1.707
BI-211		72.87		4.077E-01	1.702E+00	2.491E+00	2.515E-01	0.164
	+	351.07	*	4.801E+00	6.924E-01	3.003E-01	3.165E-02	15.984
PB-212	+	74.81		2.335E+00	4.099E-01	2.891E-01	3.991E-02	8.079
	+	77.11		2.258E+00	2.862E-01	1.732E-01	1.775E-02	13.036
	+	87.30		2.053E+00	4.410E-01	3.281E-01	4.807E-02	6.257
	+	238.63	*	1.982E+00	2.522E-01	7.531E-02	8.574E-03	26.316
	+	300.09		1.637E+00	1.015E+00	1.070E+00	1.333E-01	1.530
PO-212	+	74.81		2.335E+00	4.099E-01	2.891E-01	3.991E-02	8.079
	+	77.11		2.258E+00	2.862E-01	1.732E-01	1.775E-02	13.036
	+	87.30		2.053E+00	4.410E-01	3.281E-01	4.807E-02	6.257
		115.19		1.421E+00	2.602E+00	4.487E+00	5.564E-01	0.317
	+	238.63	*	1.982E+00	2.522E-01	7.531E-02	8.574E-03	26.316
	+	300.09		1.637E+00	1.015E+00	1.070E+00	1.333E-01	1.530
BI-214	+	609.31	*	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
	+	1120.29		1.788E+00	6.848E-01	4.756E-01	5.162E-02	3.760
	+	1764.49		1.764E+00	4.743E-01	2.865E-01	2.360E-02	6.158
PB-214	+	74.81		4.024E+00	6.680E-01	4.981E-01	6.263E-02	8.079
	+	77.11		3.871E+00	5.724E-01	2.970E-01	3.792E-02	13.036
	+	87.30		3.517E+00	7.214E-01	5.620E-01	7.416E-02	6.257
	+	241.98		2.942E+00	6.982E-01	4.543E-01	5.419E-02	6.476

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.663E+00	2.894E-01	1.923E-01	2.438E-02	8.648
	+	351.92	*	1.670E+00	2.561E-01	1.047E-01	1.230E-02	15.945
	+	74.81		4.024E+00	6.680E-01	4.981E-01	6.263E-02	8.079
	+	77.11		3.871E+00	5.724E-01	2.970E-01	3.792E-02	13.036
	+	87.30		3.517E+00	7.214E-01	5.620E-01	7.416E-02	6.257
PO-216	+	241.98		2.942E+00	6.982E-01	4.543E-01	5.419E-02	6.476
	+	295.21		1.663E+00	2.894E-01	1.923E-01	2.438E-02	8.648
	+	351.92	*	1.670E+00	2.561E-01	1.047E-01	1.230E-02	15.945
	+	74.81		2.335E+00	4.099E-01	2.891E-01	3.991E-02	8.079
	+	77.11		2.258E+00	2.862E-01	1.732E-01	1.775E-02	13.036
PO-218	+	87.30		2.053E+00	4.410E-01	3.281E-01	4.807E-02	6.257
	+	238.63	*	1.982E+00	2.522E-01	7.531E-02	8.574E-03	26.316
	+	300.09		1.637E+00	1.015E+00	1.070E+00	1.333E-01	1.530
	+	74.81		4.024E+00	6.680E-01	4.981E-01	6.263E-02	8.079
	+	77.11		3.871E+00	5.724E-01	2.970E-01	3.792E-02	13.036
RA-224	+	87.30		3.517E+00	7.214E-01	5.620E-01	7.416E-02	6.257
	+	241.98		2.942E+00	6.982E-01	4.543E-01	5.419E-02	6.476
	+	295.21		1.663E+00	2.894E-01	1.923E-01	2.438E-02	8.648
	+	351.92	*	1.670E+00	2.561E-01	1.047E-01	1.230E-02	15.945
	+	240.98	*	5.579E+00	1.286E+00	8.581E-01	9.018E-02	6.501
RA-226	+	609.31	*	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
	+	1120.29		1.788E+00	6.848E-01	4.756E-01	5.162E-02	3.760
	+	1764.49		1.764E+00	4.743E-01	2.865E-01	2.360E-02	6.158
	+	338.32		2.073E+00	9.387E-01	3.397E-01	1.416E-01	6.103
	+	911.07	*	1.971E+00	3.963E-01	2.402E-01	2.857E-02	8.205
AC-228	+	969.11		1.744E+00	5.893E-01	4.220E-01	9.959E-02	4.132
	+	338.32		2.073E+00	9.387E-01	3.397E-01	1.416E-01	6.103
	+	911.07	*	1.971E+00	3.963E-01	2.402E-01	2.857E-02	8.205
	+	969.11		1.744E+00	5.893E-01	4.220E-01	9.959E-02	4.132
	+	74.81		2.373E+00	3.536E-01	2.937E-01	3.003E-02	8.079
TH-228	+	77.11		2.295E+00	2.908E-01	1.760E-01	1.804E-02	13.036
	+	87.30		2.086E+00	3.965E-01	3.334E-01	3.570E-02	6.257
	+	238.63	*	2.014E+00	2.563E-01	7.652E-02	8.712E-03	26.316
	+	300.09		1.664E+00	1.417E+00	1.087E+00	6.488E-01	1.530
	+	609.31	*	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
TH-230	+	1120.29		1.788E+00	6.848E-01	4.756E-01	5.162E-02	3.760
	+	1764.49		1.764E+00	4.743E-01	2.865E-01	2.360E-02	6.158
	+	338.32		2.073E+00	4.259E-01	3.397E-01	3.541E-02	6.103
	+	911.07	*	1.971E+00	3.963E-01	2.402E-01	2.857E-02	8.205
	+	969.11		1.744E+00	5.893E-01	4.220E-01	9.959E-02	4.132
TH-232	+	63.29	*	1.514E+00	6.947E-01	7.608E-01	1.417E-01	1.990
	+	92.38		2.897E+00	8.045E-01	4.986E-01	9.633E-02	5.809
	+	609.31	*	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
	+	1120.29		1.788E+00	6.848E-01	4.756E-01	5.162E-02	3.760
	+	1764.49		1.764E+00	4.743E-01	2.865E-01	2.360E-02	6.158
NP-237	+	86.50	*	1.303E+00	3.657E-01	2.076E-01	4.822E-02	6.280
	+	95.87		-1.309E-01	6.371E-01	9.732E-01	2.495E-01	-0.134
	+	63.29	*	1.514E+00	6.947E-01	7.608E-01	1.417E-01	1.990
	+	92.38		2.897E+00	6.597E-01	4.986E-01	5.473E-02	5.809
	+	92.38		2.897E+00	6.597E-01	4.986E-01	5.473E-02	5.809

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.786E-01	5.625E-02	4.684E-02	4.757E-03	8.083
	+	86.72		4.888E+01	9.292E+00	7.791E+00	8.321E-01	6.274
		117.66		-3.119E+00	2.796E+00	4.470E+00	5.620E-01	-0.698
		142.18		-1.099E+01	1.480E+01	2.345E+01	2.648E+00	-0.469
ANH-511	+	511.00	*	1.904E-01	6.859E-02	4.604E-02	4.739E-03	4.136

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	7.961E-02	3.169E-01	5.257E-01	5.566E-02	0.151
NA-22		1274.54	*	-1.392E-02	4.909E-02	7.850E-02	6.437E-03	-0.177
NA-24		1368.53	*	-3.259E-01	4.909E-02	Half-Life too short		
AL-26		1129.67		-1.435E+00	2.219E+00	2.913E+00	2.487E-01	-0.493
		1808.65	*	4.522E-03	3.112E-02	5.277E-02	4.324E-03	0.086
TI-44		67.85		1.728E-03	2.005E-02	3.181E-02	3.166E-03	0.054
	+	78.38	*	4.167E-01	5.281E-02	4.539E-02	4.674E-03	9.182
SC-46		889.25	*	-2.543E-02	4.305E-02	6.599E-02	6.320E-03	-0.385
	+	1120.51		3.085E-01	1.164E-01	1.460E-01	1.255E-02	2.113
V-48		944.10		-2.793E-01	1.025E+00	1.613E+00	1.514E-01	-0.173
		983.50	*	-7.091E-04	8.320E-02	1.339E-01	1.241E-02	-0.005
		1312.09		1.542E-02	9.026E-02	1.507E-01	1.228E-02	0.102
CR-51		320.08	*	1.687E-01	3.567E-01	6.150E-01	6.829E-02	0.274
MN-52		744.21		5.629E-02	2.866E-01	4.814E-01	5.202E-02	0.117
		848.13		-4.919E-01	8.811E+00	1.433E+01	1.436E+00	-0.034
	+	935.52		6.594E-01	3.546E-01	6.112E-01	5.746E-02	1.079
		1246.25		1.322E+00	1.088E+01	1.562E+01	1.283E+00	0.085
		1333.61		7.466E+00	6.349E+00	1.163E+01	9.445E-01	0.642
		1434.06	*	1.533E-01	2.318E-01	4.161E-01	3.429E-02	0.369
MN-54		834.83	*	-2.331E-02	4.198E-02	6.551E-02	6.647E-03	-0.356
CO-56		846.75	*	-8.817E-03	4.699E-02	7.564E-02	7.589E-03	-0.117
		977.42		-1.796E+00	3.354E+00	5.117E+00	4.752E-01	-0.351
		1037.82		-1.578E-02	3.278E-01	5.474E-01	5.194E-02	-0.029
		1175.09		-1.111E+00	2.803E+00	4.504E+00	3.707E-01	-0.247
		1238.25		1.717E-01	1.117E-01	2.011E-01	1.705E-02	0.854
		1360.21		2.906E-02	1.049E+00	1.720E+00	1.404E-01	0.017
		1771.40		-1.082E+00	3.956E-01	3.789E-01	3.119E-02	-2.856
CO-57		122.06	*	-3.440E-03	1.877E-02	3.143E-02	4.053E-03	-0.109
		136.48		-7.917E-02	1.697E-01	2.784E-01	3.414E-02	-0.284
CO-58		810.76	*	-2.771E-02	5.186E-02	6.882E-02	7.140E-03	-0.403
FE-59		142.65		-6.131E-01	2.299E+00	3.725E+00	4.191E-01	-0.165
		192.34		2.528E-02	8.459E-01	1.384E+00	1.939E-01	0.018
		1099.22	*	-6.172E-02	1.035E-01	1.635E-01	1.540E-02	-0.378
		1291.56		-6.149E-02	1.511E-01	2.385E-01	2.240E-02	-0.258
CO-60		1173.22		3.372E-02	5.562E-02	9.616E-02	7.915E-03	0.351
		1332.49	*	7.660E-02	4.417E-02	8.440E-02	6.855E-03	0.908
ZN-65		1115.52	*	-1.996E-02	1.151E-01	1.617E-01	1.397E-02	-0.123
GE-68		1077.35	*	9.167E-01	1.449E+00	2.539E+00	2.247E-01	0.361
AS-73		53.44	*	-7.630E-02	1.733E-01	2.726E-01	2.617E-02	-0.280

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-74		595.88	*	-5.118E-02	9.854E-02	1.501E-01	1.626E-02	-0.341
		634.78		-1.638E-01	3.549E-01	5.731E-01	6.303E-02	-0.286
SE-75		66.05		6.988E-01	2.138E+00	3.165E+00	3.648E-01	0.221
		96.73		-7.715E-01	5.578E-01	7.836E-01	1.207E-01	-0.985
		121.11		7.616E-02	1.005E-01	1.738E-01	2.554E-02	0.438
		136.00		1.366E-03	3.168E-02	5.316E-02	6.307E-03	0.026
		198.60		-2.010E-01	1.642E+00	2.626E+00	2.757E-01	-0.077
		264.65	*	3.077E-02	4.329E-02	6.464E-02	7.084E-03	0.476
		279.53		5.165E-02	1.163E-01	1.691E-01	1.929E-02	0.305
		303.91		-4.208E-01	2.103E+00	3.095E+00	4.120E-01	-0.136
		400.65		1.298E-01	2.408E-01	4.112E-01	4.756E-02	0.316
BR-77	+	87.88		1.288E+03	2.449E+02	3.107E+02	3.336E+01	4.147
		200.40		9.998E+01	1.917E+02	3.192E+02	3.092E+01	0.313
	+	239.00		4.202E+02	5.005E+01	5.212E+01	5.458E+00	8.063
		249.79		8.211E-01	7.982E+01	1.278E+02	1.363E+01	0.006
		281.68		-3.396E+01	1.218E+02	1.799E+02	2.004E+01	-0.189
		297.23		2.398E+02	9.014E+01	1.252E+02	1.380E+01	1.915
		303.76		-1.142E+02	2.416E+02	3.481E+02	3.811E+01	-0.328
		439.47		1.800E+02	1.864E+02	3.242E+02	3.122E+01	0.555
		484.57		1.705E+02	2.917E+02	4.946E+02	4.981E+01	0.345
		520.65	*	-1.234E-01	1.399E+01	2.260E+01	2.344E+00	-0.005
		574.64		-3.876E+01	2.750E+02	4.351E+02	4.666E+01	-0.089
		578.91		-8.505E+00	1.386E+02	1.920E+02	2.064E+01	-0.044
		585.48		1.151E+03	3.433E+02	5.720E+02	6.169E+01	2.011
		755.35		2.315E+02	2.429E+02	4.276E+02	4.594E+01	0.541
		817.79		4.955E+01	1.949E+02	3.263E+02	3.361E+01	0.152
SR-82		698.33		-8.812E+00	3.814E+01	6.242E+01	6.863E+00	-0.141
		776.49	*	-5.445E-01	4.306E-01	6.280E-01	6.665E-02	-0.867
		1395.20		-1.374E+00	1.252E+01	2.011E+01	1.650E+00	-0.068
RB-83		520.41	*	1.171E-02	7.108E-02	1.163E-01	1.206E-02	0.101
		529.64		-5.137E-02	1.109E-01	1.724E-01	1.799E-02	-0.298
		552.65		-1.210E-01	2.140E-01	3.281E-01	3.475E-02	-0.369
RB-84		881.50	*	-1.786E-02	8.274E-02	1.322E-01	1.277E-02	-0.135
KR-85		513.99	*	5.661E-01	7.828E+00	1.115E+01	1.151E+00	0.051
SR-85		513.99	*	2.932E-03	4.054E-02	5.777E-02	5.960E-03	0.051
RB-86		1076.63	*	4.146E-01	9.834E-01	1.695E+00	1.502E-01	0.245
Y-88		898.02		8.285E-03	4.790E-02	7.901E-02	7.515E-03	0.105
		1836.01	*	-1.484E-02	3.685E-02	5.582E-02	4.562E-03	-0.266
ZR-88		392.90	*	2.552E-02	2.955E-02	5.140E-02	4.678E-03	0.497
Y-91		1204.90	*	-1.054E+01	2.333E+01	3.724E+01	3.065E+00	-0.283
NB-94		702.63	*	4.618E-03	3.704E-02	6.127E-02	6.728E-03	0.075
		871.10		-1.918E-02	3.818E-02	5.932E-02	5.802E-03	-0.323
NB-95		765.79	*	6.775E-02	5.076E-02	8.217E-02	8.777E-03	0.825
NB-95M		235.69	*	-6.592E-02	1.296E-01	1.791E-01	2.053E-02	-0.368
ZR-95		724.18		1.029E-01	1.086E-01	1.713E-01	1.969E-02	0.601
		756.15	*	1.060E-01	8.058E-02	1.444E-01	1.654E-02	0.734
NB-97		657.90	*	2.952E-01	8.058E-02	Half-Life too short		
		1024.50		-2.859E+00	8.058E-02	Half-Life too short		
ZR-97		254.15		-1.357E+01	8.058E-02	Half-Life too short		

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	355.39			-7.196E-01	8.058E-02	Half-Life	too short	
	507.63	*		6.988E-01	8.058E-02	Half-Life	too short	
	602.52			-1.611E+01	8.058E-02	Half-Life	too short	
	1021.30			4.774E+00	8.058E-02	Half-Life	too short	
	1147.95			-1.155E+01	8.058E-02	Half-Life	too short	
	1362.66			8.774E+00	8.058E-02	Half-Life	too short	
	1750.46			1.738E+01	8.058E-02	Half-Life	too short	
MO-99	140.51			-1.421E+01	2.746E+01	4.374E+01	1.255E+01	-0.325
	181.06			1.961E+00	1.946E+01	2.874E+01	5.344E+00	0.068
	366.43			3.221E+01	9.911E+01	1.684E+02	1.650E+01	0.191
	739.58	*		8.313E+00	1.640E+01	2.809E+01	4.645E+00	0.296
	778.00			5.985E+00	4.470E+01	7.448E+01	7.897E+00	0.080
TC-99M	140.51	*		-2.262E+11	4.470E+01	Half-Life	too short	
RH-101	127.23			-1.799E-02	2.740E-02	3.985E-02	4.987E-03	-0.452
	198.01	*		-2.593E-02	3.085E-02	4.761E-02	4.587E-03	-0.545
	325.23			-8.694E-02	2.353E-01	3.396E-01	3.617E-02	-0.256
RH-102	418.52			-4.161E-01	2.804E-01	4.103E-01	3.858E-02	-1.014
	475.06	*		-6.243E-03	2.829E-02	4.534E-02	4.527E-03	-0.138
	631.29			-2.739E-02	5.617E-02	9.080E-02	9.975E-03	-0.302
	697.49			-3.506E-02	8.326E-02	1.343E-01	1.477E-02	-0.261
	766.84			2.451E-01	1.380E-01	2.277E-01	2.431E-02	1.076
	1046.59			1.033E-01	1.256E-01	2.240E-01	2.018E-02	0.461
	1112.84			-5.357E-02	2.655E-01	4.142E-01	3.581E-02	-0.129
RU-103	497.08	*		4.273E-02	4.076E-02	7.051E-02	1.069E-02	0.606
	610.33	+		1.613E+01	3.509E+00	3.301E+00	5.933E-01	4.887
RH-106	511.85	+		9.527E-01	3.432E-01	4.395E-01	4.527E-02	2.168
	621.84	*		-1.520E-01	3.276E-01	5.311E-01	7.949E-02	-0.286
	1050.47			-6.129E-01	2.575E+00	4.227E+00	3.801E-01	-0.145
RU-106	511.85	+		9.527E-01	3.432E-01	4.395E-01	4.527E-02	2.168
	621.84	*		-1.520E-01	3.272E-01	5.311E-01	5.816E-02	-0.286
	1050.47			-6.129E-01	2.575E+00	4.227E+00	3.801E-01	-0.145
AG-108M	433.93	*		-1.477E-02	3.071E-02	4.866E-02	4.809E-03	-0.304
	614.37			-1.977E-03	4.082E-02	5.887E-02	6.587E-03	-0.034
	722.95			-1.105E-02	4.766E-02	6.678E-02	7.462E-03	-0.166
AG-110M	657.75	*		2.742E-02	3.982E-02	6.204E-02	6.990E-03	0.442
	677.61			-2.253E-01	2.855E-01	4.416E-01	4.964E-02	-0.510
	706.67			-2.218E-02	2.326E-01	3.840E-01	4.284E-02	-0.058
	763.93			8.202E-03	1.872E-01	2.693E-01	2.933E-02	0.030
	884.67			3.661E-02	5.639E-02	9.672E-02	9.554E-03	0.379
	937.48			-6.109E-03	1.417E-01	1.968E-01	1.905E-02	-0.031
	1384.27			5.306E-02	1.754E-01	2.694E-01	2.275E-02	0.197
IN-111	171.28			8.608E-01	1.087E+00	1.848E+00	1.670E-01	0.466
	245.39	*		-9.109E-01	1.301E+00	1.747E+00	1.850E-01	-0.522
IN-113M	391.69	*		1.239E-02	4.372E-02	7.368E-02	6.882E-03	0.168
SN-113	391.69	*		1.239E-02	4.372E-02	7.368E-02	6.882E-03	0.168
IN-114M	190.27	*		-2.079E-02	1.765E-01	2.559E-01	2.423E-02	-0.081
CD-115	260.90			-1.237E+02	1.611E+02	2.440E+02	2.651E+01	-0.507
	492.35			-3.690E+01	4.702E+01	7.132E+01	7.231E+00	-0.517
	527.90	*		1.097E+01	1.479E+01	2.517E+01	2.623E+00	0.436

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M		156.02		-1.610E+00	2.039E+00	3.240E+00	3.231E-01	-0.497
		158.56	*	1.965E-03	4.785E-02	7.944E-02	7.713E-03	0.025
SB-122		563.90	*	1.541E+00	2.729E+00	4.563E+00	4.865E-01	0.338
		692.80		-4.589E+00	5.757E+01	9.532E+01	1.050E+01	-0.048
I-123		159.00	*	3.856E-01	5.757E+01	Half-Life too short		
		528.96		1.025E+02	5.757E+01	Half-Life too short		
TE-123M		159.00	*	5.727E-04	2.356E-02	3.907E-02	3.794E-03	0.015
I-124		602.71	*	-7.333E-01	9.022E-01	1.212E+00	1.318E-01	-0.605
		722.78		5.198E-01	5.652E+00	8.227E+00	8.972E-01	0.063
		1325.50		-3.514E+01	4.096E+01	5.950E+01	4.838E+00	-0.591
		1376.25		7.416E+01	4.253E+01	7.550E+01	6.176E+00	0.982
		1509.49		1.550E+01	1.980E+01	3.533E+01	2.929E+00	0.439
		1691.02		2.224E+00	4.435E+00	8.002E+00	6.633E-01	0.278
SB-124		602.71		-3.679E-02	4.527E-02	6.083E-02	6.612E-03	-0.605
		645.85		4.303E-02	4.514E-01	7.626E-01	8.726E-02	0.056
		709.31		-7.184E-01	3.129E+00	5.113E+00	5.603E-01	-0.140
		713.82		3.755E-01	1.892E+00	3.186E+00	4.395E-01	0.118
		722.78		3.780E-02	4.111E-01	5.984E-01	6.614E-02	0.063
	+	968.20		1.815E+01	4.705E+00	8.269E+00	7.703E-01	2.194
		1045.16		4.928E-01	2.765E+00	4.701E+00	4.239E-01	0.105
		1325.50		-2.730E+00	3.182E+00	4.621E+00	3.758E-01	-0.591
		1368.21		-2.137E-01	1.823E+00	2.928E+00	3.863E-01	-0.073
		1436.60		1.532E+00	3.580E+00	6.191E+00	5.104E-01	0.247
		1691.02	*	3.816E-02	7.609E-02	1.373E-01	1.187E-02	0.278
SB-125		427.89	*	6.883E-03	8.610E-02	1.424E-01	1.376E-02	0.048
	+	463.38		7.519E-01	4.979E-01	5.848E-01	6.122E-02	1.286
		600.56		1.152E-01	1.820E-01	3.043E-01	3.460E-02	0.379
		635.90		-2.947E-01	2.694E-01	4.092E-01	4.728E-02	-0.720
TE-125M		109.28	*	-3.366E+00	6.830E+00	1.137E+01	1.511E+00	-0.296
I-126		388.63		-1.821E-01	2.083E-01	3.255E-01	2.989E-02	-0.559
		666.33	*	1.096E-01	2.270E-01	3.457E-01	3.827E-02	0.317
		753.82		6.542E-01	1.711E+00	2.906E+00	3.125E-01	0.225
SB-126		223.80		2.508E+00	4.018E+00	6.667E+00	6.785E-01	0.376
	+	278.60		3.259E+00	2.505E+00	4.374E+00	4.878E-01	0.745
	+	296.50		1.746E+01	2.837E+00	3.740E+00	4.124E-01	4.667
		414.70		6.134E-04	7.621E-02	1.258E-01	1.177E-02	0.005
		415.30		4.662E-01	6.223E+00	1.032E+01	9.662E-01	0.045
		555.20		-7.621E-01	4.400E+00	6.972E+00	7.396E-01	-0.109
		573.80		-2.391E-01	1.108E+00	1.743E+00	1.868E-01	-0.137
		593.00		2.200E-01	9.799E-01	1.595E+00	1.726E-01	0.138
		656.30		-2.469E-01	3.880E+00	5.608E+00	6.204E-01	-0.044
		666.33		4.588E-02	9.506E-02	1.448E-01	1.603E-02	0.317
		675.00		-3.979E-01	1.968E+00	3.229E+00	3.569E-01	-0.123
		695.00		8.259E-02	8.568E-02	1.517E-01	1.669E-02	0.545
		697.00		2.200E-02	2.994E-01	5.010E-01	5.511E-02	0.044
		720.50	*	-8.812E-02	1.711E-01	2.550E-01	2.783E-02	-0.346
		856.80		-1.289E-01	6.289E-01	8.649E-01	8.591E-02	-0.149
		989.30		-1.523E-01	1.534E+00	2.446E+00	2.262E-01	-0.062
		1034.80		-9.298E+00	1.024E+01	1.575E+01	1.427E+00	-0.591



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	1213.00			5.005E+00	5.933E+00	1.038E+01	8.539E-01	0.482
	61.10			-2.429E-01	2.395E+01	3.513E+01	4.355E+00	-0.007
	252.40			5.280E-01	4.627E+00	7.438E+00	3.168E+00	0.071
	290.80			1.492E+01	2.376E+01	3.715E+01	4.977E+00	0.402
	411.60			-1.084E+01	1.601E+01	2.525E+01	4.122E+00	-0.429
	444.90			5.838E+00	1.110E+01	1.882E+01	2.547E+00	0.310
	473.00			-3.649E-01	1.981E+00	3.186E+00	4.472E-01	-0.115
	543.00			-9.619E+00	2.026E+01	3.127E+01	4.947E+00	-0.308
	603.60			-8.154E+00	1.544E+01	2.142E+01	3.081E+00	-0.381
	685.20	*		6.508E-01	1.708E+00	2.924E+00	3.961E-01	0.223
	698.50			-3.553E+00	1.942E+01	3.188E+01	5.552E+00	-0.111
	722.20			1.178E+01	3.998E+01	5.947E+01	7.883E+00	0.198
	783.80			-2.642E+00	4.622E+00	7.233E+00	1.018E+00	-0.365
	57.60			1.670E-01	1.724E+00	2.751E+00	2.682E-01	0.061
XE-127	145.22			1.348E-01	5.813E-01	9.779E-01	1.077E-01	0.138
	172.10			7.253E-02	1.058E-01	1.791E-01	1.621E-02	0.405
	202.84	*		1.606E-02	4.233E-02	7.003E-02	6.821E-03	0.229
	374.96			-2.788E-03	1.971E-01	3.277E-01	3.138E-02	-0.009
I-131	80.18			1.338E+00	3.480E+00	4.480E+00	4.670E-01	0.299
	284.30			1.235E+00	1.562E+00	2.577E+00	2.960E-01	0.479
	364.48	*		-1.672E-01	1.155E-01	1.723E-01	1.769E-02	-0.971
	636.97			-9.833E-01	1.578E+00	2.506E+00	2.855E-01	-0.392
TE-132	722.89			5.052E-01	8.427E+00	1.222E+01	1.339E+00	0.041
	49.72			-2.223E+00	3.971E+00	5.721E+00	6.767E-01	-0.389
	111.76			4.162E+00	2.657E+01	4.533E+01	6.366E+00	0.092
	116.30			1.429E+01	2.421E+01	4.178E+01	5.980E+00	0.342
BA-133	228.16	*		5.302E-01	7.692E-01	1.275E+00	2.147E-01	0.416
	53.15			-5.767E-02	7.175E-01	1.148E+00	1.101E-01	-0.050
	79.62			-2.258E-01	7.887E-01	1.118E+00	1.819E-01	-0.202
	81.00			-1.198E-02	6.833E-02	8.486E-02	1.435E-02	-0.141
+	276.40			4.619E-01	3.591E-01	6.016E-01	9.663E-02	0.768
	302.84			1.347E-02	1.395E-01	2.100E-01	3.131E-02	0.064
	356.01	*		-2.213E-02	4.290E-02	6.004E-02	8.512E-03	-0.369
	383.85			3.869E-02	2.863E-01	4.793E-01	6.276E-02	0.081
I-133	510.53	+		4.151E+00	2.863E-01	Half-Life	too short	
	529.87	*		-6.141E-03	2.863E-01	Half-Life	too short	
	706.58			6.333E-02	2.863E-01	Half-Life	too short	
	856.28			-5.893E-01	2.863E-01	Half-Life	too short	
	875.33			4.940E-02	2.863E-01	Half-Life	too short	
	1236.41			1.153E+00	2.863E-01	Half-Life	too short	
	1298.22			4.879E-01	2.863E-01	Half-Life	too short	
	475.35			-2.955E-01	1.858E+00	2.992E+00	2.988E-01	-0.099
CS-134	563.23			4.665E-01	3.689E-01	6.443E-01	6.910E-02	0.724
	569.32			2.998E-02	2.013E-01	3.203E-01	3.456E-02	0.094
	604.70			-2.078E-02	3.782E-02	5.239E-02	5.708E-03	-0.397
	795.84	+	*	7.634E-02	7.064E-02	9.862E-02	1.038E-02	0.774
	801.93			-2.086E-01	4.943E-01	6.339E-01	6.636E-02	-0.329
	1038.57			-5.110E-01	4.057E+00	6.727E+00	6.086E-01	-0.076
	1167.94			-9.021E-01	3.023E+00	4.896E+00	4.049E-01	-0.184

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	1365.15			2.692E-01	1.318E+00	2.207E+00	1.893E-01	0.122
	268.24	*		1.820E-01	1.591E-01	2.423E-01	2.924E-02	0.751
	288.45			-2.450E+11	1.591E-01	Half-Life	too short	
	417.63			-1.348E+11	1.591E-01	Half-Life	too short	
	546.56			1.023E+11	1.591E-01	Half-Life	too short	
	836.80			-2.069E+11	1.591E-01	Half-Life	too short	
	1038.76			-5.443E+10	1.591E-01	Half-Life	too short	
	1124.00			5.712E+11	1.591E-01	Half-Life	too short	
	1131.51			1.479E+10	1.591E-01	Half-Life	too short	
	1260.41	*		-6.674E+10	1.591E-01	Half-Life	too short	
	1457.56			9.625E+12	1.591E-01	Half-Life	too short	
	1678.03			2.703E+10	1.591E-01	Half-Life	too short	
	1706.46			-4.408E+10	1.591E-01	Half-Life	too short	
	1791.20			-7.228E+10	1.591E-01	Half-Life	too short	
CS-136 +	66.91			3.123E-02	3.450E-01	5.479E-01	8.879E-02	0.057
	86.29			6.091E+00	1.295E+00	1.447E+00	2.070E-01	4.208
	153.22			5.773E-01	5.918E-01	1.015E+00	1.129E-01	0.569
	163.89			-2.592E-01	9.894E-01	1.597E+00	1.616E-01	-0.162
	176.55			2.071E-01	3.258E-01	5.500E-01	5.295E-02	0.377
	273.65			2.520E-01	5.478E-01	6.414E-01	7.391E-02	0.393
	340.57			2.148E-01	1.389E-01	2.248E-01	2.381E-02	0.956
	818.51			4.283E-04	8.598E-02	1.411E-01	1.453E-02	0.003
	1048.07	*		-2.395E-02	1.271E-01	2.095E-01	1.960E-02	-0.114
	1235.34			3.547E-01	9.382E-01	1.375E+00	1.590E-01	0.258
CE-139 BA-140	165.85	*		8.605E-03	2.557E-02	4.283E-02	3.819E-03	0.201
	162.64			2.817E-01	6.964E-01	1.156E+00	1.126E-01	0.244
	304.84			-7.790E-01	1.323E+00	1.972E+00	5.685E-01	-0.395
	423.70			-2.393E-01	1.885E+00	3.074E+00	1.004E+00	-0.078
LA-140 +	537.32	*		-8.491E-03	2.678E-01	4.305E-01	1.450E-01	-0.020
	328.77			8.121E-01	5.757E-01	5.536E-01	6.085E-02	1.467
	432.53			-8.315E-02	2.042E+00	3.346E+00	3.325E-01	-0.025
	487.03			-6.791E-02	1.424E-01	2.228E-01	2.350E-02	-0.305
	751.79			-1.545E+00	1.889E+00	2.894E+00	3.332E-01	-0.534
	815.85			2.975E-01	3.746E-01	6.524E-01	7.280E-02	0.456
	867.82			5.204E-01	1.698E+00	2.690E+00	2.749E-01	0.193
	919.63			-3.130E+00	3.061E+00	4.216E+00	4.771E-01	-0.742
	925.24			8.119E-01	1.201E+00	2.073E+00	2.057E-01	0.392
	1596.49	*		-6.189E-02	1.134E-01	1.768E-01	1.470E-02	-0.350
CE-141 CE-143	145.44	*		3.592E-03	5.269E-02	8.809E-02	9.797E-03	0.041
	57.37			2.939E-05	5.269E-02	Half-Life	too short	
	231.56			6.474E-04	5.269E-02	Half-Life	too short	
	293.26	*		7.855E-04	5.269E-02	Half-Life	too short	
	350.59			6.153E-02	5.269E-02	Half-Life	too short	
CE-144 PM-144	490.36			-8.422E-05	5.269E-02	Half-Life	too short	
	664.57			1.706E-03	5.269E-02	Half-Life	too short	
	721.93			1.245E-03	5.269E-02	Half-Life	too short	
	80.11			4.975E-01	1.475E+00	1.894E+00	1.964E-01	0.263
	133.54	*		-6.286E-02	1.815E-01	2.678E-01	4.735E-02	-0.235
	476.78			-2.560E-02	6.623E-02	1.047E-01	1.121E-02	-0.244

---- Non-Identified Nuclides ----

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		618.01		2.500E-02	3.067E-02	5.447E-02	6.059E-03	0.459
		696.49	*	1.614E-02	3.642E-02	6.249E-02	6.876E-03	0.258
		778.57		3.072E+00	2.322E+00	4.207E+00	4.460E-01	0.730
PR-144		696.49	*	1.094E+00	2.470E+00	4.237E+00	4.661E-01	0.258
		1489.15		-6.011E+00	1.265E+01	1.891E+01	1.566E+00	-0.318
PM-146		453.90	*	1.093E-02	4.377E-02	7.283E-02	8.504E-03	0.150
		633.02		1.298E+00	1.441E+00	2.434E+00	9.245E-01	0.533
		735.90		5.390E-02	1.753E-01	2.710E-01	7.953E-02	0.199
		747.13		-8.687E-03	9.303E-02	1.527E-01	2.361E-02	-0.057
ND-147	+	91.11		9.015E-01	2.371E-01	3.434E-01	3.941E-02	2.625
		319.41		1.783E+00	3.283E+00	5.681E+00	6.104E-01	0.314
		439.89		5.416E+00	6.100E+00	1.056E+01	1.018E+00	0.513
		531.02	*	-1.373E-01	5.886E-01	9.310E-01	1.496E-01	-0.147
PM-149		285.90	*	-6.226E+00	1.216E+02	1.917E+02	3.270E+01	-0.032
EU-152		121.78		9.513E-03	5.487E-02	9.319E-02	1.284E-02	0.102
		244.69		-2.027E-02	3.102E-01	4.403E-01	4.657E-02	-0.046
		344.27	*	-2.114E-02	9.104E-02	1.453E-01	1.560E-02	-0.145
		443.98		-5.264E-01	9.427E-01	1.483E+00	1.435E-01	-0.355
		778.89		3.614E-01	2.684E-01	4.867E-01	5.158E-02	0.743
		867.32		1.976E-01	1.001E+00	1.512E+00	1.485E-01	0.131
	+	964.01		7.841E-01	4.558E-01	6.528E-01	6.089E-02	1.201
		1085.78		-3.422E-01	4.748E-01	7.448E-01	6.559E-02	-0.459
		1112.02		2.524E-01	3.535E-01	6.215E-01	5.376E-02	0.406
		1407.95		1.220E-01	2.081E-01	3.615E-01	2.970E-02	0.337
GD-153		69.67		-6.317E-01	7.605E-01	1.160E+00	1.159E-01	-0.545
	+	83.37		3.514E+01	1.399E+01	1.542E+01	1.622E+00	2.279
		97.43	*	-4.049E-02	5.697E-02	8.465E-02	9.533E-03	-0.478
		103.18		-8.946E-02	7.160E-02	1.150E-01	1.336E-02	-0.778
EU-154		123.07		-4.631E-02	3.991E-02	6.314E-02	9.349E-03	-0.733
		247.94		2.042E-01	3.220E-01	5.324E-01	6.953E-02	0.383
		591.81		-1.403E-01	6.414E-01	1.005E+00	1.344E-01	-0.140
		723.30		-2.980E-02	2.005E-01	2.838E-01	3.301E-02	-0.105
		756.87		1.268E+00	8.701E-01	1.562E+00	2.121E-01	0.812
		873.19		-1.904E-01	3.221E-01	4.939E-01	6.456E-02	-0.385
		996.32		3.156E-02	4.085E-01	6.619E-01	1.196E-01	0.048
		1004.76		-1.306E-02	2.304E-01	3.682E-01	4.443E-02	-0.035
		1274.45	*	-5.888E-02	1.389E-01	2.190E-01	2.406E-02	-0.269
EU-155		48.70		-5.738E-02	3.572E-01	5.275E-01	5.021E-02	-0.109
		60.01		3.044E-01	1.682E+00	2.485E+00	2.445E-01	0.123
	+	86.54		5.348E-01	1.019E-01	1.316E-01	1.413E-02	4.064
		105.31	*	1.475E-01	7.727E-02	1.370E-01	1.619E-02	1.077
TB-160	+	86.79		1.441E+00	2.739E-01	3.639E-01	3.888E-02	3.960
		197.04		-3.422E-01	5.109E-01	7.945E-01	7.639E-02	-0.431
		215.65		-5.020E-02	6.337E-01	1.022E+00	1.023E-01	-0.049
	+	298.57		2.404E-01	1.484E-01	1.799E-01	1.979E-02	1.337
		879.36	*	-3.740E-02	1.542E-01	2.454E-01	2.378E-02	-0.152
		962.29		6.802E-01	7.204E-01	1.103E+00	1.029E-01	0.617
	+	966.15		5.433E-01	3.158E-01	5.775E-01	5.383E-02	0.941
		1177.93		-2.963E-01	4.447E-01	6.975E-01	5.741E-02	-0.425

---- Non-Identified Nuclides ----

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HO-166M	1271.85			6.148E-02	8.402E-01	1.391E+00	1.139E-01	0.044
	80.57			1.873E-01	1.792E-01	2.394E-01	2.487E-02	0.782
	184.41		+	1.986E-01	5.636E-02	5.784E-02	5.399E-03	3.433
	280.46			4.931E-03	9.218E-02	1.302E-01	1.453E-02	0.038
	410.95			4.856E-01	2.610E-01	4.681E-01	4.361E-02	1.037
	711.68		*	-9.314E-03	6.894E-02	1.134E-01	1.242E-02	-0.082
TM-171	752.31			-1.351E-01	2.906E-01	4.616E-01	4.967E-02	-0.293
	810.29			-2.431E-02	7.415E-02	1.010E-01	1.047E-02	-0.241
	51.35			-1.311E+00	5.494E+00	8.748E+00	8.354E-01	-0.150
	52.39			1.933E+00	2.991E+00	4.928E+00	4.717E-01	0.392
	59.40			3.409E+00	8.823E+00	1.316E+01	1.294E+00	0.259
	66.72		*	-3.349E+00	1.201E+01	1.881E+01	1.867E+00	-0.178
LU-176	88.36		+	1.053E+00	2.001E-01	2.366E-01	2.546E-02	4.450
	201.83			-9.802E-03	2.613E-02	4.178E-02	4.060E-03	-0.235
	306.84		*	-2.039E-03	2.297E-02	3.867E-02	4.219E-03	-0.053
LU-177	401.10			3.971E+00	6.297E+00	1.081E+01	9.947E-01	0.367
	112.95			-2.394E-01	1.300E+00	2.189E+00	2.680E-01	-0.109
LU-177M	208.36		+	4.354E+00	1.578E+00	2.050E+00	2.020E-01	2.124
	52.97		*	8.915E-03	3.216E-01	5.171E-01	4.957E-02	0.017
HF-181	54.07			-3.924E-02	1.849E-01	2.938E-01	2.825E-02	-0.134
	61.30			1.210E-01	5.180E-01	7.684E-01	7.566E-02	0.157
	121.62			1.730E-01	2.791E-01	4.811E-01	6.186E-02	0.360
	147.16			-3.460E-01	5.279E-01	8.532E-01	9.248E-02	-0.405
	171.86			3.565E-01	4.188E-01	7.134E-01	6.454E-02	0.500
	218.09			1.234E-01	7.483E-01	1.221E+00	1.228E-01	0.101
	268.79		+	4.213E+00	1.444E+00	1.407E+00	1.547E-01	2.995
	319.02			4.285E-02	2.449E-01	4.164E-01	4.476E-02	0.103
	367.43			8.906E-01	8.513E-01	1.499E+00	1.465E-01	0.594
	413.65		*	-1.084E-01	1.753E-01	2.775E-01	2.594E-02	-0.391
	56.28			-5.419E-02	2.421E-01	3.822E-01	3.705E-02	-0.142
	57.53			2.635E-02	1.429E-01	2.292E-01	2.234E-02	0.115
W-181	65.20			-1.008E-03	4.141E-01	6.050E-01	5.987E-02	-0.002
	133.02			-2.804E-02	5.906E-02	8.658E-02	1.044E-02	-0.324
	136.25			-1.314E-01	3.768E-01	6.218E-01	7.338E-02	-0.211
	345.85			6.163E-02	1.932E-01	2.924E-01	3.004E-02	0.211
	482.03		*	6.158E-03	4.269E-02	7.023E-02	7.056E-03	0.088
	56.28			-2.074E-02	9.383E-02	1.481E-01	1.436E-02	-0.140
TA-182	57.53			1.013E-02	5.541E-02	8.887E-02	8.661E-03	0.114
	65.20		*	-3.877E-04	1.593E-01	2.327E-01	2.303E-02	-0.002
	67.75			2.574E-02	4.732E-02	7.626E-02	7.587E-03	0.338
	100.10			1.210E-01	1.214E-01	2.132E-01	2.435E-02	0.568
	152.43			7.204E-02	2.916E-01	4.891E-01	5.054E-02	0.147
	222.10			2.665E-03	3.258E-01	5.265E-01	5.339E-02	0.005
RE-183	1001.68			-1.022E+00	2.274E+00	3.546E+00	3.263E-01	-0.288
	1121.28		+	8.503E-01	3.207E-01	4.019E-01	3.453E-02	2.116
	1189.05			6.588E-02	3.839E-01	6.434E-01	5.296E-02	0.102
	1221.42		*	1.502E-01	2.253E-01	3.905E-01	3.211E-02	0.385
	1230.97			4.676E-01	6.329E-01	9.993E-01	8.215E-02	0.468
	57.98			1.008E-02	5.803E-02	9.283E-02	9.065E-03	0.109

---- Non-Identified Nuclides ----

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RE-184		59.32		1.093E-02	3.387E-02	5.441E-02	5.347E-03	0.201
		67.20		2.226E-02	8.505E-02	1.359E-01	1.350E-02	0.164
		162.32	*	2.213E-02	9.773E-02	1.611E-01	1.499E-02	0.137
	+	208.81		3.581E+00	1.298E+00	1.726E+00	1.703E-01	2.075
		291.72		2.548E-01	8.891E-01	1.361E+00	1.506E-01	0.187
		57.98		3.693E-02	2.127E-01	3.402E-01	3.322E-02	0.109
		59.32		4.004E-02	1.240E-01	1.992E-01	1.958E-02	0.201
		67.20		8.155E-02	3.116E-01	4.977E-01	4.946E-02	0.164
		161.27		3.232E-02	3.077E-01	5.116E-01	4.819E-02	0.063
		216.55		-6.425E-02	2.288E-01	3.649E-01	3.660E-02	-0.176
		252.85	*	-4.081E-02	2.101E-01	3.319E-01	3.559E-02	-0.123
		318.01		-1.757E-01	4.139E-01	6.811E-01	7.332E-02	-0.258
		792.07		8.963E-01	1.256E+00	1.924E+00	2.021E-01	0.466
		903.28		8.133E-01	1.306E+00	1.969E+00	1.863E-01	0.413
OS-185		920.93		-4.621E-01	4.790E-01	6.961E-01	6.566E-02	-0.664
		59.72		1.758E-02	9.988E-02	1.476E-01	1.452E-02	0.119
		61.14		1.760E-02	5.696E-02	8.479E-02	8.348E-03	0.208
		69.30		-8.735E-02	1.342E-01	2.064E-01	2.061E-02	-0.423
		592.07		-6.799E-01	2.629E+00	4.104E+00	4.440E-01	-0.166
		646.12	*	6.503E-03	3.853E-02	6.548E-02	7.225E-03	0.099
		717.42		1.346E-01	9.794E-01	1.643E+00	1.795E-01	0.082
		874.81		-2.011E-02	6.025E-01	9.786E-01	9.532E-02	-0.021
		880.27		-3.081E-02	8.731E-01	1.417E+00	1.372E-01	-0.022
		155.03	*	8.250E-02	1.480E-01	2.491E-01	2.510E-02	0.331
RE-188		477.96		1.267E+00	3.050E+00	5.115E+00	5.121E-01	0.248
		633.10		2.720E+00	2.784E+00	4.983E+00	5.477E-01	0.546
	+	63.58		6.143E+01	2.647E+01	3.906E+01	3.855E+00	1.573
W-188		227.08		3.785E+00	1.204E+01	1.971E+01	2.018E+00	0.192
		290.67	*	7.825E-01	7.236E+00	1.094E+01	1.212E+00	0.072
IR-192	+	295.96		1.279E+00	2.082E-01	2.911E-01	3.224E-02	4.395
		308.46		1.281E-01	9.017E-02	1.614E-01	1.763E-02	0.794
		316.51	*	-1.859E-02	3.174E-02	5.173E-02	5.587E-03	-0.359
		468.07		3.409E-02	7.218E-02	1.080E-01	1.130E-02	0.316
AU-195		604.41		-3.222E-01	5.141E-01	7.041E-01	1.029E-01	-0.458
		612.46		4.874E-01	8.009E-01	1.240E+00	1.482E-01	0.393
		65.12		-3.419E-03	7.337E-02	1.070E-01	1.059E-02	-0.032
		66.83		3.772E-03	3.947E-02	6.271E-02	6.226E-03	0.060
	+	75.70		1.230E+00	1.827E-01	2.758E-01	2.811E-02	4.459
		98.88	*	2.621E-01	1.546E-01	2.743E-01	3.113E-02	0.955
TL-200	+	129.76		7.819E+00	4.535E+00	4.186E+00	5.157E-01	1.868
		367.94	*	6.685E-04	4.535E+00	Half-Life	too short	
		579.30		-9.879E-04	4.535E+00	Half-Life	too short	
		828.27		-7.718E-04	4.535E+00	Half-Life	too short	
TL-201		1205.75		-2.820E-03	4.535E+00	Half-Life	too short	
		68.90		-9.811E-01	2.613E+00	4.069E+00	4.060E-01	-0.241
		70.82		3.181E-01	1.712E+00	2.507E+00	2.514E-01	0.127
		80.30		5.266E+00	4.135E+00	5.583E+00	5.794E-01	0.943
		135.34		1.302E+01	2.814E+01	4.331E+01	5.144E+00	0.301
		167.43	*	2.119E+00	7.454E+00	1.245E+01	1.114E+00	0.170

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		-7.497E-02	1.997E-01	3.109E-01	3.102E-02	-0.241
		70.82		2.424E-02	1.305E-01	1.910E-01	1.916E-02	0.127
		80.30		4.014E-01	3.152E-01	4.255E-01	4.417E-02	0.943
HG-203		439.56	*	6.719E-02	7.228E-02	1.254E-01	1.208E-02	0.536
		70.83		1.066E-01	5.437E-01	7.962E-01	1.158E-01	0.134
		72.87		8.225E-02	3.435E-01	5.026E-01	7.141E-02	0.164
		82.60		4.214E-01	6.943E-01	1.023E+00	1.532E-01	0.412
BI-207		279.20	*	5.034E-02	4.384E-02	6.657E-02	7.556E-03	0.756
		72.80		1.010E-03	9.858E-02	1.429E-01	1.442E-02	0.007
	+	74.97		6.796E-01	1.010E-01	1.401E-01	1.424E-02	4.851
	+	84.90		4.532E-01	1.805E-01	2.033E-01	2.153E-02	2.229
		569.67		3.868E-03	3.131E-02	4.971E-02	5.317E-03	0.078
		1063.62	*	-1.495E-02	6.258E-02	1.027E-01	9.167E-03	-0.146
TL-207		1770.23		8.197E-02	4.862E-01	7.217E-01	5.942E-02	0.114
		81.07		-3.350E-02	1.507E-01	1.866E-01	1.943E-02	-0.179
	+	83.78		2.988E-01	1.190E-01	1.347E-01	1.419E-02	2.218
		94.90		3.351E-01	1.553E-01	2.561E-01	2.847E-02	1.309
		122.32		-1.112E+00	1.310E+00	2.119E+00	2.819E-01	-0.525
		144.24		6.658E-01	5.673E-01	9.624E-01	1.147E-01	0.692
		154.21		2.945E-01	3.442E-01	5.847E-01	6.370E-02	0.504
	+	269.46		9.824E-01	3.372E-01	3.491E-01	3.891E-02	2.814
		323.87	*	-1.958E-01	7.095E-01	1.031E+00	1.937E-01	-0.190
	+	338.28		8.657E+00	1.935E+00	2.605E+00	3.553E-01	3.323
		445.03		1.310E+00	2.179E+00	3.712E+00	4.779E-01	0.353
PO-209		260.50		-2.807E+00	8.619E+00	1.346E+01	1.462E+00	-0.208
		262.80		-4.068E-01	2.380E+01	3.788E+01	4.128E+00	-0.011
		896.60	*	-5.999E+00	8.717E+00	1.327E+01	1.260E+00	-0.452
PB-211		404.84	*	-8.859E-01	1.047E+00	1.371E+00	8.601E-01	-0.646
		427.08		-3.553E-03	1.943E+00	3.197E+00	1.991E+00	-0.001
		831.96		5.975E-01	1.355E+00	2.213E+00	1.392E+00	0.270
BI-212	+	727.18	*	1.528E+00	5.967E-01	7.356E-01	8.838E-02	2.078
		785.46		8.274E-01	1.833E+00	3.124E+00	3.296E-01	0.265
		1620.62		1.110E+00	1.363E+00	2.517E+00	2.092E-01	0.441
PO-215		81.07		-3.350E-02	1.507E-01	1.866E-01	1.943E-02	-0.179
	+	83.78		2.988E-01	1.190E-01	1.347E-01	1.419E-02	2.218
		94.90		3.351E-01	1.553E-01	2.561E-01	2.847E-02	1.309
		122.32		-1.112E+00	1.310E+00	2.119E+00	2.819E-01	-0.525
		144.24		6.658E-01	5.673E-01	9.624E-01	1.147E-01	0.692
		154.21		2.945E-01	3.442E-01	5.847E-01	6.370E-02	0.504
	+	269.46		9.824E-01	3.372E-01	3.491E-01	3.891E-02	2.814
		323.87	*	-1.958E-01	7.095E-01	1.031E+00	1.937E-01	-0.190
	+	338.28		8.657E+00	1.935E+00	2.605E+00	3.553E-01	3.323
		445.03		1.310E+00	2.179E+00	3.712E+00	4.779E-01	0.353
	+	271.23		1.260E+00	4.379E-01	4.391E-01	5.445E-02	2.871
RN-219		401.81	*	2.100E-02	3.842E-01	6.377E-01	9.802E-02	0.033
RN-220		549.76	*	-8.131E+00	2.820E+01	4.433E+01	4.688E+00	-0.183
RA-223		81.07		-3.350E-02	1.507E-01	1.866E-01	1.943E-02	-0.179
	+	83.78		2.988E-01	1.190E-01	1.347E-01	1.419E-02	2.218
		94.90		3.351E-01	1.553E-01	2.561E-01	2.847E-02	1.309

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-1.112E+00	1.310E+00	2.119E+00	2.819E-01	-0.525
		144.24		6.658E-01	5.673E-01	9.624E-01	1.147E-01	0.692
		154.21		2.945E-01	3.442E-01	5.847E-01	6.370E-02	0.504
	+	269.46		9.824E-01	3.372E-01	3.491E-01	3.891E-02	2.814
		323.87	*	-1.958E-01	7.095E-01	1.031E+00	1.937E-01	-0.190
	+	338.28		8.657E+00	1.935E+00	2.605E+00	3.553E-01	3.323
		445.03		1.310E+00	2.179E+00	3.712E+00	4.779E-01	0.353
		79.80		1.420E-01	1.126E+00	1.428E+00	3.178E-01	0.099
		236.00		7.518E-03	2.416E-01	3.465E-01	4.701E-02	0.022
		256.20	*	2.001E-01	3.568E-01	5.851E-01	9.747E-02	0.342
TH-227		286.10		-2.941E-01	1.501E+00	2.346E+00	3.507E-01	-0.125
	+	299.80		3.035E+00	1.929E+00	2.484E+00	4.663E-01	1.221
		304.40		-1.883E+00	1.993E+00	2.722E+00	5.343E-01	-0.692
		334.20		-1.433E-01	3.118E+00	3.333E+00	6.771E-01	-0.043
		79.80		1.420E-01	1.126E+00	1.428E+00	3.216E-01	0.099
	+	94.00		1.119E+01	3.393E+00	2.739E+00	6.259E-01	4.087
		236.00		7.518E-03	2.416E-01	3.465E-01	4.339E-02	0.022
		256.20	*	2.001E-01	3.573E-01	5.851E-01	1.123E-01	0.342
		286.10		-2.941E-01	1.530E+00	2.346E+00	2.360E+00	-0.125
	+	299.80		3.035E+00	1.929E+00	2.484E+00	4.663E-01	1.221
TH-229		304.40		-1.883E+00	1.993E+00	2.722E+00	5.343E-01	-0.692
		334.20		-1.433E-01	3.118E+00	3.333E+00	6.771E-01	-0.043
	+	85.43		4.473E-01	1.781E-01	1.993E-01	2.116E-02	2.244
	+	88.47		6.060E-01	1.152E-01	1.345E-01	1.448E-02	4.507
		100.00		1.349E-01	1.257E-01	2.211E-01	2.524E-02	0.610
		193.63	*	1.780E-01	4.475E-01	7.434E-01	7.092E-02	0.239
		210.97		1.259E+00	7.068E-01	1.124E+00	1.114E-01	1.120
	PA-231	283.67	*	-8.794E-01	1.523E+00	2.316E+00	3.877E-01	-0.380
	+	301.29		1.214E+00	7.565E-01	9.862E-01	1.381E-01	1.231
	TH-231	81.07		-3.350E-02	1.507E-01	1.866E-01	1.943E-02	-0.179
U-231	+	83.78		2.988E-01	1.190E-01	1.347E-01	1.419E-02	2.218
		94.90		3.351E-01	1.553E-01	2.561E-01	2.847E-02	1.309
		122.32		-1.112E+00	1.310E+00	2.119E+00	2.819E-01	-0.525
		144.24		6.658E-01	5.673E-01	9.624E-01	1.147E-01	0.692
		154.21		2.945E-01	3.442E-01	5.847E-01	6.370E-02	0.504
	+	269.46		9.824E-01	3.372E-01	3.491E-01	3.891E-02	2.814
		323.87	*	-1.958E-01	7.095E-01	1.031E+00	1.937E-01	-0.190
	+	338.28		8.657E+00	1.935E+00	2.605E+00	3.553E-01	3.323
		445.03		1.310E+00	2.179E+00	3.712E+00	4.779E-01	0.353
	+	84.21		1.506E+01	5.997E+00	6.794E+00	7.173E-01	2.216
PA-233	+	92.29		1.294E+01	2.946E+00	3.450E+00	3.785E-01	3.749
		95.87	*	-1.735E-01	8.439E-01	1.291E+00	1.442E-01	-0.134
		108.00		-2.395E+00	1.739E+00	2.766E+00	3.296E-01	-0.866
	+	75.28		1.983E+01	3.876E+00	4.085E+00	6.648E-01	4.854
	+	86.59		8.689E+00	2.757E+00	2.152E+00	5.930E-01	4.037
	+	300.12		8.460E-01	5.321E-01	6.856E-01	1.122E-01	1.234
		311.98	*	-5.217E-02	5.815E-02	9.290E-02	1.026E-02	-0.562
		340.50		1.202E+00	7.068E-01	1.071E+00	2.627E-01	1.122
		398.62		-7.427E-01	2.040E+00	3.283E+00	8.804E-01	-0.226

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		1.258E-01	1.557E+00	2.581E+00	5.643E-01	0.049
		63.00		1.765E+00	7.935E-01	1.115E+00	1.808E-01	1.583
		94.67		3.697E-01	1.222E-01	1.948E-01	2.774E-02	1.898
		98.44		8.184E-02	7.573E-02	1.076E-01	6.055E-02	0.761
		99.86		3.758E-01	3.199E-01	5.634E-01	6.426E-02	0.667
		111.00		1.041E-01	1.336E-01	2.317E-01	3.426E-02	0.449
		131.20		3.649E-02	8.306E-02	1.416E-01	1.729E-02	0.258
		152.70		1.455E-01	2.792E-01	4.713E-01	8.464E-02	0.309
		186.00		7.148E+00	2.952E+00	2.476E+00	7.780E-01	2.888
		226.40		2.079E-01	3.746E-01	6.187E-01	8.850E-02	0.336
		227.20		1.207E-01	4.045E-01	6.616E-01	6.777E-02	0.183
		248.90		7.282E-02	7.453E-01	1.199E+00	2.791E-01	0.061
		293.70		7.980E+00	1.765E+00	1.648E+00	3.070E-01	4.843
		369.80		6.754E-01	8.231E-01	1.414E+00	3.143E-01	0.478
		568.70		-1.219E-01	1.043E+00	1.625E+00	1.737E-01	-0.075
		569.50		3.778E-02	2.780E-01	4.419E-01	4.726E-02	0.086
		574.00		-3.482E-01	1.507E+00	2.367E+00	2.538E-01	-0.147
		699.00		-5.752E-01	7.902E-01	1.232E+00	2.496E-01	-0.467
		706.10		2.779E-01	1.158E+00	1.947E+00	8.782E-01	0.143
		733.00		3.359E-02	4.521E-01	6.554E-01	1.518E-01	0.051
		742.81		-3.734E-02	1.502E+00	2.481E+00	1.675E+00	-0.015
		796.30		1.482E+00	1.423E+00	1.867E+00	5.171E-01	0.794
		805.60		6.468E-01	1.618E+00	1.843E+00	5.749E-01	0.351
		819.60		-2.613E-01	1.372E+00	2.206E+00	8.481E-01	-0.118
		826.30		1.509E-01	8.458E-01	1.404E+00	6.328E-01	0.108
		831.60		2.284E-01	6.707E-01	1.124E+00	3.409E-01	0.203
		876.40		-1.338E-01	9.025E-01	1.433E+00	1.474E+00	-0.093
		880.51		6.684E-03	3.101E-01	5.059E-01	4.896E-02	0.013
		883.24		2.732E-01	3.693E-01	5.598E-01	3.771E-01	0.488
		899.00		4.163E-01	1.032E+00	1.705E+00	7.485E-01	0.244
		925.00		7.158E-01	1.212E+00	2.075E+00	1.955E-01	0.345
		926.50		1.312E-01	1.828E-01	3.055E-01	7.809E-02	0.430
		946.00	*	-1.910E-01	3.374E-01	5.126E-01	9.803E-02	-0.373
		949.00		1.358E-01	4.899E-01	8.121E-01	7.609E-02	0.167
		980.50		2.675E-01	8.196E-01	1.361E+00	1.262E-01	0.197
		1394.10		-4.620E-01	1.249E+00	1.869E+00	1.216E+00	-0.247
PA-234M	+	766.42		2.168E+01	1.783E+01	2.307E+01	1.180E+01	0.940
		1001.03	*	-1.120E+00	5.054E+00	8.066E+00	8.449E-01	-0.139
U-235	+	89.95		3.381E+00	1.334E+00	1.306E+00	4.121E-01	2.588
		93.35		3.482E+00	1.221E+00	9.552E-01	2.756E-01	3.646
		105.00		8.176E-01	7.830E-01	1.311E+00	4.050E-01	0.624
		143.76	*	1.697E-01	1.795E-01	3.001E-01	5.666E-02	0.566
		163.35		2.394E-01	4.192E-01	6.966E-01	1.348E-01	0.344
		185.71		2.647E-01	7.515E-02	9.160E-02	8.577E-03	2.890
NP-236	+	205.31		6.061E-02	5.095E-01	7.444E-01	1.462E-01	0.081
		94.67		2.832E-01	8.949E-02	1.481E-01	1.644E-02	1.913
		98.44		6.179E-02	4.598E-02	8.133E-02	9.208E-03	0.760
		111.00		7.871E-02	1.008E-01	1.753E-01	2.124E-02	0.449
		160.31	*	-1.569E-03	6.682E-02	1.105E-01	1.053E-02	-0.014



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.588E-01	1.069E-01	1.892E-01	2.155E-02	0.839
		117.00	*	-3.972E-02	1.374E-01	2.296E-01	2.877E-02	-0.173
	+	209.75		2.799E+00	1.014E+00	1.307E+00	1.292E-01	2.141
		228.18		1.393E-01	2.044E-01	3.401E-01	3.490E-02	0.410
	+	277.60		2.254E-01	1.733E-01	2.962E-01	3.298E-02	0.761
AM-241		334.30		-1.365E-01	1.765E+00	1.878E+00	1.971E-01	-0.073
		59.54	*	1.877E-02	5.150E-02	7.674E-02	7.973E-03	0.245
CM-243		99.55		1.634E-01	1.100E-01	1.947E-01	2.217E-02	0.839
		103.76	*	-6.535E-02	6.741E-02	1.101E-01	1.282E-02	-0.594
		117.00		-4.086E-02	1.414E-01	2.363E-01	2.960E-02	-0.173
	+	209.75		2.759E+00	1.000E+00	1.288E+00	1.274E-01	2.141
		228.18		1.407E-01	2.066E-01	3.436E-01	3.527E-02	0.410
AM-246	+	277.60		2.272E-01	1.747E-01	2.986E-01	3.325E-02	0.761
		798.80		-3.623E-02	1.625E-01	2.247E-01	2.348E-02	-0.161
		1036.00		-2.475E-01	3.176E-01	4.938E-01	4.473E-02	-0.501
		1062.04		-1.437E-02	2.792E-01	4.654E-01	4.157E-02	-0.031
		1078.86	*	8.180E-02	1.654E-01	2.869E-01	2.538E-02	0.285
CM-247	+	278.00		9.347E-01	7.186E-01	1.241E+00	1.383E-01	0.753
		287.40		4.378E-01	1.161E+00	1.876E+00	2.083E-01	0.233
		402.60	*	4.214E-03	3.433E-02	5.723E-02	5.276E-03	0.074
CF-249		252.85		-1.526E-01	7.852E-01	1.241E+00	1.330E-01	-0.123
		333.44		1.060E-01	2.169E-01	2.501E-01	2.629E-02	0.424
		387.95	*	-1.493E-02	3.814E-02	6.169E-02	5.677E-03	-0.242
CF-251		176.60	*	6.794E-02	1.068E-01	1.804E-01	1.652E-02	0.377
		227.00		1.138E-01	3.579E-01	5.859E-01	6.000E-02	0.194
		285.00		1.280E+00	1.683E+00	2.774E+00	3.086E-01	0.461

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229007      *
* Acquisition date   : 22-JAN-2010 13:40:43 Detector SN#      :              *
* Detector ID        : GAM25                      Sensitivity    : 5.000        *
* Geometry           : CAN                          Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00                Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:02.12                Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229007                      Analyst initials: MXR1      *
* Batch Number       : 941239                          Sample Quantity : 1.3127E+02 GRAM *
* Recovery           : 1.00000                          Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                                                *
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43 MS Isotope      :                  *
* MSD DPM             : 0.000                          MSD Isotope      :                  *
* LCS DPM             : 0.000                          LCS Isotope      :                  *
* LCSD DPM           : 0.000                          LCSD Isotope     :                  *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.591E+01	3.535E+00	4.769E-01	0.000E+00
CD-109	4.522E+00	8.425E-01	7.603E-01	0.000E+00
SN-126	4.439E-01	8.269E-02	7.448E-02	0.000E+00
BA-137M	5.436E-02	5.222E-02	6.784E-02	0.000E+00
CS-137	5.746E-02	5.520E-02	7.171E-02	0.000E+00
TL-208	5.347E-01	9.329E-02	6.182E-02	0.000E+00
BI-210	1.011E+00	5.415E-01	6.271E-01	0.000E+00
PB-210	1.011E+00	5.415E-01	6.271E-01	0.000E+00
PO-210	1.011E+00	5.401E-01	6.271E-01	0.000E+00
BI-211	4.801E+00	6.786E-01	3.080E-01	0.000E+00
PB-212	1.982E+00	2.472E-01	7.772E-02	0.000E+00
PO-212	1.982E+00	2.472E-01	7.772E-02	0.000E+00
BI-214	1.469E+00	2.476E-01	1.034E-01	0.000E+00
PB-214	1.670E+00	2.510E-01	1.074E-01	0.000E+00
PO-214	1.670E+00	2.510E-01	1.074E-01	0.000E+00
PO-216	1.982E+00	2.472E-01	7.772E-02	0.000E+00
PO-218	1.670E+00	2.510E-01	1.074E-01	0.000E+00
RA-224	5.579E+00	1.261E+00	8.854E-01	0.000E+00
RA-226	1.469E+00	2.476E-01	1.034E-01	0.000E+00
AC-228	1.971E+00	3.884E-01	2.424E-01	0.000E+00
RA-228	1.971E+00	3.884E-01	2.424E-01	0.000E+00
TH-228	2.014E+00	2.512E-01	7.897E-02	0.000E+00
TH-230	1.469E+00	2.476E-01	1.034E-01	0.000E+00
TH-232	1.971E+00	3.884E-01	2.424E-01	0.000E+00
TH-234	1.514E+00	6.808E-01	8.020E-01	0.000E+00
U-234	1.469E+00	2.476E-01	1.034E-01	0.000E+00
NP-237	1.303E+00	3.584E-01	2.177E-01	0.000E+00
U-238	1.514E+00	6.808E-01	8.020E-01	0.000E+00
AM-243	3.786E-01	5.513E-02	4.925E-02	0.000E+00
ANH-511	1.904E-01	6.722E-02	4.692E-02	0.000E+00

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	7.961E-02	3.106E-01	5.364E-01	0.000E+00	NOT IDENT.
NA-22	-1.392E-02	4.811E-02	7.877E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.135E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	4.522E-03	3.050E-02	5.263E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.176E-02	4.768E-02	0.000E+00	FAIL ABUN
SC-46	-2.543E-02	4.219E-02	6.663E-02	0.000E+00	FAIL ABUN
V-48	-7.091E-04	8.154E-02	1.350E-01	0.000E+00	NOT IDENT.
CR-51	1.687E-01	3.495E-01	6.316E-01	0.000E+00	NOT IDENT.
MN-52	1.533E-01	2.272E-01	4.167E-01	0.000E+00	FAIL ABUN
MN-54	-2.331E-02	4.114E-02	6.621E-02	0.000E+00	NOT IDENT.
CO-56	-8.817E-03	4.605E-02	7.643E-02	0.000E+00	NOT IDENT.
CO-57	-3.440E-03	1.840E-02	3.279E-02	0.000E+00	NOT IDENT.
CO-58	-2.771E-02	5.083E-02	6.959E-02	0.000E+00	NOT IDENT.
FE-59	-6.172E-02	1.014E-01	1.645E-01	0.000E+00	NOT IDENT.
CO-60	7.660E-02	4.329E-02	8.463E-02	0.000E+00	NOT IDENT.
ZN-65	-1.996E-02	1.128E-01	1.626E-01	0.000E+00	NOT IDENT.
GE-68	9.167E-01	1.420E+00	2.555E+00	0.000E+00	NOT IDENT.
AS-73	-7.630E-02	1.698E-01	2.881E-01	0.000E+00	NOT IDENT.
AS-74	-5.118E-02	9.656E-02	1.525E-01	0.000E+00	NOT IDENT.
SE-75	3.077E-02	4.242E-02	6.659E-02	0.000E+00	NOT IDENT.
BR-77	-1.234E-01	1.371E+01	2.303E+01	0.000E+00	FAIL ABUN
SR-82	-5.445E-01	4.220E-01	6.355E-01	0.000E+00	NOT IDENT.
RB-83	1.171E-02	6.966E-02	1.185E-01	0.000E+00	NOT IDENT.
RB-84	-1.786E-02	8.108E-02	1.335E-01	0.000E+00	NOT IDENT.
KR-85	5.661E-01	7.671E+00	1.137E+01	0.000E+00	NOT IDENT.
SR-85	2.932E-03	3.973E-02	5.887E-02	0.000E+00	NOT IDENT.
RB-86	4.146E-01	9.637E-01	1.706E+00	0.000E+00	NOT IDENT.
Y-88	-1.484E-02	3.611E-02	5.566E-02	0.000E+00	NOT IDENT.
ZR-88	2.552E-02	2.896E-02	5.261E-02	0.000E+00	NOT IDENT.
Y-91	-1.054E+01	2.287E+01	3.740E+01	0.000E+00	NOT IDENT.
NB-94	4.618E-03	3.630E-02	6.210E-02	0.000E+00	NOT IDENT.
NB-95	6.775E-02	4.974E-02	8.317E-02	0.000E+00	NOT IDENT.
NB-95M	-6.592E-02	1.270E-01	1.849E-01	0.000E+00	NOT IDENT.
ZR-95	1.060E-01	7.897E-02	1.462E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.742E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	5.169E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	8.313E+00	1.607E+01	2.845E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	4.294E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.593E-02	3.023E-02	4.928E-02	0.000E+00	NOT IDENT.
RH-102	-6.243E-03	2.772E-02	4.626E-02	0.000E+00	NOT IDENT.
RU-103	4.273E-02	3.995E-02	7.189E-02	0.000E+00	FAIL ABUN
RH-106	-1.520E-01	3.211E-01	5.395E-01	0.000E+00	FAIL ABUN
RU-106	-1.520E-01	3.207E-01	5.395E-01	0.000E+00	FAIL ABUN
AG-108M	-1.477E-02	3.010E-02	4.973E-02	0.000E+00	NOT IDENT.
AG-110M	2.742E-02	3.902E-02	6.295E-02	0.000E+00	NOT IDENT.
IN-111	-9.109E-01	1.275E+00	1.802E+00	0.000E+00	NOT IDENT.
IN-113M	1.239E-02	4.284E-02	7.542E-02	0.000E+00	NOT IDENT.
SN-113	1.239E-02	4.284E-02	7.542E-02	0.000E+00	NOT IDENT.
IN-114M	-2.079E-02	1.730E-01	2.651E-01	0.000E+00	NOT IDENT.
CD-115	1.097E+01	1.449E+01	2.563E+01	0.000E+00	NOT IDENT.
SN-117M	1.965E-03	4.689E-02	8.253E-02	0.000E+00	NOT IDENT.
SB-122	1.541E+00	2.674E+00	4.643E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.555E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	5.727E-04	2.309E-02	4.059E-02	0.000E+00	NOT IDENT.
I-124	-7.333E-01	8.842E-01	1.232E+00	0.000E+00	NOT IDENT.
SB-124	3.816E-02	7.457E-02	1.371E-01	0.000E+00	FAIL ABUN
SB-125	6.883E-03	8.437E-02	1.456E-01	0.000E+00	FAIL ABUN
TE-125M	-3.366E+00	6.693E+00	1.188E+01	0.000E+00	NOT IDENT.
I-126	1.096E-01	2.224E-01	3.508E-01	0.000E+00	NOT IDENT.
SB-126	-8.812E-02	1.677E-01	2.584E-01	0.000E+00	FAIL ABUN
SB-127	6.508E-01	1.674E+00	2.965E+00	0.000E+00	NOT IDENT.
XE-127	1.606E-02	4.148E-02	7.247E-02	0.000E+00	NOT IDENT.
I-131	-1.672E-01	1.132E-01	1.766E-01	0.000E+00	NOT IDENT.
TE-132	5.302E-01	7.538E-01	1.316E+00	0.000E+00	NOT IDENT.
BA-133	-2.213E-02	4.204E-02	6.155E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.327E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.634E-02	6.923E-02	9.975E-02	0.000E+00	FAIL ABUN
CS-135	1.820E-01	1.559E-01	2.495E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.602E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.395E-02	1.245E-01	2.110E-01	0.000E+00	FAIL ABUN
CE-139	8.605E-03	2.506E-02	4.446E-02	0.000E+00	NOT IDENT.
BA-140	-8.491E-03	2.624E-01	4.384E-01	0.000E+00	NOT IDENT.
LA-140	-6.189E-02	1.111E-01	1.767E-01	0.000E+00	FAIL ABUN
CE-141	3.592E-03	5.164E-02	9.164E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.944E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	-6.286E-02	1.779E-01	2.790E-01	0.000E+00	NOT IDENT.
PM-144	1.614E-02	3.570E-02	6.335E-02	0.000E+00	NOT IDENT.
PR-144	1.094E+00	2.420E+00	4.295E+00	0.000E+00	NOT IDENT.
PM-146	1.093E-02	4.290E-02	7.436E-02	0.000E+00	NOT IDENT.
ND-147	-1.373E-01	5.768E-01	9.481E-01	0.000E+00	FAIL ABUN
PM-149	-6.226E+00	1.192E+02	1.973E+02	0.000E+00	NOT IDENT.
EU-152	-2.114E-02	8.921E-02	1.491E-01	0.000E+00	FAIL ABUN
GD-153	-4.049E-02	5.583E-02	8.862E-02	0.000E+00	FAIL ABUN
EU-154	-5.888E-02	1.362E-01	2.197E-01	0.000E+00	NOT IDENT.
EU-155	0.000E+00	7.572E-02	1.432E-01	0.000E+00	FAIL ABUN
TB-160	-3.740E-02	1.511E-01	2.478E-01	0.000E+00	FAIL ABUN
HO-166M	-9.314E-03	6.757E-02	1.150E-01	0.000E+00	FAIL ABUN
TM-171	-3.349E+00	1.177E+01	1.981E+01	0.000E+00	NOT IDENT.
LU-176	-2.039E-03	2.251E-02	3.974E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.547E+00	2.120E+00	0.000E+00	FAIL ABUN
LU-177M	-1.084E-01	1.718E-01	2.838E-01	0.000E+00	FAIL ABUN
HF-181	6.158E-03	4.183E-02	7.164E-02	0.000E+00	NOT IDENT.
W-181	-3.877E-04	1.561E-01	2.452E-01	0.000E+00	NOT IDENT.
TA-182	1.502E-01	2.208E-01	3.921E-01	0.000E+00	FAIL ABUN
RE-183	2.213E-02	9.577E-02	1.673E-01	0.000E+00	FAIL ABUN
RE-184	-4.081E-02	2.059E-01	3.422E-01	0.000E+00	NOT IDENT.
OS-185	6.503E-03	3.776E-02	6.646E-02	0.000E+00	NOT IDENT.
RE-188	8.250E-02	1.450E-01	2.589E-01	0.000E+00	NOT IDENT.
W-188	7.825E-01	7.091E+00	1.125E+01	0.000E+00	FAIL ABUN
IR-192	-1.859E-02	3.111E-02	5.313E-02	0.000E+00	FAIL ABUN
AU-195	2.621E-01	1.515E-01	2.872E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	7.898E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	2.119E+00	7.305E+00	1.292E+01	0.000E+00	NOT IDENT.
TL-202	6.719E-02	7.084E-02	1.282E-01	0.000E+00	NOT IDENT.
HG-203	5.034E-02	4.296E-02	6.852E-02	0.000E+00	NOT IDENT.
BI-207	-1.495E-02	6.132E-02	1.034E-01	0.000E+00	FAIL ABUN
TL-207	-1.958E-01	6.953E-01	1.059E+00	0.000E+00	FAIL ABUN
PO-209	-5.999E+00	8.542E+00	1.340E+01	0.000E+00	NOT IDENT.
PB-211	-8.859E-01	1.026E+00	1.402E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.848E-01	7.452E-01	0.000E+00	FAIL ABUN
PO-215	-1.958E-01	6.953E-01	1.059E+00	0.000E+00	FAIL ABUN
RN-219	2.100E-02	3.765E-01	6.525E-01	0.000E+00	FAIL ABUN
RN-220	-8.131E+00	2.764E+01	4.512E+01	0.000E+00	NOT IDENT.
RA-223	-1.958E-01	6.953E-01	1.059E+00	0.000E+00	FAIL ABUN
AC-227	2.001E-01	3.497E-01	6.031E-01	0.000E+00	FAIL ABUN
TH-227	2.001E-01	3.502E-01	6.031E-01	0.000E+00	FAIL ABUN
TH-229	1.780E-01	4.385E-01	7.698E-01	0.000E+00	FAIL ABUN
PA-231	-8.794E-01	1.493E+00	2.384E+00	0.000E+00	FAIL ABUN
TH-231	-1.958E-01	6.953E-01	1.059E+00	0.000E+00	FAIL ABUN
U-231	-1.735E-01	8.270E-01	1.352E+00	0.000E+00	FAIL ABUN
PA-233	-5.217E-02	5.699E-02	9.545E-02	0.000E+00	FAIL ABUN
PA-234	-1.910E-01	3.306E-01	5.170E-01	0.000E+00	FAIL ABUN
PA-234M	-1.120E+00	4.953E+00	8.127E+00	0.000E+00	NOT IDENT.
U-235	1.697E-01	1.759E-01	3.122E-01	0.000E+00	FAIL ABUN
NP-236	-1.569E-03	6.548E-02	1.148E-01	0.000E+00	NOT IDENT.
NP-239	-3.972E-02	1.347E-01	2.397E-01	0.000E+00	FAIL ABUN
AM-241	1.877E-02	5.047E-02	8.096E-02	0.000E+00	NOT IDENT.
CM-243	-6.535E-02	6.606E-02	1.151E-01	0.000E+00	FAIL ABUN
AM-246	8.180E-02	1.621E-01	2.887E-01	0.000E+00	NOT IDENT.
CM-247	4.214E-03	3.365E-02	5.856E-02	0.000E+00	FAIL ABUN
CF-249	-1.493E-02	3.738E-02	6.316E-02	0.000E+00	NOT IDENT.
CF-251	6.794E-02	1.047E-01	1.871E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229007.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 13:40:43
Sample ID          : G244229007          Sample quantity  : 1.31270E+02 GRAM
Detector name      : GAM25              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:02.12  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941239             Detector SN#      :
Matrix Spike ID    :                   LCS ID            : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1486	10.67*	1.109E+00	3.591E+01	3.591E+01	10.04
CD-109	88.03	540	3.72*	9.406E+00	4.415E+00	4.522E+00	19.01
SN-126	64.28	197	9.60	9.778E+00	5.993E-01	5.993E-01	44.86
	86.94	540	8.90	9.406E+00	1.845E+00	1.845E+00	44.69
	87.57	540	37.00*	9.406E+00	4.439E-01	4.439E-01	19.01
BA-137M	661.65	38	89.98*	2.231E+00	5.431E-02	5.436E-02	98.02
CS-137	661.65	38	85.12*	2.231E+00	5.741E-02	5.746E-02	98.02
TL-208	277.35	53	6.80	4.739E+00	4.674E-01	4.674E-01	77.38
	510.84	187	21.60	2.809E+00	8.815E-01	8.815E-01	36.98
	583.14	393	84.20*	2.496E+00	5.347E-01	5.347E-01	17.80
	860.37	75	12.46	1.766E+00	9.764E-01	9.764E-01	48.05
BI-210	46.50	131	4.05*	9.185E+00	1.009E+00	1.011E+00	54.67
PB-210	46.50	131	4.05*	9.185E+00	1.009E+00	1.011E+00	54.67
PO-210	46.50	131	4.05*	9.185E+00	1.009E+00	1.011E+00	54.53
BI-211	72.87	-----	1.27	9.724E+00	-----	Line Not Found	-----
	351.07	844	12.94*	3.887E+00	4.801E+00	4.801E+00	14.42
PB-212	74.81	847	10.70	9.693E+00	2.335E+00	2.335E+00	17.55
	77.11	1372	18.00	9.652E+00	2.258E+00	2.258E+00	12.67
	87.30	540	8.00	9.406E+00	2.053E+00	2.053E+00	21.48
	238.63	1650	44.60*	5.339E+00	1.982E+00	1.982E+00	12.73
	300.09	87	3.41	4.444E+00	1.637E+00	1.637E+00	61.99
PO-212	74.81	847	10.70	9.693E+00	2.335E+00	2.335E+00	17.55
	77.11	1372	18.00	9.652E+00	2.258E+00	2.258E+00	12.67
	87.30	540	8.00	9.406E+00	2.053E+00	2.053E+00	21.48
	115.19	-----	0.60	8.498E+00	-----	Line Not Found	-----
	238.63	1650	44.60*	5.339E+00	1.982E+00	1.982E+00	12.73
	300.09	87	3.41	4.444E+00	1.637E+00	1.637E+00	61.99
BI-214	609.31	571	46.30*	2.401E+00	1.469E+00	1.469E+00	17.20
	1120.29	132	15.10	1.397E+00	1.788E+00	1.788E+00	38.30
	1764.49	92	15.80	9.412E-01	1.764E+00	1.764E+00	26.88
PB-214	74.81	847	6.21	9.693E+00	4.024E+00	4.024E+00	16.60
	77.11	1372	10.50	9.652E+00	3.871E+00	3.871E+00	14.79

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	540	4.67	9.406E+00	3.517E+00	3.517E+00	20.51
	241.98	407	7.49	5.287E+00	2.942E+00	2.942E+00	23.73
	295.21	503	19.20	4.503E+00	1.663E+00	1.663E+00	17.41
	351.92	844	37.20*	3.887E+00	1.670E+00	1.670E+00	15.34
	74.81	847	6.21	9.693E+00	4.024E+00	4.024E+00	16.60
	77.11	1372	10.50	9.652E+00	3.871E+00	3.871E+00	14.79
	87.30	540	4.67	9.406E+00	3.517E+00	3.517E+00	20.51
	241.98	407	7.49	5.287E+00	2.942E+00	2.942E+00	23.73
PO-216	295.21	503	19.20	4.503E+00	1.663E+00	1.663E+00	17.41
	351.92	844	37.20*	3.887E+00	1.670E+00	1.670E+00	15.34
	74.81	847	10.70	9.693E+00	2.335E+00	2.335E+00	17.55
	77.11	1372	18.00	9.652E+00	2.258E+00	2.258E+00	12.67
	87.30	540	8.00	9.406E+00	2.053E+00	2.053E+00	21.48
	238.63	1650	44.60*	5.339E+00	1.982E+00	1.982E+00	12.73
	300.09	87	3.41	4.444E+00	1.637E+00	1.637E+00	61.99
	74.81	847	6.21	9.693E+00	4.024E+00	4.024E+00	16.60
PO-218	77.11	1372	10.50	9.652E+00	3.871E+00	3.871E+00	14.79
	87.30	540	4.67	9.406E+00	3.517E+00	3.517E+00	20.51
	241.98	407	7.49	5.287E+00	2.942E+00	2.942E+00	23.73
	295.21	503	19.20	4.503E+00	1.663E+00	1.663E+00	17.41
	351.92	844	37.20*	3.887E+00	1.670E+00	1.670E+00	15.34
	240.98	407	3.95*	5.287E+00	5.579E+00	5.579E+00	23.06
	609.31	571	46.30*	2.401E+00	1.469E+00	1.469E+00	17.20
	1120.29	132	15.10	1.397E+00	1.788E+00	1.788E+00	38.30
AC-228	1764.49	92	15.80	9.412E-01	1.764E+00	1.764E+00	26.88
	338.32	332	11.40	4.018E+00	2.073E+00	2.073E+00	45.28
	911.07	320	27.70*	1.678E+00	1.971E+00	1.971E+00	20.11
	969.11	161	16.60	1.589E+00	1.744E+00	1.744E+00	33.80
	338.32	332	11.40	4.018E+00	2.073E+00	2.073E+00	45.28
	911.07	320	27.70*	1.678E+00	1.971E+00	1.971E+00	20.11
	969.11	161	16.60	1.589E+00	1.744E+00	1.744E+00	33.80
	74.81	847	10.70	9.693E+00	2.335E+00	2.373E+00	14.90
TH-228	77.11	1372	18.00	9.652E+00	2.258E+00	2.295E+00	12.67
	87.30	540	8.00	9.406E+00	2.053E+00	2.086E+00	19.01
	238.63	1650	44.60*	5.339E+00	1.982E+00	2.014E+00	12.73
	300.09	87	3.41	4.444E+00	1.637E+00	1.664E+00	85.14
	609.31	571	46.30*	2.401E+00	1.469E+00	1.469E+00	17.20
	1120.29	132	15.10	1.397E+00	1.788E+00	1.788E+00	38.30
	1764.49	92	15.80	9.412E-01	1.764E+00	1.764E+00	26.88
	338.32	332	11.40	4.018E+00	2.073E+00	2.073E+00	20.55
TH-232	911.07	320	27.70*	1.678E+00	1.971E+00	1.971E+00	20.11
	969.11	161	16.60	1.589E+00	1.744E+00	1.744E+00	33.80
	63.29	197	3.80*	9.778E+00	1.514E+00	1.514E+00	45.88
	92.38	506	5.41	9.237E+00	2.897E+00	2.897E+00	27.77
	609.31	571	46.30*	2.401E+00	1.469E+00	1.469E+00	17.20
	1120.29	132	15.10	1.397E+00	1.788E+00	1.788E+00	38.30
	1764.49	92	15.80	9.412E-01	1.764E+00	1.764E+00	26.88
	86.50	540	12.60*	9.406E+00	1.303E+00	1.303E+00	28.06
NP-237	95.87	-----	2.60	9.143E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-238	63.29	197	3.80*	9.778E+00	1.514E+00	1.514E+00	45.88
	92.38	506	5.41	9.237E+00	2.897E+00	2.897E+00	22.77
AM-243	74.67	847	66.00*	9.693E+00	3.786E-01	3.786E-01	14.86
	86.72	540	0.34	9.406E+00	4.888E+01	4.888E+01	19.01
	117.66	-----	0.55	8.415E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.617E+00	-----	Line Not Found	-----
ANH-511	511.00	187	100.00*	2.809E+00	1.904E-01	1.904E-01	36.02

Flag: "\*" = Keyline

Total number of lines in spectrum 40  
Number of unidentified lines 4  
Number of lines tentatively identified by NID 36 90.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.591E+01	3.591E+01	0.361E+01	10.04	
CD-109	464.00D	1.02	4.415E+00	4.522E+00	0.860E+00	19.01	
SN-126	1.00E+05Y	1.00	4.439E-01	4.439E-01	0.844E-01	19.01	
BA-137M	30.17Y	1.00	5.431E-02	5.436E-02	5.328E-02	98.02	
CS-137	30.17Y	1.00	5.741E-02	5.746E-02	5.633E-02	98.02	
TL-208	1.41E+10Y	1.00	5.347E-01	5.347E-01	0.952E-01	17.80	
BI-210	22.26Y	1.00	1.009E+00	1.011E+00	0.553E+00	54.67	
PB-210	22.26Y	1.00	1.009E+00	1.011E+00	0.553E+00	54.67	
PO-210	22.26Y	1.00	1.009E+00	1.011E+00	0.551E+00	54.53	
BI-211	7.04E+08Y	1.00	4.801E+00	4.801E+00	0.692E+00	14.42	
PB-212	1.41E+10Y	1.00	1.982E+00	1.982E+00	0.252E+00	12.73	
PO-212	1.41E+10Y	1.00	1.982E+00	1.982E+00	0.252E+00	12.73	
BI-214	1600.00Y	1.00	1.469E+00	1.469E+00	0.253E+00	17.20	
PB-214	1600.00Y	1.00	1.670E+00	1.670E+00	0.256E+00	15.34	
PO-214	1600.00Y	1.00	1.670E+00	1.670E+00	0.256E+00	15.34	
PO-216	1.41E+10Y	1.00	1.982E+00	1.982E+00	0.252E+00	12.73	
PO-218	1600.00Y	1.00	1.670E+00	1.670E+00	0.256E+00	15.34	
RA-224	1.41E+10Y	1.00	5.579E+00	5.579E+00	1.286E+00	23.06	
RA-226	1600.00Y	1.00	1.469E+00	1.469E+00	0.253E+00	17.20	
AC-228	1.41E+10Y	1.00	1.971E+00	1.971E+00	0.396E+00	20.11	
RA-228	1.41E+10Y	1.00	1.971E+00	1.971E+00	0.396E+00	20.11	
TH-228	1.91Y	1.02	1.982E+00	2.014E+00	0.256E+00	12.73	
TH-230	4.47E+09Y	1.00	1.469E+00	1.469E+00	0.253E+00	17.20	
TH-232	1.41E+10Y	1.00	1.971E+00	1.971E+00	0.396E+00	20.11	
TH-234	4.47E+09Y	1.00	1.514E+00	1.514E+00	0.695E+00	45.88	
U-234	4.47E+09Y	1.00	1.469E+00	1.469E+00	0.253E+00	17.20	
NP-237	2.14E+06Y	1.00	1.303E+00	1.303E+00	0.366E+00	28.06	
U-238	4.47E+09Y	1.00	1.514E+00	1.514E+00	0.695E+00	45.88	
AM-243	7380.00Y	1.00	3.786E-01	3.786E-01	0.563E-01	14.86	
ANH-511	1.00E+09Y	1.00	1.904E-01	1.904E-01	0.686E-01	36.02	

Total Activity : 8.445E+01 8.460E+01

Grand Total Activity : 8.445E+01 8.460E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit



It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
6	84.16	245	607	1.44	167.87	164	27	3.40E-02	38.4	9.49E+00	T
6	89.93	298	365	0.94	179.42	164	27	4.13E-02	23.7	9.33E+00	T
0	129.56	167	518	1.25	258.67	254	12	2.32E-02	56.7	8.02E+00	T
0	185.77	321	380	1.11	371.07	366	11	4.46E-02	26.8	6.42E+00	T
0	209.32	187	268	1.23	418.17	413	9	2.60E-02	34.9	5.89E+00	T
0	270.16	226	251	1.49	539.84	534	14	3.14E-02	32.5	4.84E+00	T
0	328.45	100	248	1.19	656.41	649	14	1.39E-02	70.0	4.12E+00	T
0	463.46	82	157	1.15	926.42	920	12	1.14E-02	65.4	3.06E+00	T
0	727.54	129	96	1.54	1454.57	1449	15	1.80E-02	37.2	2.05E+00	T
0	768.54	52	77	1.98	1536.56	1530	10	7.17E-03	69.6	1.95E+00	
0	795.02	38	78	1.02	1589.53	1584	10	5.32E-03	91.9	1.89E+00	T
0	807.07	14	79	1.06	1613.63	1608	12	2.00E-03	****	1.87E+00	T
0	934.15	49	35	0.79	1867.79	1863	9	6.74E-03	52.9	1.64E+00	T
1	964.67	63	61	1.97	1928.83	1923	21	8.73E-03	57.4	1.60E+00	T
0	1243.77	16	162	0.54	2487.03	2470	19	2.15E-03	****	1.28E+00	
0	1377.76	41	7	1.24	2755.03	2750	10	5.70E-03	39.8	1.17E+00	
0	1729.11	36	6	3.20	3457.80	3451	13	4.96E-03	44.5	9.58E-01	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229007.CNF;1
* Acquisition date   : 22-JAN-2010 13:40:43   Detector SN#      :
* Detector ID        : GAM25                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:02.12          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229007             Analyst initials: MXR1
* Batch Number       : 941239                  Sample Quantity : 1.31270E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43.34MS Isotope      :
* MSD ID              :                          MSD Isotope   :
* LCS ID              : 1032-A                  LCS Isotope     :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.591E+01	3.607E+00	4.764E-01	4.057E-02	75.387
CD-109	4.522E+00	8.597E-01	7.251E-01	7.792E-02	6.237
SN-126	4.439E-01	8.438E-02	7.102E-02	7.615E-03	6.250
BA-137M	5.436E-02	5.328E-02	6.686E-02	7.406E-03	0.813
CS-137	5.746E-02	5.633E-02	7.067E-02	7.838E-03	0.813
TL-208	5.347E-01	9.519E-02	6.080E-02	6.854E-03	8.795
BI-210	1.011E+00	5.525E-01	5.921E-01	6.105E-02	1.707
PB-210	1.011E+00	5.525E-01	5.921E-01	6.105E-02	1.707
PO-210	1.011E+00	5.511E-01	5.921E-01	5.639E-02	1.707
BI-211	4.801E+00	6.924E-01	3.003E-01	3.165E-02	15.984
PB-212	1.982E+00	2.522E-01	7.531E-02	8.574E-03	26.316
PO-212	1.982E+00	2.522E-01	7.531E-02	8.574E-03	26.316
BI-214	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
PB-214	1.670E+00	2.561E-01	1.047E-01	1.230E-02	15.945
PO-214	1.670E+00	2.561E-01	1.047E-01	1.230E-02	15.945
PO-216	1.982E+00	2.522E-01	7.531E-02	8.574E-03	26.316
PO-218	1.670E+00	2.561E-01	1.047E-01	1.230E-02	15.945
RA-224	5.579E+00	1.286E+00	8.581E-01	9.018E-02	6.501

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
AC-228	1.971E+00	3.963E-01	2.402E-01	2.857E-02	8.205
RA-228	1.971E+00	3.963E-01	2.402E-01	2.857E-02	8.205
TH-228	2.014E+00	2.563E-01	7.652E-02	8.712E-03	26.316
TH-230	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
TH-232	1.971E+00	3.963E-01	2.402E-01	2.857E-02	8.205
TH-234	1.514E+00	6.947E-01	7.608E-01	1.417E-01	1.990
U-234	1.469E+00	2.527E-01	1.018E-01	1.228E-02	14.437
NP-237	1.303E+00	3.657E-01	2.076E-01	4.822E-02	6.280
U-238	1.514E+00	6.947E-01	7.608E-01	1.417E-01	1.990
AM-243	3.786E-01	5.625E-02	4.684E-02	4.757E-03	8.083
ANH-511	1.904E-01	6.859E-02	4.604E-02	4.739E-03	4.136

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	7.961E-02		3.169E-01	5.257E-01	5.566E-02	0.151
NA-22	-1.392E-02		4.909E-02	7.850E-02	6.437E-03	-0.177
NA-24	-3.259E-01		1.089E+00	Half-Life too short		
AL-26	4.522E-03		3.112E-02	5.277E-02	4.324E-03	0.086
TI-44	4.167E-01	+	5.281E-02	4.539E-02	4.674E-03	9.182
SC-46	-2.543E-02		4.305E-02	6.599E-02	6.320E-03	-0.385
V-48	-7.091E-04		8.320E-02	1.339E-01	1.241E-02	-0.005
CR-51	1.687E-01		3.567E-01	6.150E-01	6.829E-02	0.274
MN-52	1.533E-01		2.318E-01	4.161E-01	3.429E-02	0.369
MN-54	-2.331E-02		4.198E-02	6.551E-02	6.647E-03	-0.356
CO-56	-8.817E-03		4.699E-02	7.564E-02	7.589E-03	-0.117
CO-57	-3.440E-03		1.877E-02	3.143E-02	4.053E-03	-0.109
CO-58	-2.771E-02		5.186E-02	6.882E-02	7.140E-03	-0.403
FE-59	-6.172E-02		1.035E-01	1.635E-01	1.540E-02	-0.378
CO-60	7.660E-02		4.417E-02	8.440E-02	6.855E-03	0.908
ZN-65	-1.996E-02		1.151E-01	1.617E-01	1.397E-02	-0.123
GE-68	9.167E-01		1.449E+00	2.539E+00	2.247E-01	0.361
AS-73	-7.630E-02		1.733E-01	2.726E-01	2.617E-02	-0.280
AS-74	-5.118E-02		9.854E-02	1.501E-01	1.626E-02	-0.341
SE-75	3.077E-02		4.329E-02	6.464E-02	7.084E-03	0.476
BR-77	-1.234E-01		1.399E+01	2.260E+01	2.344E+00	-0.005
SR-82	-5.445E-01		4.306E-01	6.280E-01	6.665E-02	-0.867
RB-83	1.171E-02		7.108E-02	1.163E-01	1.206E-02	0.101
RB-84	-1.786E-02		8.274E-02	1.322E-01	1.277E-02	-0.135
KR-85	5.661E-01		7.828E+00	1.115E+01	1.151E+00	0.051
SR-85	2.932E-03		4.054E-02	5.777E-02	5.960E-03	0.051
RB-86	4.146E-01		9.834E-01	1.695E+00	1.502E-01	0.245
Y-88	-1.484E-02		3.685E-02	5.582E-02	4.562E-03	-0.266
ZR-88	2.552E-02		2.955E-02	5.140E-02	4.678E-03	0.497
Y-91	-1.054E+01		2.333E+01	3.724E+01	3.065E+00	-0.283
NB-94	4.618E-03		3.704E-02	6.127E-02	6.728E-03	0.075

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	6.775E-02		5.076E-02	8.217E-02	8.777E-03	0.825
NB-95M	-6.592E-02		1.296E-01	1.791E-01	2.053E-02	-0.368
ZR-95	1.060E-01		8.058E-02	1.444E-01	1.654E-02	0.734
NB-97	2.952E-01		1.399E-01	Half-Life too short		
ZR-97	6.988E-01		2.637E+00	Half-Life too short		
MO-99	8.313E+00		1.640E+01	2.809E+01	4.645E+00	0.296
TC-99M	-2.262E+11		2.191E+11	Half-Life too short		
RH-101	-2.593E-02		3.085E-02	4.761E-02	4.587E-03	-0.545
RH-102	-6.243E-03		2.829E-02	4.534E-02	4.527E-03	-0.138
RU-103	4.273E-02		4.076E-02	7.051E-02	1.069E-02	0.606
RH-106	-1.520E-01		3.276E-01	5.311E-01	7.949E-02	-0.286
RU-106	-1.520E-01		3.272E-01	5.311E-01	5.816E-02	-0.286
AG-108M	-1.477E-02		3.071E-02	4.866E-02	4.809E-03	-0.304
AG-110M	2.742E-02		3.982E-02	6.204E-02	6.990E-03	0.442
IN-111	-9.109E-01		1.301E+00	1.747E+00	1.850E-01	-0.522
IN-113M	1.239E-02		4.372E-02	7.368E-02	6.882E-03	0.168
SN-113	1.239E-02		4.372E-02	7.368E-02	6.882E-03	0.168
IN-114M	-2.079E-02		1.765E-01	2.559E-01	2.423E-02	-0.081
CD-115	1.097E+01		1.479E+01	2.517E+01	2.623E+00	0.436
SN-117M	1.965E-03		4.785E-02	7.944E-02	7.713E-03	0.025
SB-122	1.541E+00		2.729E+00	4.563E+00	4.865E-01	0.338
I-123	3.856E-01		7.931E+00	Half-Life too short		
TE-123M	5.727E-04		2.356E-02	3.907E-02	3.794E-03	0.015
I-124	-7.333E-01		9.022E-01	1.212E+00	1.318E-01	-0.605
SB-124	3.816E-02		7.609E-02	1.373E-01	1.187E-02	0.278
SB-125	6.883E-03		8.610E-02	1.424E-01	1.376E-02	0.048
TE-125M	-3.366E+00		6.830E+00	1.137E+01	1.511E+00	-0.296
I-126	1.096E-01		2.270E-01	3.457E-01	3.827E-02	0.317
SB-126	-8.812E-02		1.711E-01	2.550E-01	2.783E-02	-0.346
SB-127	6.508E-01		1.708E+00	2.924E+00	3.961E-01	0.223
XE-127	1.606E-02		4.233E-02	7.003E-02	6.821E-03	0.229
I-131	-1.672E-01		1.155E-01	1.723E-01	1.769E-02	-0.971
TE-132	5.302E-01		7.692E-01	1.275E+00	2.147E-01	0.416
BA-133	-2.213E-02		4.290E-02	6.004E-02	8.512E-03	-0.369
I-133	-6.141E-03		6.769E-03	Half-Life too short		
CS-134	7.634E-02	+	7.064E-02	9.862E-02	1.038E-02	0.774
CS-135	1.820E-01		1.591E-01	2.423E-01	2.924E-02	0.751
I-135	-6.674E+10		3.878E+10	Half-Life too short		
CS-136	-2.395E-02		1.271E-01	2.095E-01	1.960E-02	-0.114
CE-139	8.605E-03		2.557E-02	4.283E-02	3.819E-03	0.201
BA-140	-8.491E-03		2.678E-01	4.305E-01	1.450E-01	-0.020
LA-140	-6.189E-02		1.134E-01	1.768E-01	1.470E-02	-0.350
CE-141	3.592E-03		5.269E-02	8.809E-02	9.797E-03	0.041
CE-143	7.855E-04		1.502E-04	Half-Life too short		
CE-144	-6.286E-02		1.815E-01	2.678E-01	4.735E-02	-0.235
PM-144	1.614E-02		3.642E-02	6.249E-02	6.876E-03	0.258
PR-144	1.094E+00		2.470E+00	4.237E+00	4.661E-01	0.258
PM-146	1.093E-02		4.377E-02	7.283E-02	8.504E-03	0.150

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-1.373E-01		5.886E-01	9.310E-01	1.496E-01	-0.147
PM-149	-6.226E+00		1.216E+02	1.917E+02	3.270E+01	-0.032
EU-152	-2.114E-02		9.104E-02	1.453E-01	1.560E-02	-0.145
GD-153	-4.049E-02		5.697E-02	8.465E-02	9.533E-03	-0.478
EU-154	-5.888E-02		1.389E-01	2.190E-01	2.406E-02	-0.269
EU-155	1.475E-01		7.727E-02	1.370E-01	1.619E-02	1.077
TB-160	-3.740E-02		1.542E-01	2.454E-01	2.378E-02	-0.152
HO-166M	-9.314E-03		6.894E-02	1.134E-01	1.242E-02	-0.082
TM-171	-3.349E+00		1.201E+01	1.881E+01	1.867E+00	-0.178
LU-176	-2.039E-03		2.297E-02	3.867E-02	4.219E-03	-0.053
LU-177	4.354E+00	+	1.578E+00	2.050E+00	2.020E-01	2.124
LU-177M	-1.084E-01		1.753E-01	2.775E-01	2.594E-02	-0.391
HF-181	6.158E-03		4.269E-02	7.023E-02	7.056E-03	0.088
W-181	-3.877E-04		1.593E-01	2.327E-01	2.303E-02	-0.002
TA-182	1.502E-01		2.253E-01	3.905E-01	3.211E-02	0.385
RE-183	2.213E-02		9.773E-02	1.611E-01	1.499E-02	0.137
RE-184	-4.081E-02		2.101E-01	3.319E-01	3.559E-02	-0.123
OS-185	6.503E-03		3.853E-02	6.548E-02	7.225E-03	0.099
RE-188	8.250E-02		1.480E-01	2.491E-01	2.510E-02	0.331
W-188	7.825E-01		7.236E+00	1.094E+01	1.212E+00	0.072
IR-192	-1.859E-02		3.174E-02	5.173E-02	5.587E-03	-0.359
AU-195	2.621E-01		1.546E-01	2.743E-01	3.113E-02	0.955
TL-200	6.685E-04		4.030E-04	Half-Life too short		
TL-201	2.119E+00		7.454E+00	1.245E+01	1.114E+00	0.170
TL-202	6.719E-02		7.228E-02	1.254E-01	1.208E-02	0.536
HG-203	5.034E-02		4.384E-02	6.657E-02	7.556E-03	0.756
BI-207	-1.495E-02		6.258E-02	1.027E-01	9.167E-03	-0.146
TL-207	-1.958E-01		7.095E-01	1.031E+00	1.937E-01	-0.190
PO-209	-5.999E+00		8.717E+00	1.327E+01	1.260E+00	-0.452
PB-211	-8.859E-01		1.047E+00	1.371E+00	8.601E-01	-0.646
BI-212	1.528E+00	+	5.967E-01	7.356E-01	8.838E-02	2.078
PO-215	-1.958E-01		7.095E-01	1.031E+00	1.937E-01	-0.190
RN-219	2.100E-02		3.842E-01	6.377E-01	9.802E-02	0.033
RN-220	-8.131E+00		2.820E+01	4.433E+01	4.688E+00	-0.183
RA-223	-1.958E-01		7.095E-01	1.031E+00	1.937E-01	-0.190
AC-227	2.001E-01		3.568E-01	5.851E-01	9.747E-02	0.342
TH-227	2.001E-01		3.573E-01	5.851E-01	1.123E-01	0.342
TH-229	1.780E-01		4.475E-01	7.434E-01	7.092E-02	0.239
PA-231	-8.794E-01		1.523E+00	2.316E+00	3.877E-01	-0.380
TH-231	-1.958E-01		7.095E-01	1.031E+00	1.937E-01	-0.190
U-231	-1.735E-01		8.439E-01	1.291E+00	1.442E-01	-0.134
PA-233	-5.217E-02		5.815E-02	9.290E-02	1.026E-02	-0.562
PA-234	-1.910E-01		3.374E-01	5.126E-01	9.803E-02	-0.373
PA-234M	-1.120E+00		5.054E+00	8.066E+00	8.449E-01	-0.139
U-235	1.697E-01		1.795E-01	3.001E-01	5.666E-02	0.566
NP-236	-1.569E-03		6.682E-02	1.105E-01	1.053E-02	-0.014
NP-239	-3.972E-02		1.374E-01	2.296E-01	2.877E-02	-0.173
AM-241	1.877E-02		5.150E-02	7.674E-02	7.973E-03	0.245

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-6.535E-02		6.741E-02	1.101E-01	1.282E-02	-0.594
AM-246	8.180E-02		1.654E-01	2.869E-01	2.538E-02	0.285
CM-247	4.214E-03		3.433E-02	5.723E-02	5.276E-03	0.074
CF-249	-1.493E-02		3.814E-02	6.169E-02	5.677E-03	-0.242
CF-251	6.794E-02		1.068E-01	1.804E-01	1.652E-02	0.377

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229007          *
* Acquisition date   : 22-JAN-2010 13:40:43 Detector SN#      :             *
* Detector ID        : GAM25                      Sensitivity    : 5.000      *
* Geometry           : CAN                        Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:02.12              Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229007              Analyst initials: MXR1        *
* Batch Number       : 941239                  Sample Quantity : 1.3127E+02 GRAM *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 7-OCT-2009 09:38:43 MS Isotope       :             *
* MSD DPM             : 0.000                   MSD Isotope    :             *
* LCS DPM             : 0.000                   LCS Isotope     :             *
* LCSD DPM            : 0.000                   LCSD Isotope    :             *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.591E+01	3.535E+00	2.386E-01	1.803E+00
CD-109	4.522E+00	8.425E-01	3.804E-01	4.298E-01
SN-126	4.439E-01	8.269E-02	3.726E-02	4.219E-02
BA-137M	5.436E-02	5.222E-02	3.394E-02	2.664E-02
CS-137	5.746E-02	5.520E-02	3.588E-02	2.816E-02
TL-208	5.347E-01	9.329E-02	3.093E-02	4.760E-02
BI-210	1.011E+00	5.415E-01	3.137E-01	2.763E-01
PB-210	1.011E+00	5.415E-01	3.137E-01	2.763E-01
PO-210	1.011E+00	5.401E-01	3.137E-01	2.756E-01
BI-211	4.801E+00	6.786E-01	1.541E-01	3.462E-01
PB-212	1.982E+00	2.472E-01	3.888E-02	1.261E-01
PO-212	1.982E+00	2.472E-01	3.888E-02	1.261E-01
BI-214	1.469E+00	2.476E-01	5.174E-02	1.263E-01
PB-214	1.670E+00	2.510E-01	5.373E-02	1.281E-01
PO-214	1.670E+00	2.510E-01	5.373E-02	1.281E-01
PO-216	1.982E+00	2.472E-01	3.888E-02	1.261E-01
PO-218	1.670E+00	2.510E-01	5.373E-02	1.281E-01
RA-224	5.579E+00	1.261E+00	4.430E-01	6.432E-01
RA-226	1.469E+00	2.476E-01	5.174E-02	1.263E-01
AC-228	1.971E+00	3.884E-01	1.213E-01	1.981E-01
RA-228	1.971E+00	3.884E-01	1.213E-01	1.981E-01
TH-228	2.014E+00	2.512E-01	3.951E-02	1.281E-01
TH-230	1.469E+00	2.476E-01	5.174E-02	1.263E-01
TH-232	1.971E+00	3.884E-01	1.213E-01	1.981E-01
TH-234	1.514E+00	6.808E-01	4.012E-01	3.473E-01
U-234	1.469E+00	2.476E-01	5.174E-02	1.263E-01
NP-237	1.303E+00	3.584E-01	1.089E-01	1.828E-01
U-238	1.514E+00	6.808E-01	4.012E-01	3.473E-01
AM-243	3.786E-01	5.513E-02	2.464E-02	2.813E-02
ANH-511	1.904E-01	6.722E-02	2.347E-02	3.430E-02

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	7.961E-02	3.106E-01	2.683E-01	1.585E-01 NOT IDENT.
NA-22	-1.392E-02	4.811E-02	3.941E-02	2.455E-02 NOT IDENT.
NA-24	-3.259E+05	2.135E+06	0.000E+00	1.089E+06 SHORT HLIF
AL-26	4.522E-03	3.050E-02	2.633E-02	1.556E-02 NOT IDENT.
TI-44	4.167E-01	5.176E-02	2.385E-02	2.641E-02 FAIL ABUN
SC-46	-2.543E-02	4.219E-02	3.333E-02	2.153E-02 FAIL ABUN
V-48	-7.091E-04	8.154E-02	6.752E-02	4.160E-02 NOT IDENT.
CR-51	1.687E-01	3.495E-01	3.160E-01	1.783E-01 NOT IDENT.
MN-52	1.533E-01	2.272E-01	2.085E-01	1.159E-01 FAIL ABUN
MN-54	-2.331E-02	4.114E-02	3.312E-02	2.099E-02 NOT IDENT.
CO-56	-8.817E-03	4.605E-02	3.824E-02	2.350E-02 NOT IDENT.
CO-57	-3.440E-03	1.840E-02	1.640E-02	9.386E-03 NOT IDENT.
CO-58	-2.771E-02	5.083E-02	3.481E-02	2.593E-02 NOT IDENT.
FE-59	-6.172E-02	1.014E-01	8.228E-02	5.174E-02 NOT IDENT.
CO-60	7.660E-02	4.329E-02	4.234E-02	2.208E-02 NOT IDENT.
ZN-65	-1.996E-02	1.128E-01	8.135E-02	5.755E-02 NOT IDENT.
GE-68	9.167E-01	1.420E+00	1.278E+00	7.246E-01 NOT IDENT.
AS-73	-7.630E-02	1.698E-01	1.441E-01	8.663E-02 NOT IDENT.
AS-74	-5.118E-02	9.656E-02	7.632E-02	4.927E-02 NOT IDENT.
SE-75	3.077E-02	4.242E-02	3.332E-02	2.164E-02 NOT IDENT.
BR-77	-1.234E-01	1.371E+01	1.152E+01	6.996E+00 FAIL ABUN
SR-82	-5.445E-01	4.220E-01	3.180E-01	2.153E-01 NOT IDENT.
RB-83	1.171E-02	6.966E-02	5.930E-02	3.554E-02 NOT IDENT.
RB-84	-1.786E-02	8.108E-02	6.677E-02	4.137E-02 NOT IDENT.
KR-85	5.661E-01	7.671E+00	5.687E+00	3.914E+00 NOT IDENT.
SR-85	2.932E-03	3.973E-02	2.945E-02	2.027E-02 NOT IDENT.
RB-86	4.146E-01	9.637E-01	8.536E-01	4.917E-01 NOT IDENT.
Y-88	-1.484E-02	3.611E-02	2.785E-02	1.843E-02 NOT IDENT.
ZR-88	2.552E-02	2.896E-02	2.632E-02	1.478E-02 NOT IDENT.
Y-91	-1.054E+01	2.287E+01	1.871E+01	1.167E+01 NOT IDENT.
NB-94	4.618E-03	3.630E-02	3.107E-02	1.852E-02 NOT IDENT.
NB-95	6.775E-02	4.974E-02	4.161E-02	2.538E-02 NOT IDENT.
NB-95M	-6.592E-02	1.270E-01	9.251E-02	6.481E-02 NOT IDENT.
ZR-95	1.060E-01	7.897E-02	7.314E-02	4.029E-02 NOT IDENT.
NB-97	2.952E+05	2.742E+05	0.000E+00	1.399E+05 SHORT HLIF
ZR-97	6.988E+05	5.169E+06	0.000E+00	2.637E+06 SHORT HLIF
MO-99	8.313E+00	1.607E+01	1.423E+01	8.200E+00 NOT IDENT.
TC-99M	-2.262E+17	4.294E+17	0.000E+00	0.000E+00 SHORT HLIF
RH-101	-2.593E-02	3.023E-02	2.465E-02	1.543E-02 NOT IDENT.
RH-102	-6.243E-03	2.772E-02	2.315E-02	1.414E-02 NOT IDENT.
RU-103	4.273E-02	3.995E-02	3.597E-02	2.038E-02 FAIL ABUN
RH-106	-1.520E-01	3.211E-01	2.699E-01	1.638E-01 FAIL ABUN
RU-106	-1.520E-01	3.207E-01	2.699E-01	1.636E-01 FAIL ABUN
AG-108M	-1.477E-02	3.010E-02	2.488E-02	1.536E-02 NOT IDENT.
AG-110M	2.742E-02	3.902E-02	3.150E-02	1.991E-02 NOT IDENT.
IN-111	-9.109E-01	1.275E+00	9.014E-01	6.503E-01 NOT IDENT.
IN-113M	1.239E-02	4.284E-02	3.773E-02	2.186E-02 NOT IDENT.
SN-113	1.239E-02	4.284E-02	3.773E-02	2.186E-02 NOT IDENT.
IN-114M	-2.079E-01	1.730E-01	1.326E-01	8.825E-02 NOT IDENT.
CD-115	1.097E+01	1.449E+01	1.282E+01	7.395E+00 NOT IDENT.
SN-117M	1.965E-03	4.689E-02	4.129E-02	2.393E-02 NOT IDENT.
SB-122	1.541E+00	2.674E+00	2.323E+00	1.364E+00 NOT IDENT.
I-123	3.856E+05	1.555E+07	0.000E+00	7.931E+06 SHORT HLIF
TE-123M	5.727E-04	2.309E-02	2.031E-02	1.178E-02 NOT IDENT.
I-124	-7.333E-01	8.842E-01	6.164E-01	4.511E-01 NOT IDENT.
SB-124	3.816E-02	7.457E-02	6.857E-02	3.805E-02 FAIL ABUN
SB-125	6.883E-03	8.437E-02	7.283E-02	4.305E-02 FAIL ABUN
TE-125M	-3.366E+00	6.693E+00	5.945E+00	3.415E+00 NOT IDENT.
I-126	1.096E-01	2.224E-01	1.755E-01	1.135E-01 NOT IDENT.
SB-126	-8.812E-02	1.677E-01	1.293E-01	8.555E-02 FAIL ABUN
SB-127	6.508E-01	1.674E+00	1.484E+00	8.542E-01 NOT IDENT.
XE-127	1.606E-02	4.148E-02	3.625E-02	2.116E-02 NOT IDENT.
I-131	-1.672E-01	1.132E-01	8.834E-02	5.773E-02 NOT IDENT.
TE-132	5.302E-01	7.538E-01	6.586E-01	3.846E-01 NOT IDENT.
BA-133	-2.213E-02	4.204E-02	3.079E-02	2.145E-02 FAIL ABUN
I-133	-6.141E+03	1.327E+04	0.000E+00	6.769E+03 SHORT HLIF
CS-134	7.634E-02	6.923E-02	4.991E-02	3.532E-02 FAIL ABUN
CS-135	1.820E-01	1.559E-01	1.248E-01	7.953E-02 NOT IDENT.
I-135	-6.674E+16	7.602E+16	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-2.395E-02	1.245E-01	1.055E-01	6.354E-02 FAIL ABUN
CE-139	8.605E-03	2.506E-02	2.224E-02	1.278E-02 NOT IDENT.
BA-140	-8.491E-03	2.624E-01	2.193E-01	1.339E-01 NOT IDENT.
LA-140	-6.189E-02	1.111E-01	8.842E-02	5.671E-02 FAIL ABUN
CE-141	3.592E-03	5.164E-02	4.585E-02	2.634E-02 NOT IDENT.
CE-143	7.855E+02	2.944E+02	0.000E+00	1.502E+02 SHORT HLIF



CE-144	-6.286E-02	1.779E-01	1.396E-01	9.077E-02	NOT IDENT.
PM-144	1.614E-02	3.570E-02	3.170E-02	1.821E-02	NOT IDENT.
PR-144	1.094E+00	2.420E+00	2.149E+00	1.235E+00	NOT IDENT.
PM-146	1.093E-02	4.290E-02	3.720E-02	2.189E-02	NOT IDENT.
ND-147	-1.373E-01	5.768E-01	4.743E-01	2.943E-01	FAIL ABUN
PM-149	-6.226E+00	1.192E+02	9.870E+01	6.080E+01	NOT IDENT.
EU-152	-2.114E-02	8.921E-02	7.457E-02	4.552E-02	FAIL ABUN
GD-153	-4.049E-02	5.583E-02	4.434E-02	2.849E-02	FAIL ABUN
EU-154	-5.888E-02	1.362E-01	1.099E-01	6.947E-02	NOT IDENT.
EU-155	1.475E-01	7.572E-02	7.165E-02	3.863E-02	FAIL ABUN
TB-160	-3.740E-02	1.511E-01	1.240E-01	7.708E-02	FAIL ABUN
HO-166M	-9.314E-03	6.757E-02	5.752E-02	3.447E-02	FAIL ABUN
TM-171	-3.349E+00	1.177E+01	9.912E+00	6.003E+00	NOT IDENT.
LU-176	-2.039E-03	2.251E-02	1.988E-02	1.149E-02	FAIL ABUN
LU-177	4.354E+00	1.547E+00	1.061E+00	7.892E-01	FAIL ABUN
LU-177M	-1.084E-01	1.718E-01	1.420E-01	8.767E-02	FAIL ABUN
HF-181	6.158E-03	4.183E-02	3.584E-02	2.134E-02	NOT IDENT.
W-181	-3.877E-04	1.561E-01	1.227E-01	7.966E-02	NOT IDENT.
TA-182	1.502E-01	2.208E-01	1.962E-01	1.127E-01	FAIL ABUN
RE-183	2.213E-02	9.577E-02	8.370E-02	4.886E-02	FAIL ABUN
RE-184	-4.081E-02	2.059E-01	1.712E-01	1.050E-01	NOT IDENT.
OS-185	6.503E-03	3.776E-02	3.325E-02	1.926E-02	NOT IDENT.
RE-188	8.250E-02	1.450E-01	1.295E-01	7.398E-02	NOT IDENT.
W-188	7.825E-01	7.091E+00	5.631E+00	3.618E+00	FAIL ABUN
IR-192	-1.859E-02	3.111E-02	2.658E-02	1.587E-02	FAIL ABUN
AU-195	2.621E-01	1.515E-01	1.437E-01	7.729E-02	FAIL ABUN
TL-200	6.685E+02	7.898E+02	0.000E+00	4.030E+02	SHORT HLIF
TL-201	2.119E+00	7.305E+00	6.466E+00	3.727E+00	NOT IDENT.
TL-202	6.719E-02	7.084E-02	6.411E-02	3.614E-02	NOT IDENT.
HG-203	5.034E-02	4.296E-02	3.428E-02	2.192E-02	NOT IDENT.
BI-207	-1.495E-02	6.132E-02	5.172E-02	3.129E-02	FAIL ABUN
TL-207	-1.958E-01	6.953E-01	5.296E-01	3.548E-01	FAIL ABUN
PO-209	-5.999E+00	8.542E+00	6.704E+00	4.358E+00	NOT IDENT.
PB-211	-8.859E-01	1.026E+00	7.015E-01	5.234E-01	NOT IDENT.
BI-212	1.528E+00	5.848E-01	3.728E-01	2.984E-01	FAIL ABUN
PO-215	-1.958E-01	6.953E-01	5.296E-01	3.548E-01	FAIL ABUN
RN-219	2.100E-02	3.765E-01	3.264E-01	1.921E-01	FAIL ABUN
RN-220	-8.131E+00	2.764E+01	2.258E+01	1.410E+01	NOT IDENT.
RA-223	-1.958E-01	6.953E-01	5.296E-01	3.548E-01	FAIL ABUN
AC-227	2.001E-01	3.497E-01	3.017E-01	1.784E-01	FAIL ABUN
TH-227	2.001E-01	3.502E-01	3.017E-01	1.787E-01	FAIL ABUN
TH-229	1.780E-01	4.385E-01	3.851E-01	2.237E-01	FAIL ABUN
PA-231	-8.794E-01	1.493E+00	1.193E+00	7.616E-01	FAIL ABUN
TH-231	-1.958E-01	6.953E-01	5.296E-01	3.548E-01	FAIL ABUN
U-231	-1.735E-01	8.270E-01	6.762E-01	4.219E-01	FAIL ABUN
PA-233	-5.217E-02	5.699E-02	4.775E-02	2.908E-02	FAIL ABUN
PA-234	-1.910E-01	3.306E-01	2.587E-01	1.687E-01	FAIL ABUN
PA-234M	-1.120E+00	4.953E+00	4.066E+00	2.527E+00	NOT IDENT.
U-235	1.697E-01	1.759E-01	1.562E-01	8.973E-02	FAIL ABUN
NP-236	-1.569E-03	6.548E-02	5.744E-02	3.341E-02	NOT IDENT.
NP-239	-3.972E-02	1.347E-01	1.199E-01	6.871E-02	FAIL ABUN
AM-241	1.877E-02	5.047E-02	4.051E-02	2.575E-02	NOT IDENT.
CM-243	-6.535E-02	6.606E-02	5.760E-02	3.370E-02	FAIL ABUN
AM-246	8.180E-02	1.621E-01	1.445E-01	8.271E-02	NOT IDENT.
CM-247	4.214E-03	3.365E-02	2.930E-02	1.717E-02	FAIL ABUN
CF-249	-1.493E-02	3.738E-02	3.160E-02	1.907E-02	NOT IDENT.
CF-251	6.794E-02	1.047E-01	9.359E-02	5.342E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	273.7997
46.50	273.7997
46.50	273.7997
48.70	295.5550
49.72	327.1577
51.35	329.8447
52.39	294.1336
52.97	311.2945
53.15	314.8204
53.44	332.7748
54.07	328.1406
56.28	341.1051
56.28	341.1098
57.37	0.0000
57.53	352.8637
57.53	352.8661
57.60	363.0140
57.98	374.7434
57.98	374.7434
59.32	383.4533
59.32	383.4533
59.40	377.9487
59.54	378.1525
59.72	388.9268
60.01	386.3536
61.10	406.0750
61.14	384.9993
61.30	385.2328
63.00	451.5425
63.29	452.0266
63.29	452.0266
63.58	490.5985
64.28	475.0545
65.12	464.2469
65.20	464.3818
65.20	464.3818
66.05	445.8177
66.72	480.7778
66.83	459.0040
66.91	459.1312
67.20	448.0268
67.20	448.0268
67.75	429.1731
67.85	456.0134
68.90	460.0126
68.90	460.0126
69.30	475.8122
69.67	489.2670
70.82	462.6626
70.82	462.6626
70.83	462.6776
72.80	517.6736
72.87	517.7941
72.87	517.7941
74.67	508.2076
74.81	508.4394
74.81	508.4394
74.81	508.4394
74.81	508.4394
74.81	508.4394
74.81	508.4394
74.81	508.4394
74.97	508.7039
75.28	509.2166
75.70	509.9121
77.11	512.2240
77.11	512.2240

77.11	512.2240
77.11	512.2240
77.11	512.2240
77.11	512.2240
77.11	512.2240
78.38	426.1699
79.62	440.6928
79.80	415.1925
79.80	415.1925
80.11	415.5914
80.18	415.6807
80.30	350.5590
80.30	350.5590
80.57	350.8511
81.00	416.7331
81.07	416.8223
81.07	416.8223
81.07	416.8223
81.07	416.8223
82.60	379.8168
83.37	340.4293
83.78	340.8508
83.78	340.8508
83.78	340.8508
83.78	340.8508
84.21	341.2892
84.90	341.9917
85.43	342.5281
86.29	343.3944
86.50	343.6052
86.54	343.6456
86.59	343.6967
86.72	343.8265
86.79	343.8947
86.94	344.0479
87.30	344.4077
87.30	344.4077
87.30	344.4077
87.30	344.4077
87.30	344.4077
87.30	344.4077
87.30	344.4077
87.57	344.6780
87.88	344.9866
88.03	345.1357
88.36	345.4634
88.47	345.5741
89.95	347.0386
91.11	348.1774
92.29	352.2494
92.38	352.3385
92.38	352.3385
93.35	353.2851
94.00	353.9182
94.67	259.6217
94.67	259.6249
94.90	271.1383
94.90	271.1383
94.90	271.1383
94.90	271.1383
95.87	313.5798
95.87	313.5798
96.73	354.8663
97.43	337.7521
98.44	280.9446
98.44	280.9446
98.88	281.2712
99.55	282.6208
99.55	282.6208
99.86	292.2220
100.00	292.3284
100.10	292.4087
103.18	325.6800
103.76	332.1880
105.00	282.2980
105.31	256.6000
108.00	345.3053
109.28	325.4530

111.00	278.6285
111.00	278.6285
111.76	303.7179
112.95	301.0626
115.19	272.5752
116.30	253.7645
117.00	274.6185
117.00	274.6185
117.66	296.4020
121.11	238.6407
121.62	244.3044
121.78	262.3631
122.06	265.2251
122.32	283.3715
122.32	283.3715
122.32	283.3715
122.32	283.3715
123.07	302.7705
127.23	301.4681
129.76	277.9740
131.20	278.8306
133.02	296.9373
133.54	290.3490
135.34	273.4000
136.00	281.6478
136.25	295.6974
136.48	297.6917
140.51	289.8619
140.51	0.0000
142.18	305.8439
142.65	292.0465
143.76	261.6317
144.24	243.9823
144.24	243.9823
144.24	243.9823
144.24	243.9823
145.22	286.9266
145.44	288.9388
147.16	288.9626
152.43	293.8086
152.70	284.3833
153.22	268.3675
154.21	268.8660
154.21	268.8660
154.21	268.8660
154.21	268.8660
155.03	266.3939
156.02	296.7520
158.56	260.3940
159.00	0.0000
159.00	255.7581
160.31	265.1103
161.27	276.2719
162.32	267.0486
162.64	261.3507
163.35	258.7540
163.89	275.6201
165.85	257.9462
167.43	257.6824
171.28	234.6590
171.86	236.8751
172.10	242.9214
176.55	226.7829
176.60	226.8014
181.06	223.4589
184.41	236.8326
185.71	229.2186
186.00	229.3244
190.27	243.6677
192.34	248.0510
193.63	238.2824
197.04	256.0653
198.01	279.1983
198.60	247.3634
200.40	235.5901
201.83	268.3458
202.84	236.4629
205.31	241.5203

208.36	232.1102
208.81	232.2654
209.75	186.2782
209.75	186.2782
210.97	177.1226
215.65	201.6759
216.55	212.5651
218.09	208.7704
222.10	236.7335
223.80	224.4097
226.40	216.5968
227.00	223.2477
227.08	223.2729
227.20	225.4663
228.16	199.8370
228.18	199.8427
228.18	199.8427
231.56	0.0000
235.69	258.6257
236.00	258.7318
236.00	258.7318
238.63	181.8546
238.63	181.8546
238.63	181.8546
238.63	181.8546
239.00	181.9424
240.98	182.4169
241.98	182.6550
241.98	182.6550
241.98	182.6550
244.69	170.6000
245.39	185.6743
247.94	161.8900
248.90	178.7404
249.79	180.0549
252.40	169.4986
252.85	176.2906
252.85	176.2906
254.15	0.0000
256.20	173.6686
256.20	173.6686
260.50	171.2165
260.90	185.9506
262.80	161.5325
264.65	140.9516
268.24	151.7954
268.79	141.0868
269.46	141.2003
269.46	141.2003
269.46	141.2003
269.46	141.2003
271.23	141.4980
273.65	133.8935
276.40	177.3802
277.35	174.7017
277.60	174.7542
277.60	174.7542
278.00	181.1609
278.60	170.9297
279.20	155.4977
279.53	169.3856
280.46	179.9497
281.68	185.7483
283.67	191.0330
284.30	154.0951
285.00	154.2196
285.90	177.5911
286.10	177.6315
286.10	177.6315
287.40	154.6417
288.45	0.0000
290.67	158.2469
290.80	138.6604
291.72	147.2153
293.26	0.0000
293.70	155.9718
295.21	156.2347
295.21	156.2347

295.21	156.2347
295.96	112.6953
296.50	112.7617
297.23	112.8535
298.57	113.0195
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300.09	148.5842
300.09	148.5842
300.12	148.5894
301.29	153.0299
302.84	149.0303
303.76	171.9110
303.91	159.1488
304.40	186.2464
304.40	186.2464
304.84	171.8748
306.84	163.9283
308.46	131.1933
311.98	164.8296
316.51	158.4150
318.01	157.7633
319.02	155.2215
319.41	144.4507
320.08	147.2611
323.87	168.3359
323.87	168.3359
323.87	168.3359
323.87	168.3359
325.23	168.5710
328.77	150.3999
333.44	117.2246
334.20	139.3109
334.20	139.3109
334.30	139.3248
338.28	136.9321
338.28	136.9321
338.28	136.9321
338.28	136.9321
338.32	136.9366
338.32	136.9366
338.32	136.9366
340.50	134.2805
340.57	134.2894
344.27	138.5867
345.85	120.1513
350.59	0.0000
351.07	129.5171
351.92	129.6232
351.92	129.6232
351.92	129.6232
355.39	0.0000
356.01	125.8216
364.48	142.4910
366.43	116.2791
367.43	106.9238
367.94	0.0000
369.80	114.7428
374.96	135.2939
383.85	122.9336
387.95	132.0561
388.63	142.7449
391.69	124.7542
391.69	124.7542
392.90	108.4282
398.62	131.3436
400.65	108.1816
401.10	108.2240
401.81	115.1191
402.60	113.2441
404.84	136.9366
410.95	115.0326
411.60	172.1508
413.65	135.9848
414.70	116.3795
415.30	110.5166

415.76	109.5722
417.63	0.0000
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423.70	108.3048
427.08	105.6151
427.89	101.6965
432.53	102.0794
433.93	107.2025
439.47	94.5952
439.56	95.6088
439.89	95.6335
443.98	115.1324
444.90	92.9813
445.03	91.9803
445.03	91.9803
445.03	91.9803
445.03	91.9803
453.90	105.8488
463.38	111.7443
468.07	88.8904
473.00	103.2623
475.06	98.2500
475.35	98.2717
476.78	102.5182
477.59	92.2172
477.96	91.2065
482.03	94.5991
484.57	83.3179
487.03	100.1616
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492.35	98.4536
497.08	75.6672
507.63	0.0000
510.53	0.0000
510.84	94.4464
511.00	94.4573
511.85	94.5129
511.85	94.5129
513.99	100.3972
513.99	100.3972
520.41	90.8028
520.65	91.8842
527.90	79.4561
528.96	0.0000
529.64	101.0511
529.87	0.0000
531.02	87.1551
537.32	83.2036
543.00	95.4497
546.56	0.0000
549.76	101.3242
552.65	102.6060
555.20	92.9376
563.23	71.4389
563.90	83.5657
568.70	88.2324
569.32	80.5433
569.50	80.5544
569.67	80.5633
573.80	87.4116
574.00	87.4236
574.64	84.1385
578.91	97.6841
579.30	0.0000
583.14	92.3770
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591.81	86.1621
592.07	86.1738
593.00	75.0254
595.88	91.9847
600.56	78.7479
602.52	0.0000
602.71	106.6358
602.71	106.6358
603.60	99.1799
604.41	100.7317
604.70	100.7508
609.31	72.3789

609.31	72.3789
609.31	72.3789
609.31	72.3789
610.33	72.4238
612.46	86.1123
614.37	74.1121
618.01	66.3897
621.84	92.0614
621.84	92.0614
631.29	89.8246
633.02	63.3062
633.10	63.3095
634.78	78.0668
635.90	90.0638
636.97	76.3251
645.85	60.0790
646.12	60.0885
656.30	72.8313
657.75	69.7888
657.90	0.0000
661.65	101.6499
661.65	101.6499
664.57	0.0000
666.33	81.0321
666.33	81.0321
675.00	68.5819
677.61	72.4432
685.20	77.4676
692.80	84.4261
695.00	72.1777
696.49	81.7399
696.49	81.7399
697.00	87.4674
697.49	98.9016
698.33	97.9958
698.50	95.1489
699.00	105.6451
702.63	88.6838
706.10	90.7556
706.58	0.0000
706.67	96.5171
709.31	96.6528
711.68	96.7711
713.82	92.0836
717.42	82.6469
720.50	89.0358
721.93	0.0000
722.20	70.6496
722.78	70.6711
722.78	70.6711
722.89	70.6746
722.95	78.7078
723.30	78.7218
724.18	67.5066
727.18	73.4079
733.00	75.8873
735.90	73.4573
739.58	75.8177
742.81	81.7831
744.21	74.0462
747.13	70.2527
751.79	83.1302
752.31	81.1945
753.82	77.3413
755.35	69.5613
756.15	65.6685
756.87	62.7516
763.93	70.5136
765.79	64.0129
766.42	70.5994
766.84	70.6151
776.49	94.0468
778.00	67.3675
778.57	49.5483
778.89	49.5569
783.80	85.4394
785.46	67.6099
792.07	73.1453



795.84	68.2800
796.30	66.6292
798.80	68.3750
801.93	62.1302
805.60	63.5761
810.29	73.7773
810.76	82.1791
815.85	60.5200
817.79	67.6412
818.51	69.6839
819.60	72.7506
826.30	58.7859
828.27	0.0000
831.60	66.0410
831.96	66.0521
834.83	88.5229
836.80	0.0000
846.75	82.8648
848.13	76.7743
856.28	0.0000
856.80	73.6473
860.37	59.6978
867.32	63.4202
867.82	61.9600
871.10	72.3909
873.19	68.3155
874.81	55.9340
875.33	0.0000
876.40	62.1929
879.36	66.4250
880.27	66.4516
880.51	64.3810
881.50	73.7578
883.24	56.1397
884.67	60.3364
889.25	68.7940
896.60	80.5135
898.02	68.0072
899.00	73.2693
903.28	62.9165
911.07	70.4890
911.07	70.4890
911.07	70.4890
919.63	62.1791
920.93	66.5561
925.00	47.6213
925.24	44.4507
926.50	43.5330
935.52	60.2291
937.48	63.8232
944.10	63.9961
946.00	69.3831
949.00	58.7813
962.29	75.2158
964.01	77.0592
966.15	69.9512
968.20	70.0083
969.11	70.0337
969.11	70.0337
969.11	70.0337
977.42	68.1034
980.50	57.3632
983.50	61.7662
989.30	65.1650
996.32	60.9875
1001.03	57.8264
1001.68	62.2060
1004.76	59.0032
1021.30	0.0000
1024.50	0.0000
1034.80	71.8396
1036.00	66.3457
1037.82	57.1689
1038.57	58.1063
1038.76	0.0000
1045.16	61.9483
1046.59	52.7324
1048.07	67.5702

1050.47	67.6296
1050.47	67.6296
1062.04	78.1553
1063.62	77.2688
1076.63	69.2214
1077.35	61.7542
1078.86	63.6587
1085.78	81.6510
1099.22	72.6136
1112.02	59.6829
1112.84	72.7781
1115.52	73.1721
1120.29	57.0068
1120.29	57.0068
1120.29	57.0068
1120.29	57.0068
1120.51	65.1563
1121.28	60.8281
1124.00	0.0000
1129.67	75.1703
1131.51	0.0000
1147.95	0.0000
1167.94	84.9922
1173.22	77.4056
1175.09	91.0090
1177.93	92.0622
1189.05	85.5973
1204.90	94.8489
1205.75	0.0000
1213.00	75.4930
1221.42	70.7842
1230.97	79.8794
1235.34	111.7341
1236.41	0.0000
1238.25	82.0442
1246.25	69.6537
1260.41	0.0000
1271.85	59.9438
1274.45	61.9924
1274.54	58.9928
1291.56	64.3333
1298.22	0.0000
1312.09	41.4738
1325.50	41.6423
1325.50	41.6423
1332.49	25.4456
1333.61	30.5444
1360.21	31.8136
1362.66	0.0000
1365.15	30.8325
1368.21	30.8594
1368.53	0.0000
1376.25	21.2109
1384.27	24.8037
1394.10	31.0938
1395.20	34.2139
1407.95	31.2170
1434.06	14.6762
1436.60	18.8826
1457.56	0.0000
1460.81	17.9546
1489.15	26.6093
1509.49	21.4046
1596.49	38.4775
1620.62	16.9962
1678.03	0.0000
1691.02	11.5296
1691.02	11.5296
1706.46	0.0000
1750.46	0.0000
1764.49	10.2660
1764.49	10.2660
1764.49	10.2660
1764.49	10.2660
1770.23	10.2795
1771.40	60.7155
1791.20	0.0000
1808.65	11.8523

1836.01

15.9012

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229007

Total Uranium Activity	4.5827E+00	ug/g
Total Uranium Counting Unc.	2.0269E+00	ug/g
Total Uranium Tpu	1.0341E-06	ug/g
Total Uranium Mda	1.1958E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                                   *
*                               CHARLESTON , SC 29417                             *
*                               GROSS GAMMA REPORT                               *
*
*****
*
*  BATCH ID      : 941239                SAMPLE ID   : G244229007                *
*  ANALYST       : MXR1                  DETECTOR    : GAM25                    *
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE: 22-JAN-2010 13:40:43.60  SAMPLE ALQT: 131.270 GRAM          *
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.167E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.687E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 4.339E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 2.110E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 16:03:56.23

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229008.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:03:29
Sample ID      : G244229008      Sample quantity   : 1.18760E+02 GRAM
Detector name   : GAM11          Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.73 0.0%
Energy tolerance : 1.50000 keV   Analyst Initials  : MXR1
Abundance limit  : 75.00000      Sensitivity    : 5.00000
Batch ID        : 941239         Detector SN#    :
Matrix Spike ID :                 LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.20*	56	288	0.70	91.26	88	6	7.74E-03	52.2	
2	0	63.07*	211	481	0.95	125.02	121	8	2.93E-02	19.7	
3	3	74.84*	363	422	0.85	148.57	145	19	5.04E-02	10.0	1.10E+00
4	3	77.11*	559	363	0.84	153.12	145	19	7.76E-02	6.8	
5	0	83.94*	134	337	1.38	166.78	164	6	1.86E-02	24.1	
6	0	86.40*	124	537	0.99	171.71	171	7	1.72E-02	32.3	
7	4	89.91	178	225	1.00	178.74	177	15	2.47E-02	13.7	3.43E+00
8	4	92.70*	576	345	1.20	184.33	177	15	8.01E-02	7.2	
9	0	144.30*	54	268	0.63	287.60	284	7	7.51E-03	53.7	
10	0	185.87*	426	298	1.13	370.80	365	12	5.91E-02	9.8	
11	0	209.11	99	241	0.91	417.31	414	8	1.38E-02	28.7	
12	0	238.68*	1125	250	1.09	476.49	472	8	1.56E-01	3.9	
13	0	241.84*	192	257	0.76	482.83	481	7	2.67E-02	16.7	
14	0	269.89*	54	214	1.07	538.95	536	9	7.53E-03	51.4	
15	0	295.37*	310	250	1.05	589.96	584	11	4.31E-02	11.5	
16	0	300.09	84	173	1.11	599.40	595	9	1.17E-02	30.1	
17	0	328.58	104	145	1.71	656.43	652	11	1.45E-02	24.4	
18	0	338.39	196	178	0.85	676.05	672	9	2.72E-02	14.2	
19	0	351.98*	726	151	1.19	703.26	696	14	1.01E-01	5.2	
20	0	511.22*	103	162	1.57	1021.93	1015	15	1.44E-02	32.6	
21	0	583.40*	403	73	1.25	1166.38	1161	12	5.60E-02	6.7	
22	0	609.65*	470	72	1.36	1218.91	1214	12	6.52E-02	6.1	
23	0	662.03	542	87	1.28	1323.72	1318	12	7.52E-02	5.5	
24	0	728.34	63	105	1.34	1456.42	1451	13	8.71E-03	35.5	
25	0	795.35*	46	43	1.54	1590.50	1586	10	6.44E-03	30.8	
26	0	911.71*	267	67	1.55	1823.33	1816	15	3.70E-02	9.2	
27	6	965.54	42	57	2.07	1931.04	1927	25	5.86E-03	31.3	1.97E+00
28	6	969.58*	139	47	1.71	1939.12	1927	25	1.92E-02	13.2	
29	0	1003.29*	21	71	5.16	2006.57	1997	16	2.93E-03	94.8	
30	0	1121.30*	122	47	1.40	2242.68	2236	14	1.70E-02	15.3	
31	0	1238.83	59	45	1.47	2477.82	2470	12	8.15E-03	26.3	
32	0	1461.63*	1185	24	1.96	2923.54	2915	16	1.65E-01	3.1	
33	0	1589.76	21	21	2.26	3179.86	3171	14	2.95E-03	50.5	
34	0	1631.02	18	5	1.35	3262.39	3257	10	2.50E-03	33.1	
35	0	1765.77*	67	15	1.62	3531.93	3526	12	9.25E-03	17.4	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229008.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 14:03:29
Sample ID        : G244229008             Sample quantity  : 118.76 GRAM
Sample type       : SOLID                  Sample geometry   :
Detector name     : GAMMA11               Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:01.73   0.0%
Peak Width (FWHM): 3.00                   Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                    Systematic Error  : 0.00 %
Efficiency type   : Empirical              Efficiencies at   : Peak Energy
Abundance limit   : 75.00                 WTM error limit   : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.865E+01	3.037E+00	4.079E-01	3.527E-02	70.233
SN-126	+	64.28		1.637E+00	6.885E-01	6.169E-01	8.948E-02	2.654
	+	86.94		6.506E-01	4.993E-01	3.920E-01	1.627E-01	1.660
	+	87.57	*	1.565E-01	1.021E-01	1.223E-01	1.154E-02	1.279
BA-137M	+	661.65	*	7.927E-01	1.151E-01	5.769E-02	5.459E-03	13.741
CS-137	+	661.65	*	8.380E-01	1.218E-01	6.099E-02	5.780E-03	13.741
CE-141	+	145.44	*	7.089E-02	7.642E-02	9.122E-02	8.360E-03	0.777
TL-208		277.35		2.830E-01	3.549E-01	5.947E-01	1.054E-01	0.476
	+	510.84		5.127E-01	3.418E-01	2.279E-01	3.090E-02	2.249
	+	583.14	*	5.690E-01	9.777E-02	4.997E-02	5.396E-03	11.388
		860.37		5.496E-01	3.251E-01	6.037E-01	6.288E-02	0.910
BI-210	+	46.50	*	2.974E+00	3.116E+00	3.490E+00	3.249E-01	0.852
PB-210	+	46.50	*	2.974E+00	3.116E+00	3.490E+00	3.249E-01	0.852
PO-210	+	46.50	*	2.974E+00	3.114E+00	3.490E+00	2.942E-01	0.852
BI-211		72.87		2.463E+00	2.834E+00	4.264E+00	3.387E-01	0.578
	+	351.07	*	4.524E+00	7.585E-01	2.817E-01	3.717E-02	16.057
PB-212	+	74.81		1.852E+00	4.359E-01	4.580E-01	5.665E-02	4.043
	+	77.11		1.630E+00	2.602E-01	2.625E-01	2.181E-02	6.210
	+	87.30		7.238E-01	4.776E-01	5.668E-01	7.779E-02	1.277
	+	238.63	*	1.531E+00	2.455E-01	9.228E-02	1.292E-02	16.588
	+	300.09		1.772E+00	1.105E+00	1.147E+00	1.838E-01	1.545
PO-212	+	74.81		1.852E+00	4.359E-01	4.580E-01	5.665E-02	4.043
	+	77.11		1.630E+00	2.602E-01	2.625E-01	2.181E-02	6.210
	+	87.30		7.238E-01	4.776E-01	5.668E-01	7.779E-02	1.277
		115.19		1.104E+00	2.920E+00	5.049E+00	4.278E-01	0.219
	+	238.63	*	1.531E+00	2.455E-01	9.228E-02	1.292E-02	16.588
	+	300.09		1.772E+00	1.105E+00	1.147E+00	1.838E-01	1.545
BI-214	+	609.31	*	1.248E+00	2.071E-01	1.019E-01	1.152E-02	12.255
	+	1120.29		1.673E+00	5.425E-01	4.835E-01	5.221E-02	3.461
	+	1764.49		1.245E+00	4.464E-01	2.519E-01	2.076E-02	4.942
PB-214	+	74.81		3.190E+00	7.287E-01	7.891E-01	8.664E-02	4.043
	+	77.11		2.794E+00	4.942E-01	4.500E-01	5.073E-02	6.210
	+	87.30		1.240E+00	8.144E-01	9.709E-01	1.180E-01	1.277
	+	241.98		1.573E+00	5.719E-01	5.228E-01	7.616E-02	3.009

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.143E+00	3.223E-01	2.067E-01	3.370E-02	5.532
	+	351.92	*	1.574E+00	2.763E-01	9.821E-02	1.390E-02	16.023
	+	74.81		3.190E+00	7.287E-01	7.891E-01	8.664E-02	4.043
	+	77.11		2.794E+00	4.942E-01	4.500E-01	5.073E-02	6.210
	+	87.30		1.240E+00	8.144E-01	9.709E-01	1.180E-01	1.277
PO-216	+	241.98		1.573E+00	5.719E-01	5.228E-01	7.616E-02	3.009
	+	295.21		1.143E+00	3.223E-01	2.067E-01	3.370E-02	5.532
	+	351.92	*	1.574E+00	2.763E-01	9.821E-02	1.390E-02	16.023
	+	74.81		1.852E+00	4.359E-01	4.580E-01	5.665E-02	4.043
	+	77.11		1.630E+00	2.602E-01	2.625E-01	2.181E-02	6.210
PO-218	+	87.30		7.238E-01	4.776E-01	5.668E-01	7.779E-02	1.277
	+	238.63	*	1.531E+00	2.455E-01	9.228E-02	1.292E-02	16.588
	+	300.09		1.772E+00	1.105E+00	1.147E+00	1.838E-01	1.545
	+	74.81		3.190E+00	7.287E-01	7.891E-01	8.664E-02	4.043
	+	77.11		2.794E+00	4.942E-01	4.500E-01	5.073E-02	6.210
RA-224	+	87.30		1.240E+00	8.144E-01	9.709E-01	1.180E-01	1.277
	+	241.98		1.573E+00	5.719E-01	5.228E-01	7.616E-02	3.009
	+	295.21		1.143E+00	3.223E-01	2.067E-01	3.370E-02	5.532
	+	351.92	*	1.574E+00	2.763E-01	9.821E-02	1.390E-02	16.023
	+	240.98	*	2.982E+00	1.072E+00	1.173E+00	1.571E-01	2.543
RA-226	+	609.31	*	1.248E+00	2.071E-01	1.019E-01	1.152E-02	12.255
	+	1120.29		1.673E+00	5.425E-01	4.835E-01	5.221E-02	3.461
	+	1764.49		1.245E+00	4.464E-01	2.519E-01	2.076E-02	4.942
	+	338.32		1.343E+00	6.874E-01	3.627E-01	1.543E-01	3.703
	+	911.07	*	1.660E+00	3.671E-01	1.990E-01	2.423E-02	8.339
RA-228	+	969.11		1.519E+00	5.382E-01	3.436E-01	8.144E-02	4.419
	+	338.32		1.343E+00	6.874E-01	3.627E-01	1.543E-01	3.703
	+	911.07	*	1.660E+00	3.671E-01	1.990E-01	2.423E-02	8.339
	+	969.11		1.519E+00	5.382E-01	3.436E-01	8.144E-02	4.419
	+	74.81		1.881E+00	4.071E-01	4.653E-01	3.807E-02	4.043
TH-228	+	77.11		1.656E+00	2.644E-01	2.667E-01	2.216E-02	6.210
	+	87.30		7.354E-01	4.797E-01	5.759E-01	5.414E-02	1.277
	+	238.63	*	1.556E+00	2.495E-01	9.377E-02	1.313E-02	16.588
	+	300.09		1.801E+00	1.538E+00	1.165E+00	7.052E-01	1.545
	+	609.31	*	1.248E+00	2.071E-01	1.019E-01	1.151E-02	12.255
TH-230	+	1120.29		1.673E+00	5.425E-01	4.835E-01	5.221E-02	3.461
	+	1764.49		1.245E+00	4.464E-01	2.519E-01	2.076E-02	4.942
	+	338.32		1.343E+00	4.228E-01	3.627E-01	4.890E-02	3.703
	+	911.07	*	1.660E+00	3.671E-01	1.990E-01	2.423E-02	8.339
	+	969.11		1.519E+00	5.382E-01	3.436E-01	8.144E-02	4.419
TH-234	+	63.29	*	4.136E+00	1.784E+00	1.505E+00	2.618E-01	2.748
	+	92.38		4.773E+00	1.111E+00	6.001E-01	1.101E-01	7.954
	+	609.31	*	1.248E+00	2.071E-01	1.019E-01	1.151E-02	12.255
	+	1120.29		1.673E+00	5.425E-01	4.835E-01	5.221E-02	3.461
	+	1764.49		1.245E+00	4.464E-01	2.519E-01	2.076E-02	4.942
U-235	+	89.95		3.002E+00	1.243E+00	1.492E+00	4.633E-01	2.012
	+	93.35		5.738E+00	1.815E+00	7.183E-01	2.024E-01	7.988
	+	105.00		1.775E+00	1.010E+00	1.589E+00	4.743E-01	1.117
	+	143.76	*	2.317E-01	2.522E-01	3.008E-01	5.318E-02	0.770



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		163.35		1.591E-01	4.261E-01	7.222E-01	1.412E-01	0.220
	+	185.71		4.047E-01	9.012E-02	5.950E-02	6.310E-03	6.801
		205.31		4.738E-01	5.452E-01	8.352E-01	1.718E-01	0.567
NP-237	+	86.50	*	4.595E-01	3.144E-01	3.466E-01	7.846E-02	1.326
		95.87		-7.090E-02	8.698E-01	1.233E+00	3.053E-01	-0.057
U-238	+	63.29	*	4.136E+00	1.784E+00	1.505E+00	2.618E-01	2.748
	+	92.38		4.773E+00	8.114E-01	6.001E-01	5.495E-02	7.954
AM-243	+	74.67	*	3.002E-01	6.486E-02	7.442E-02	6.022E-03	4.033
	+	86.72		1.723E+01	1.124E+01	1.040E+01	9.704E-01	1.657
		117.66		-1.463E+00	3.168E+00	5.280E+00	4.466E-01	-0.277
		142.18		-1.318E+01	1.733E+01	2.504E+01	2.233E+00	-0.526
ANH-511	+	511.00	*	1.107E-01	7.324E-02	4.925E-02	5.266E-03	2.249

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-1.406E-02	3.034E-01	5.046E-01	5.711E-02	-0.028
NA-22		1274.54	*	-1.809E-02	4.339E-02	6.712E-02	5.512E-03	-0.270
NA-24		1368.53	*	1.064E-01	4.339E-02	Half-Life too short		
AL-26		1129.67		5.006E-01	1.720E+00	2.837E+00	2.396E-01	0.176
		1808.65	*	-1.978E-02	2.758E-02	3.768E-02	3.076E-03	-0.525
TI-44		67.85		1.270E-02	3.546E-02	5.696E-02	4.316E-03	0.223
	+	78.38	*	3.008E-01	4.801E-02	5.880E-02	4.957E-03	5.116
SC-46		889.25	*	-1.343E-02	3.207E-02	5.121E-02	5.044E-03	-0.262
	+	1120.51		2.887E-01	9.163E-02	1.346E-01	1.148E-02	2.145
V-48		944.10		3.495E-01	8.558E-01	1.486E+00	1.437E-01	0.235
		983.50	*	-4.572E-02	6.679E-02	1.025E-01	9.724E-03	-0.446
		1312.09		4.711E-02	8.925E-02	1.532E-01	1.263E-02	0.308
CR-51		320.08	*	1.697E-01	3.578E-01	5.897E-01	8.559E-02	0.288
MN-52		744.21		5.609E-03	2.533E-01	4.089E-01	3.973E-02	0.014
		848.13		-3.638E+00	6.229E+00	9.810E+00	9.666E-01	-0.371
		935.52		2.746E-01	2.839E-01	5.124E-01	4.975E-02	0.536
		1246.25		-1.231E+00	8.896E+00	1.431E+01	1.168E+00	-0.086
		1333.61		-2.147E-02	5.746E+00	9.300E+00	7.687E-01	-0.002
		1434.06	*	-5.250E-02	2.389E-01	3.694E-01	3.095E-02	-0.142
MN-54		834.83	*	1.303E-02	3.593E-02	6.236E-02	6.141E-03	0.209
CO-56		846.75	*	-9.774E-03	3.286E-02	5.361E-02	5.282E-03	-0.182
		977.42		-4.321E-01	3.027E+00	4.279E+00	4.073E-01	-0.101
		1037.82		6.250E-03	2.950E-01	4.897E-01	4.699E-02	0.013
		1175.09		1.040E+00	2.171E+00	3.723E+00	2.993E-01	0.279
	+	1238.25		2.274E-01	1.213E-01	1.788E-01	1.505E-02	1.272
		1360.21		-2.517E-01	9.389E-01	1.455E+00	1.208E-01	-0.173
		1771.40		-3.488E-03	2.799E-01	3.960E-01	3.258E-02	-0.009
CO-57		122.06	*	2.563E-02	2.217E-02	3.925E-02	3.320E-03	0.653
		136.48		-1.867E-01	1.808E-01	2.900E-01	2.724E-02	-0.644
CO-58		810.76	*	-4.153E-02	4.020E-02	5.629E-02	5.542E-03	-0.738
FE-59		142.65		-9.885E-01	2.836E+00	4.145E+00	3.702E-01	-0.239
		192.34		-1.346E-01	8.294E-01	1.361E+00	2.042E-01	-0.099

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-60	1099.22	*		3.583E-03	8.831E-02	1.461E-01	1.374E-02	0.025
	1291.56			-1.213E-01	1.154E-01	1.596E-01	1.506E-02	-0.760
	1173.22			-2.767E-03	4.469E-02	7.278E-02	5.847E-03	-0.038
	1332.49	*		-3.100E-04	4.026E-02	6.513E-02	5.382E-03	-0.005
ZN-65	1115.52	*		1.823E-04	9.764E-02	1.392E-01	1.195E-02	0.001
GE-68	1077.35	*		4.342E-01	1.215E+00	2.076E+00	1.844E-01	0.209
AS-73	53.44	*		4.487E-01	6.250E-01	1.032E+00	7.747E-02	0.435
AS-74	595.88	*		8.113E-02	8.757E-02	1.543E-01	1.568E-02	0.526
SE-75	634.78			2.559E-01	3.585E-01	6.200E-01	6.064E-02	0.413
	66.05			-1.566E+00	4.087E+00	5.802E+00	5.513E-01	-0.270
	96.73			-9.184E-01	7.708E-01	9.992E-01	1.381E-01	-0.919
	121.11			7.977E-02	1.203E-01	2.093E-01	2.321E-02	0.381
BR-77	136.00			-2.596E-02	3.460E-02	5.642E-02	4.967E-03	-0.460
	198.60			3.053E-01	1.619E+00	2.645E+00	3.163E-01	0.115
	264.65	*		6.066E-03	4.146E-02	6.780E-02	9.965E-03	0.089
	279.53			-5.110E-04	1.041E-01	1.681E-01	2.632E-02	-0.003
	303.91			4.350E-01	2.256E+00	3.276E+00	5.446E-01	0.133
	400.65			3.148E-02	2.354E-01	4.013E-01	5.134E-02	0.078
	87.88	+		4.563E+02	2.976E+02	3.875E+02	3.670E+01	1.177
	200.40			-1.156E+02	1.919E+02	3.063E+02	3.464E+01	-0.377
	239.00	+		3.261E+02	5.021E+01	4.972E+01	6.606E+00	6.559
	249.79			2.934E+00	7.934E+01	1.294E+02	1.794E+01	0.023
	281.68			-5.483E+00	1.161E+02	1.869E+02	2.882E+01	-0.029
	297.23			1.409E+02	9.734E+01	1.258E+02	1.887E+01	1.120
	303.76			4.406E+01	2.516E+02	3.650E+02	5.402E+01	0.121
	439.47			-5.392E+01	1.818E+02	2.990E+02	3.225E+01	-0.180
	484.57			1.649E+02	2.869E+02	4.976E+02	5.356E+01	0.331
	520.65	*		-6.099E-01	1.386E+01	2.290E+01	2.441E+00	-0.027
	574.64			1.920E+01	2.529E+02	4.188E+02	4.331E+01	0.046
	578.91			2.794E+00	1.078E+02	1.560E+02	1.609E+01	0.018
	585.48			1.489E+03	3.514E+02	6.116E+02	6.273E+01	2.435
	755.35			1.280E+02	2.321E+02	3.912E+02	3.811E+01	0.327
	817.79			-6.706E+01	1.594E+02	2.416E+02	2.376E+01	-0.278
SR-82	698.33			-5.392E+01	3.653E+01	5.070E+01	4.862E+00	-1.064
	776.49	*		-5.375E-01	3.530E-01	4.561E-01	4.460E-02	-1.179
RB-83	1395.20			-4.105E+00	9.588E+00	1.427E+01	1.190E+00	-0.288
	520.41	*		1.753E-02	6.764E-02	1.143E-01	1.218E-02	0.153
	529.64			-1.329E-01	1.034E-01	1.514E-01	1.608E-02	-0.878
	552.65			4.600E-03	1.928E-01	3.189E-01	3.345E-02	0.014
RB-84	881.50	*		7.774E-04	6.719E-02	1.129E-01	1.113E-02	0.007
KR-85	513.99	*		1.095E+01	7.714E+00	1.263E+01	1.349E+00	0.867
SR-85	513.99	*		5.670E-02	3.996E-02	6.540E-02	6.986E-03	0.867
RB-86	1076.63	*		6.201E-01	7.993E-01	1.417E+00	1.259E-01	0.438
Y-88	898.02			1.520E-02	3.975E-02	6.895E-02	6.813E-03	0.220
	1836.01	*		6.622E-03	3.809E-02	6.457E-02	5.242E-03	0.103
ZR-88	392.90	*		-9.639E-03	2.872E-02	4.754E-02	5.070E-03	-0.203
Y-91	1204.90	*		4.619E+00	1.797E+01	3.012E+01	2.438E+00	0.153
NB-94	702.63	*		3.562E-02	3.411E-02	5.972E-02	5.735E-03	0.596
	871.10			3.911E-03	3.017E-02	5.136E-02	5.062E-03	0.076

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95		765.79	*	-1.345E-04	4.355E-02	6.996E-02	6.829E-03	-0.002
NB-95M		235.69	*	4.956E-03	1.232E-01	1.803E-01	2.517E-02	0.027
ZR-95		724.18		-1.108E-02	1.034E-01	1.438E-01	1.486E-02	-0.077
		756.15	*	6.937E-03	7.574E-02	1.228E-01	1.293E-02	0.056
NB-97		657.90	*	1.238E-01	7.574E-02	Half-Life	too short	
		1024.50		5.504E-01	7.574E-02	Half-Life	too short	
ZR-97		254.15		4.278E+00	7.574E-02	Half-Life	too short	
		355.39		-3.757E+00	7.574E-02	Half-Life	too short	
		507.63	*	6.909E+00	7.574E-02	Half-Life	too short	
		602.52		-1.878E+00	7.574E-02	Half-Life	too short	
		1021.30		-1.431E+01	7.574E-02	Half-Life	too short	
		1147.95		-2.958E+00	7.574E-02	Half-Life	too short	
		1362.66		-3.606E+00	7.574E-02	Half-Life	too short	
		1750.46		1.482E+00	7.574E-02	Half-Life	too short	
MO-99		140.51		2.066E+00	3.223E+01	4.856E+01	1.348E+01	0.043
		181.06		3.577E+00	2.111E+01	3.176E+01	6.093E+00	0.113
		366.43		-1.056E+02	1.090E+02	1.581E+02	1.916E+01	-0.668
		739.58	*	-1.657E+01	1.505E+01	2.118E+01	3.351E+00	-0.782
		778.00		-2.637E+01	3.661E+01	5.341E+01	5.225E+00	-0.494
TC-99M		140.51	*	3.422E+10	3.661E+01	Half-Life	too short	
RH-101		127.23		1.242E-03	2.738E-02	4.650E-02	3.971E-03	0.027
		198.01	*	1.771E-02	2.973E-02	4.946E-02	5.536E-03	0.358
		325.23		2.937E-01	2.176E-01	3.435E-01	4.820E-02	0.855
RH-102		418.52		1.384E-01	2.569E-01	4.482E-01	4.818E-02	0.309
		475.06	*	-3.589E-03	2.949E-02	4.883E-02	5.264E-03	-0.073
		631.29		-2.914E-02	5.436E-02	8.444E-02	8.293E-03	-0.345
		697.49		-1.467E-01	8.288E-02	1.111E-01	1.066E-02	-1.320
		766.84		5.568E-02	1.117E-01	1.868E-01	1.824E-02	0.298
		1046.59		-8.579E-02	1.070E-01	1.608E-01	1.464E-02	-0.533
		1112.84		-1.601E-01	2.231E-01	3.278E-01	2.817E-02	-0.488
RU-103		497.08	*	4.110E-03	3.775E-02	6.336E-02	9.846E-03	0.065
	+	610.33		1.371E+01	2.917E+00	3.111E+00	5.432E-01	4.408
RH-106		511.85		5.541E-01	3.665E-01	4.574E-01	4.890E-02	1.211
		621.84	*	2.059E-01	3.098E-01	5.329E-01	7.584E-02	0.386
		1050.47		-4.389E-02	2.300E+00	3.798E+00	3.447E-01	-0.012
RU-106		511.85		5.541E-01	3.665E-01	4.574E-01	4.890E-02	1.211
		621.84	*	2.059E-01	3.091E-01	5.329E-01	5.287E-02	0.386
		1050.47		-4.389E-02	2.300E+00	3.798E+00	3.447E-01	-0.012
AG-108M		433.93	*	1.527E-02	3.134E-02	5.431E-02	6.004E-03	0.281
		614.37		-2.407E-02	3.772E-02	4.927E-02	5.069E-03	-0.489
		722.95		3.975E-02	4.228E-02	6.680E-02	6.657E-03	0.595
CD-109		88.03	*	7.179E-01	1.022E+00	1.333E+00	1.264E-01	0.538
AG-110M		657.75	*	1.931E-02	3.915E-02	5.899E-02	5.749E-03	0.327
		677.61		6.477E-03	2.759E-01	4.490E-01	4.373E-02	0.014
		706.67		3.718E-02	1.982E-01	3.263E-01	3.207E-02	0.114
		763.93		-1.563E-01	1.666E-01	2.425E-01	2.419E-02	-0.645
		884.67		-2.801E-03	4.031E-02	6.713E-02	6.777E-03	-0.042
		937.48		1.236E-02	1.072E-01	1.811E-01	1.807E-02	0.068
		1384.27		2.133E-03	1.530E-01	2.473E-01	2.123E-02	0.009

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IN-111	171.28			5.753E-01	1.158E+00	1.972E+00	1.962E-01	0.292
	245.39	*		8.510E-01	1.307E+00	1.992E+00	2.715E-01	0.427
IN-113M	391.69	*		-8.901E-03	4.173E-02	6.967E-02	7.578E-03	-0.128
SN-113	391.69	*		-8.901E-03	4.173E-02	6.967E-02	7.578E-03	-0.128
IN-114M	190.27	*		2.102E-03	1.673E-01	2.485E-01	2.688E-02	0.008
CD-115	260.90			-7.176E+01	1.666E+02	2.627E+02	3.802E+01	-0.273
	492.35			1.741E+00	4.514E+01	7.540E+01	8.104E+00	0.023
	527.90	*		-1.159E+01	1.401E+01	2.154E+01	2.289E+00	-0.538
SN-117M	156.02			-1.228E+00	2.041E+00	3.320E+00	3.108E-01	-0.370
	158.56	*		-7.595E-03	4.834E-02	8.033E-02	7.592E-03	-0.095
SB-122	563.90	*		3.352E-01	2.642E+00	4.396E+00	4.580E-01	0.076
	692.80			4.721E+01	5.879E+01	1.012E+02	9.687E+00	0.466
I-123	159.00	*		2.324E+00	5.879E+01	Half-Life too short		
	528.96			-1.270E+03	5.879E+01	Half-Life too short		
TE-123M	159.00	*		3.383E-03	2.438E-02	4.107E-02	3.907E-03	0.082
I-124	602.71	*		-1.388E-01	7.391E-01	1.193E+00	1.205E-01	-0.116
	722.78			5.019E+00	5.198E+00	8.234E+00	7.956E-01	0.610
	1325.50			3.038E+00	3.966E+01	6.490E+01	5.359E+00	0.047
	1376.25			3.779E+01	3.594E+01	6.537E+01	5.440E+00	0.578
	1509.49			1.307E+01	1.561E+01	2.932E+01	2.468E+00	0.446
SB-124	1691.02			-4.809E-01	4.156E+00	6.738E+00	5.618E-01	-0.071
	602.71			-6.949E-03	3.699E-02	5.970E-02	6.034E-03	-0.116
	645.85			3.499E-01	4.687E-01	8.141E-01	8.239E-02	0.430
	709.31			-2.372E+00	2.722E+00	4.016E+00	3.865E-01	-0.591
	713.82			7.700E-01	1.673E+00	2.811E+00	3.594E-01	0.274
	722.78			3.641E-01	3.772E-01	5.974E-01	5.871E-02	0.610
+	968.20			1.581E+01	4.432E+00	7.447E+00	7.121E-01	2.123
	1045.16			-6.600E-01	2.294E+00	3.677E+00	3.350E-01	-0.180
	1325.50			2.354E-01	3.073E+00	5.029E+00	4.153E-01	0.047
	1368.21			3.370E-01	1.615E+00	2.691E+00	3.574E-01	0.125
	1436.60			-5.902E-01	3.352E+00	5.220E+00	4.375E-01	-0.113
SB-125	1691.02	*		-8.230E-03	7.113E-02	1.153E-01	1.002E-02	-0.071
	427.89	*		1.755E-02	8.701E-02	1.483E-01	1.618E-02	0.118
	463.38			4.360E-01	2.903E-01	5.226E-01	5.926E-02	0.834
	600.56			2.879E-02	1.671E-01	2.779E-01	2.966E-02	0.104
	635.90			1.361E-01	2.607E-01	4.444E-01	4.617E-02	0.306
TE-125M	109.28	*		9.885E+00	7.685E+00	1.369E+01	1.405E+00	0.722
I-126	388.63			1.229E-01	2.051E-01	3.593E-01	3.897E-02	0.342
	666.33	*		1.675E-01	1.868E-01	2.964E-01	2.809E-02	0.565
	753.82			1.852E+00	1.654E+00	2.902E+00	2.826E-01	0.638
SB-126	223.80			-7.340E-01	3.874E+00	6.285E+00	7.849E-01	-0.117
	278.60			2.375E+00	2.459E+00	4.156E+00	6.421E-01	0.571
+	296.50			1.202E+01	3.303E+00	3.663E+00	5.503E-01	3.280
	414.70			2.478E-02	7.076E-02	1.221E-01	1.311E-02	0.203
	415.30			2.213E+00	5.796E+00	1.002E+01	1.077E+00	0.221
	555.20			-3.256E-01	4.217E+00	6.916E+00	7.245E-01	-0.047
	573.80			-8.600E-02	1.017E+00	1.661E+00	1.719E-01	-0.052
	593.00			-9.187E-01	8.857E-01	1.302E+00	1.328E-01	-0.705
	656.30			3.410E+00	3.788E+00	5.973E+00	5.692E-01	0.571

----- Non-Identified Nuclides -----

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SB-127		666.33		7.014E-02	7.825E-02	1.241E-01	1.177E-02	0.565
		675.00		-7.510E-02	1.704E+00	2.754E+00	2.619E-01	-0.027
		695.00		7.606E-02	9.139E-02	1.488E-01	1.426E-02	0.511
		697.00		-4.184E-01	3.206E-01	4.260E-01	4.084E-02	-0.982
		720.50	*	-8.593E-02	1.543E-01	2.360E-01	2.279E-02	-0.364
		856.80		-5.191E-01	5.343E-01	8.239E-01	8.119E-02	-0.630
		989.30		4.281E-03	1.202E+00	2.000E+00	1.891E-01	0.002
		1034.80		-8.091E+00	8.738E+00	1.293E+01	1.187E+00	-0.626
		1213.00		-1.640E+00	4.899E+00	7.740E+00	6.276E-01	-0.212
		61.10		-1.748E+01	5.704E+01	8.208E+01	8.553E+00	-0.213
		252.40		-4.260E+00	5.085E+00	7.269E+00	3.164E+00	-0.586
		290.80		-8.210E+00	2.712E+01	3.785E+01	6.418E+00	-0.217
		411.60		-1.219E+01	1.374E+01	2.156E+01	3.701E+00	-0.566
		444.90		2.070E+00	1.096E+01	1.863E+01	2.672E+00	0.111
		473.00		2.149E+00	2.094E+00	3.690E+00	5.399E-01	0.582
		543.00		3.703E+00	1.863E+01	3.127E+01	4.952E+00	0.118
		603.60		-2.961E+00	1.411E+01	2.095E+01	2.893E+00	-0.141
		685.20	*	-4.485E-02	1.491E+00	2.412E+00	2.984E-01	-0.019
		698.50		-2.683E+01	1.927E+01	2.647E+01	4.386E+00	-1.013
		722.20		2.111E+01	3.617E+01	5.737E+01	7.031E+00	0.368
XE-127		783.80		2.963E-01	4.457E+00	7.190E+00	9.711E-01	0.041
		57.60		-2.078E+00	4.721E+00	7.363E+00	5.300E-01	-0.282
	+	145.22		7.799E-01	8.406E-01	1.082E+00	9.743E-02	0.721
		172.10		3.573E-02	1.110E-01	1.876E-01	1.874E-02	0.190
I-131		202.84	*	4.785E-03	4.429E-02	7.344E-02	8.394E-03	0.065
		374.96		-1.930E-01	2.073E-01	3.020E-01	3.517E-02	-0.639
		80.18		-4.206E+00	4.700E+00	6.429E+00	5.574E-01	-0.654
		284.30		1.404E+00	1.597E+00	2.688E+00	4.199E-01	0.522
TE-132		364.48	*	3.703E-02	1.231E-01	1.993E-01	2.503E-02	0.186
		636.97		-1.996E-01	1.627E+00	2.626E+00	2.676E-01	-0.076
		722.89		7.353E+00	7.746E+00	1.225E+01	1.191E+00	0.600
		49.72		2.875E+00	1.560E+01	2.526E+01	2.678E+00	0.114
BA-133		111.76		-9.214E+00	3.070E+01	5.121E+01	5.648E+00	-0.180
		116.30		8.027E+00	2.787E+01	4.801E+01	5.279E+00	0.167
		228.16	*	2.035E-01	7.481E-01	1.242E+00	2.290E-01	0.164
		53.15		1.596E+00	2.670E+00	4.386E+00	3.306E-01	0.364
I-133		79.62		-1.062E+00	1.221E+00	1.664E+00	2.527E-01	-0.639
		81.00		-1.019E-01	9.286E-02	1.237E-01	1.970E-02	-0.823
		276.40		5.963E-02	3.511E-01	5.728E-01	1.101E-01	0.104
		302.84		-5.319E-02	1.529E-01	2.113E-01	3.793E-02	-0.252
I-133		356.01	*	-1.173E-02	4.132E-02	5.625E-02	9.072E-03	-0.209
		383.85		-1.169E-01	2.753E-01	4.530E-01	6.542E-02	-0.258
	+	510.53		2.445E+00	2.753E-01	Half-Life	too short	
		529.87	*	-1.592E-02	2.753E-01	Half-Life	too short	
		706.58		1.523E-01	2.753E-01	Half-Life	too short	
		856.28		-4.963E-01	2.753E-01	Half-Life	too short	
		875.33		-2.172E-01	2.753E-01	Half-Life	too short	
		1236.41		7.597E-01	2.753E-01	Half-Life	too short	
		1298.22		5.069E-01	2.753E-01	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-134		475.35		-5.359E-01	1.897E+00	3.104E+00	3.346E-01	-0.173
		563.23		2.342E-01	3.554E-01	6.138E-01	6.438E-02	0.382
		569.32		2.593E-02	2.002E-01	3.320E-01	3.479E-02	0.078
		604.70		1.425E-03	3.563E-02	5.141E-02	5.197E-03	0.028
	+	795.84	*	9.390E-02	5.858E-02	8.973E-02	8.852E-03	1.046
		801.93		-1.826E-01	4.317E-01	6.430E-01	6.340E-02	-0.284
		1038.57		4.046E-01	3.520E+00	5.901E+00	5.404E-01	0.069
		1167.94		2.865E-01	2.440E+00	4.046E+00	3.271E-01	0.071
		1365.15		-5.591E-02	1.078E+00	1.726E+00	1.505E-01	-0.032
		268.24	*	1.076E-01	1.669E-01	2.518E-01	3.951E-02	0.427
CS-135		288.45		-1.176E+11	1.669E-01	Half-Life	too short	
I-135		417.63		-3.124E+11	1.669E-01	Half-Life	too short	
		546.56		1.028E+11	1.669E-01	Half-Life	too short	
		836.80		-5.655E+10	1.669E-01	Half-Life	too short	
		1038.76		7.332E+10	1.669E-01	Half-Life	too short	
		1124.00		5.316E+11	1.669E-01	Half-Life	too short	
		1131.51		-3.394E+10	1.669E-01	Half-Life	too short	
		1260.41	*	-7.512E+07	1.669E-01	Half-Life	too short	
		1457.56		7.792E+11	1.669E-01	Half-Life	too short	
		1678.03		3.792E+09	1.669E-01	Half-Life	too short	
		1706.46		-2.002E+10	1.669E-01	Half-Life	too short	
		1791.20		-6.439E+10	1.669E-01	Half-Life	too short	
CS-136		66.91		-5.619E-02	7.040E-01	1.017E+00	1.510E-01	-0.055
	+	86.29		2.149E+00	1.417E+00	1.746E+00	2.322E-01	1.231
		153.22		5.235E-01	5.944E-01	1.032E+00	1.054E-01	0.507
		163.89		6.909E-01	1.001E+00	1.721E+00	1.821E-01	0.401
		176.55		-2.077E-01	3.424E-01	5.518E-01	5.854E-02	-0.376
		273.65		1.765E-02	4.899E-01	7.084E-01	1.098E-01	0.025
		340.57		1.453E-01	1.415E-01	2.164E-01	2.932E-02	0.671
		818.51		-2.234E-02	7.129E-02	1.096E-01	1.079E-02	-0.204
		1048.07	*	-4.953E-02	1.083E-01	1.704E-01	1.609E-02	-0.291
		1235.34		-4.943E-01	7.232E-01	9.233E-01	1.063E-01	-0.535
CE-139		165.85	*	-1.253E-02	2.710E-02	4.426E-02	4.301E-03	-0.283
BA-140		162.64		1.728E-01	7.168E-01	1.211E+00	1.217E-01	0.143
		304.84		6.265E-01	1.358E+00	2.124E+00	6.476E-01	0.295
		423.70		-6.540E-02	1.970E+00	3.310E+00	1.094E+00	-0.020
		537.32	*	-9.831E-02	2.738E-01	4.370E-01	1.473E-01	-0.225
LA-140	+	328.77		9.352E-01	4.754E-01	5.687E-01	8.072E-02	1.645
		432.53		1.125E-01	2.086E+00	3.519E+00	3.912E-01	0.032
		487.03		-3.906E-02	1.360E-01	2.216E-01	2.480E-02	-0.176
		751.79		3.012E-01	1.929E+00	3.148E+00	3.324E-01	0.096
		815.85		-9.401E-02	3.012E-01	4.629E-01	4.960E-02	-0.203
		867.82		3.144E-01	1.373E+00	2.357E+00	2.418E-01	0.133
		919.63		-2.608E+00	2.618E+00	3.718E+00	4.312E-01	-0.702
		925.24		4.850E-02	1.104E+00	1.854E+00	1.897E-01	0.026
CE-143		1596.49	*	6.542E-02	7.880E-02	1.423E-01	1.196E-02	0.460
		57.37		-8.434E-04	7.880E-02	Half-Life	too short	
		231.56		6.002E-06	7.880E-02	Half-Life	too short	
		293.26	*	3.762E-04	7.880E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	350.59		5.844E-02	7.880E-02	Half-Life	too short	
		490.36		-1.462E-03	7.880E-02	Half-Life	too short	
		664.57		9.512E-03	7.880E-02	Half-Life	too short	
		721.93		1.150E-04	7.880E-02	Half-Life	too short	
CE-144		80.11		-1.739E+00	1.996E+00	2.735E+00	2.352E-01	-0.636
		133.54	*	1.306E-01	1.783E-01	3.086E-01	4.815E-02	0.423
PM-144		476.78		-4.310E-02	6.522E-02	1.033E-01	1.181E-02	-0.417
		618.01		-3.945E-03	2.953E-02	4.773E-02	4.853E-03	-0.083
		696.49	*	-1.387E-02	3.741E-02	5.484E-02	5.257E-03	-0.253
		778.57		2.007E-01	1.898E+00	3.083E+00	3.017E-01	0.065
PR-144		696.49	*	-9.402E-01	2.536E+00	3.718E+00	3.563E-01	-0.253
		1489.15		-1.385E+00	9.998E+00	1.638E+01	1.377E+00	-0.085
PM-146		453.90	*	4.981E-02	4.545E-02	8.063E-02	1.011E-02	0.618
		633.02		9.975E-01	1.352E+00	2.266E+00	8.534E-01	0.440
		735.90		1.130E-02	1.488E-01	2.334E-01	6.755E-02	0.048
		747.13		-8.319E-02	8.696E-02	1.242E-01	1.831E-02	-0.670
ND-147	+	91.11		8.012E-01	2.337E-01	4.679E-01	4.637E-02	1.712
		319.41		3.571E+00	3.310E+00	5.628E+00	8.024E-01	0.635
		439.89		-3.835E-01	5.862E+00	9.800E+00	1.057E+00	-0.039
		531.02	*	-3.526E-01	5.729E-01	8.963E-01	1.450E-01	-0.393
PM-149		285.90	*	1.773E+01	1.200E+02	1.952E+02	3.914E+01	0.091
EU-152		121.78		5.788E-02	6.497E-02	1.139E-01	1.114E-02	0.508
		244.69		9.393E-02	3.241E-01	4.820E-01	6.550E-02	0.195
		344.27	*	-6.010E-02	9.653E-02	1.460E-01	1.980E-02	-0.412
		443.98		-1.485E-01	8.945E-01	1.483E+00	1.600E-01	-0.100
		778.89		2.387E-02	2.246E-01	3.648E-01	3.569E-02	0.065
		867.32		3.344E-01	7.647E-01	1.337E+00	1.318E-01	0.250
		964.01		7.219E-01	3.368E-01	5.901E-01	5.655E-02	1.223
		1085.78		7.138E-02	3.938E-01	6.613E-01	5.830E-02	0.108
		1112.02		-1.135E-01	2.964E-01	4.679E-01	4.025E-02	-0.243
		1407.95		8.266E-02	1.631E-01	2.832E-01	2.367E-02	0.292
GD-153		69.67		-9.440E-01	1.329E+00	2.030E+00	1.563E-01	-0.465
	+	83.37		3.054E+01	1.498E+01	2.160E+01	1.932E+00	1.414
		97.43	*	-2.282E-02	7.824E-02	1.094E-01	9.715E-03	-0.209
		103.18		-1.172E-01	8.664E-02	1.392E-01	1.207E-02	-0.843
EU-154		123.07		2.023E-02	4.534E-02	7.829E-02	8.806E-03	0.258
		247.94		-1.916E-01	3.318E-01	5.191E-01	8.156E-02	-0.369
		591.81		-7.066E-02	5.239E-01	8.489E-01	1.094E-01	-0.083
		723.30		9.174E-02	1.864E-01	2.793E-01	2.928E-02	0.328
		756.87		-5.235E-02	8.053E-01	1.287E+00	1.649E-01	-0.041
		873.19		-3.285E-01	2.775E-01	4.037E-01	5.306E-02	-0.814
		996.32		-1.001E-01	3.959E-01	5.493E-01	9.977E-02	-0.182
	+	1004.76		2.214E-01	4.208E-01	3.332E-01	4.066E-02	0.665
		1274.45	*	-5.168E-02	1.211E-01	1.869E-01	2.056E-02	-0.276
EU-155		48.70		-1.119E+00	1.727E+00	2.448E+00	1.980E-01	-0.457
		60.01		2.327E+00	4.104E+00	6.200E+00	4.424E-01	0.375
	+	86.54		1.885E-01	1.230E-01	1.604E-01	1.506E-02	1.175
		105.31	*	1.695E-01	8.723E-02	1.586E-01	1.384E-02	1.069
TB-160	+	86.79		5.081E-01	3.315E-01	4.392E-01	4.101E-02	1.157

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		197.04		1.249E-02	5.237E-01	8.501E-01	9.474E-02	0.015
		215.65		1.657E-01	6.977E-01	1.160E+00	1.400E-01	0.143
		298.57		1.367E-01	1.526E-01	1.894E-01	2.833E-02	0.722
		879.36	*	8.642E-02	1.363E-01	2.415E-01	2.379E-02	0.358
		962.29		-5.098E-02	5.782E-01	8.281E-01	7.943E-02	-0.062
	+	966.15		3.691E-01	2.340E-01	4.203E-01	4.024E-02	0.878
		1177.93		-8.396E-02	3.415E-01	5.448E-01	4.382E-02	-0.154
		1271.85		-2.745E-01	7.152E-01	1.112E+00	9.113E-02	-0.247
		80.57		-2.492E-01	2.545E-01	3.461E-01	2.993E-02	-0.720
	+	184.41		3.035E-01	6.759E-02	6.433E-02	6.783E-03	4.718
		280.46		-9.518E-02	8.573E-02	1.270E-01	1.962E-02	-0.750
		410.95		7.270E-03	2.309E-01	3.904E-01	4.189E-02	0.019
		711.68	*	-2.991E-02	5.985E-02	9.210E-02	8.870E-03	-0.325
		752.31		-3.914E-02	3.039E-01	4.835E-01	4.707E-02	-0.081
TM-171		810.29		-4.430E-02	5.962E-02	8.686E-02	8.535E-03	-0.510
		51.35		1.426E+00	2.158E+01	3.469E+01	2.683E+00	0.041
		52.39		-1.297E+00	1.175E+01	1.872E+01	1.425E+00	-0.069
		59.40		1.486E+01	2.225E+01	3.380E+01	2.404E+00	0.440
LU-176		66.72	*	-2.752E+00	2.430E+01	3.504E+01	2.629E+00	-0.079
		88.36		5.684E-01	2.078E-01	2.987E-01	2.824E-02	1.903
		201.83		-1.532E-02	2.580E-02	4.121E-02	4.689E-03	-0.372
		306.84	*	1.947E-02	2.377E-02	3.992E-02	5.868E-03	0.488
LU-177		401.10		3.619E+00	6.115E+00	1.071E+01	1.145E+00	0.338
		112.95		-4.790E-01	1.502E+00	2.502E+00	2.125E-01	-0.191
	+	208.36	*	2.650E+00	1.553E+00	2.003E+00	2.345E-01	1.323
		52.97		5.562E-01	1.204E+00	1.967E+00	1.486E-01	0.283
LU-177M		54.07		7.772E-01	6.353E-01	1.069E+00	7.968E-02	0.727
		61.30		-2.664E-01	1.247E+00	1.805E+00	1.299E-01	-0.148
		121.62		3.055E-01	3.346E-01	5.875E-01	4.963E-02	0.520
		147.16		2.794E-01	6.087E-01	9.442E-01	8.563E-02	0.296
		171.86		1.935E-01	4.437E-01	7.533E-01	7.515E-02	0.257
		218.09		-4.663E-01	7.832E-01	1.242E+00	1.515E-01	-0.375
	+	268.79		1.134E+00	1.179E+00	1.354E+00	2.018E-01	0.837
		319.02		2.536E-01	2.488E-01	4.213E-01	6.013E-02	0.602
		367.43		-7.269E-01	8.986E-01	1.323E+00	1.596E-01	-0.549
		413.65	*	-7.415E-03	1.597E-01	2.685E-01	2.883E-02	-0.028
		56.28		-7.376E-01	7.260E-01	1.098E+00	7.991E-02	-0.672
		57.53		-1.944E-01	3.953E-01	6.150E-01	4.429E-02	-0.316
		65.20		-6.705E-01	7.944E-01	1.096E+00	8.121E-02	-0.612
		133.02		1.903E-02	5.851E-02	1.002E-01	8.689E-03	0.190
HF-181		136.25		-3.176E-01	4.035E-01	6.564E-01	5.745E-02	-0.484
		345.85		1.564E-01	2.077E-01	3.131E-01	4.116E-02	0.499
		482.03	*	1.240E-04	4.015E-02	6.698E-02	7.214E-03	0.002
		56.28		-2.861E-01	2.813E-01	4.253E-01	3.096E-02	-0.673
W-181		57.53		-7.560E-02	1.533E-01	2.384E-01	1.717E-02	-0.317
		65.20	*	-2.579E-01	3.056E-01	4.214E-01	3.124E-02	-0.612
		67.75		3.283E-02	8.521E-02	1.370E-01	1.037E-02	0.240
TA-182		100.10		1.028E-01	1.507E-01	2.647E-01	2.323E-02	0.388
		152.43		-1.960E-02	2.936E-01	4.913E-01	4.540E-02	-0.040



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		222.10		-1.743E-02	3.108E-01	5.082E-01	6.302E-02	-0.034
		1001.68		1.499E+00	2.222E+00	3.865E+00	3.628E-01	0.388
	+	1121.28		7.957E-01	2.525E-01	3.755E-01	3.200E-02	2.119
		1189.05		1.010E-01	2.992E-01	5.058E-01	4.079E-02	0.200
		1221.42	*	-5.686E-02	1.974E-01	3.132E-01	2.545E-02	-0.182
		1230.97		5.061E-01	5.100E-01	8.394E-01	6.832E-02	0.603
		57.98		-1.980E-02	1.548E-01	2.452E-01	1.760E-02	-0.081
		59.32		6.410E-02	9.238E-02	1.405E-01	1.000E-02	0.456
		67.20		-5.238E-03	1.602E-01	2.510E-01	1.891E-02	-0.021
		162.32	*	4.110E-02	9.955E-02	1.694E-01	1.624E-02	0.243
RE-184	+	208.81		2.176E+00	1.276E+00	1.696E+00	1.989E-01	1.283
		291.72		3.124E-01	9.845E-01	1.448E+00	2.196E-01	0.216
		57.98		-7.257E-02	5.673E-01	8.985E-01	6.450E-02	-0.081
		59.32		2.347E-01	3.382E-01	5.144E-01	3.661E-02	0.456
		67.20		-1.919E-02	5.867E-01	9.195E-01	6.928E-02	-0.021
		161.27		-4.792E-02	3.171E-01	5.267E-01	5.029E-02	-0.091
		216.55		7.895E-02	2.443E-01	4.077E-01	4.940E-02	0.194
		252.85	*	-8.864E-02	2.141E-01	3.387E-01	4.752E-02	-0.262
		318.01		-6.229E-02	4.512E-01	7.096E-01	1.015E-01	-0.088
		792.07		-1.754E-03	1.032E+00	1.442E+00	1.414E-01	-0.001
OS-185		903.28		-4.838E-01	9.296E-01	1.430E+00	1.405E-01	-0.338
		920.93		5.051E-02	3.858E-01	6.545E-01	6.392E-02	0.077
		59.72		2.501E-01	2.394E-01	3.707E-01	2.639E-02	0.675
		61.14		-4.108E-02	1.373E-01	1.977E-01	1.422E-02	-0.208
		69.30		-5.867E-02	2.345E-01	3.662E-01	2.810E-02	-0.160
		592.07		-1.781E+00	2.254E+00	3.409E+00	3.477E-01	-0.522
		646.12	*	3.594E-02	3.929E-02	6.919E-02	6.678E-03	0.519
		717.42		1.316E-01	9.359E-01	1.531E+00	1.477E-01	0.086
		874.81		-4.665E-01	5.425E-01	8.286E-01	8.166E-02	-0.563
		880.27		3.459E-01	7.440E-01	1.302E+00	1.282E-01	0.266
RE-188		155.03	*	3.841E-02	1.470E-01	2.493E-01	2.326E-02	0.154
		477.96		-4.037E-01	2.894E+00	4.780E+00	5.151E-01	-0.084
		633.10		2.130E+00	2.667E+00	4.649E+00	4.556E-01	0.458
W-188	+	63.58		1.678E+02	6.739E+01	8.190E+01	5.996E+00	2.049
IR-192		227.08		5.533E+00	1.157E+01	1.941E+01	2.458E+00	0.285
		290.67	*	-1.557E+00	7.866E+00	1.109E+01	1.684E+00	-0.140
	+	295.96		8.797E-01	2.420E-01	2.865E-01	4.320E-02	3.070
		308.46		-4.235E-02	9.439E-02	1.464E-01	2.148E-02	-0.289
AU-195		316.51	*	-5.521E-04	3.463E-02	5.494E-02	7.897E-03	-0.010
		468.07		-2.187E-03	6.518E-02	1.087E-01	1.227E-02	-0.020
		604.41		2.474E-02	4.861E-01	7.023E-01	9.858E-02	0.035
		612.46		1.961E-01	7.098E-01	1.052E+00	1.171E-01	0.186
		65.12		-1.229E-01	1.408E-01	1.938E-01	1.435E-02	-0.634
		66.83		-7.557E-03	8.063E-02	1.164E-01	8.741E-03	-0.065
	+	75.70		9.750E-01	2.107E-01	3.547E-01	2.902E-02	2.749
TL-200		98.88	*	2.765E-01	2.009E-01	3.465E-01	3.057E-02	0.798
		129.76		1.891E+00	2.444E+00	4.260E+00	3.661E-01	0.444
		367.94	*	-1.230E-04	2.444E+00	Half-Life too short		
		579.30		1.348E-03	2.444E+00	Half-Life too short		

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	828.27			-5.881E-03	2.444E+00	Half-Life	too short	
	1205.75			-2.032E-04	2.444E+00	Half-Life	too short	
TL-201	68.90			8.510E-01	4.613E+00	7.348E+00	5.620E-01	0.116
	70.82			-2.128E+00	2.970E+00	4.141E+00	3.224E-01	-0.514
	80.30			-5.487E+00	5.869E+00	8.007E+00	6.902E-01	-0.685
	135.34			1.500E+00	2.715E+01	4.598E+01	4.013E+00	0.033
	167.43	*		-2.575E+00	7.680E+00	1.261E+01	1.234E+00	-0.204
TL-202	68.90			6.485E-02	3.516E-01	5.600E-01	4.282E-02	0.116
	70.82			-1.617E-01	2.257E-01	3.147E-01	2.450E-02	-0.514
	80.30			-4.171E-01	4.461E-01	6.087E-01	5.247E-02	-0.685
	439.56	*		-2.079E-02	7.010E-02	1.153E-01	1.243E-02	-0.180
HG-203	70.83			-6.708E-01	9.421E-01	1.310E+00	1.715E-01	-0.512
	72.87			4.970E-01	5.740E-01	8.604E-01	1.099E-01	0.578
	82.60			2.297E+00	1.153E+00	1.507E+00	2.095E-01	1.524
	279.20	*		1.914E-02	3.920E-02	6.499E-02	1.015E-02	0.294
BI-207	72.80			1.354E-01	1.651E-01	2.480E-01	1.969E-02	0.546
	74.97			5.389E-01	1.164E-01	1.903E-01	1.545E-02	2.831
	84.90			3.939E-01	1.932E-01	2.622E-01	2.390E-02	1.502
	569.67			6.104E-03	3.118E-02	5.195E-02	5.391E-03	0.117
	1063.62	*		3.716E-02	5.215E-02	9.190E-02	8.256E-03	0.404
	1770.23			1.739E-01	5.789E-01	8.812E-01	7.253E-02	0.197
TL-207	81.07			-2.313E-01	2.026E-01	2.722E-01	2.368E-02	-0.850
	83.78			2.597E-01	1.274E-01	1.862E-01	1.675E-02	1.394
	94.90			2.277E-01	2.108E-01	3.189E-01	2.873E-02	0.714
	122.32			1.668E+00	1.531E+00	2.702E+00	2.458E-01	0.617
	144.24			7.508E-01	8.099E-01	1.078E+00	1.074E-01	0.697
	154.21			2.290E-01	3.443E-01	5.930E-01	5.990E-02	0.386
	269.46			2.643E-01	2.748E-01	3.368E-01	5.066E-02	0.785
	323.87	*		6.848E-01	6.864E-01	1.045E+00	2.185E-01	0.656
	338.28			5.608E+00	1.833E+00	2.426E+00	3.905E-01	2.312
	445.03			3.839E-01	2.143E+00	3.639E+00	4.993E-01	0.105
PO-209	260.50			1.143E+00	8.896E+00	1.455E+01	2.102E+00	0.079
	262.80			1.382E+00	2.499E+01	4.066E+01	5.925E+00	0.034
	896.60	*		3.083E+00	7.206E+00	1.254E+01	1.235E+00	0.246
PB-211	404.84	*		-7.191E-01	9.613E-01	1.351E+00	8.509E-01	-0.532
	427.08			3.497E-01	1.956E+00	3.310E+00	2.068E+00	0.106
	831.96			-3.231E-01	1.248E+00	1.912E+00	1.201E+00	-0.169
BI-212	727.18	*		7.567E-01	5.435E-01	6.590E-01	7.202E-02	1.148
	785.46			1.975E+00	1.813E+00	3.175E+00	3.110E-01	0.622
	1620.62			1.126E+00	1.108E+00	2.141E+00	1.797E-01	0.526
PO-215	81.07			-2.313E-01	2.026E-01	2.722E-01	2.368E-02	-0.850
	83.78			2.597E-01	1.274E-01	1.862E-01	1.675E-02	1.394
	94.90			2.277E-01	2.108E-01	3.189E-01	2.873E-02	0.714
	122.32			1.668E+00	1.531E+00	2.702E+00	2.458E-01	0.617
	144.24			7.508E-01	8.099E-01	1.078E+00	1.074E-01	0.697
	154.21			2.290E-01	3.443E-01	5.930E-01	5.990E-02	0.386
	269.46			2.643E-01	2.748E-01	3.368E-01	5.066E-02	0.785
	323.87	*		6.848E-01	6.864E-01	1.045E+00	2.185E-01	0.656
	338.28			5.608E+00	1.833E+00	2.426E+00	3.905E-01	2.312

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		3.839E-01	2.143E+00	3.639E+00	4.993E-01	0.105
		271.23		3.391E-01	3.531E-01	4.128E-01	6.633E-02	0.821
		401.81	*	1.260E-01	3.831E-01	6.600E-01	1.076E-01	0.191
RN-220		549.76	*	-1.710E+01	2.454E+01	3.801E+01	3.995E+00	-0.450
RA-223	+	81.07		-2.313E-01	2.026E-01	2.722E-01	2.368E-02	-0.850
		83.78		2.597E-01	1.274E-01	1.862E-01	1.675E-02	1.394
		94.90		2.277E-01	2.108E-01	3.189E-01	2.873E-02	0.714
	+	122.32		1.668E+00	1.531E+00	2.702E+00	2.458E-01	0.617
		144.24		7.508E-01	8.099E-01	1.078E+00	1.074E-01	0.697
		154.21		2.290E-01	3.443E-01	5.930E-01	5.990E-02	0.386
	+	269.46		2.643E-01	2.748E-01	3.368E-01	5.066E-02	0.785
		323.87	*	6.848E-01	6.864E-01	1.045E+00	2.185E-01	0.656
		338.28		5.608E+00	1.833E+00	2.426E+00	3.905E-01	2.312
	+	445.03		3.839E-01	2.143E+00	3.639E+00	4.993E-01	0.105
		79.80		-1.321E+00	1.563E+00	2.114E+00	4.542E-01	-0.625
		236.00		3.670E-02	2.274E-01	3.355E-01	5.284E-02	0.109
AC-227	+	256.20	*	-2.268E-02	3.524E-01	5.703E-01	1.087E-01	-0.040
		286.10		4.573E-01	1.449E+00	2.379E+00	4.351E-01	0.192
		299.80		3.284E+00	2.100E+00	2.627E+00	5.599E-01	1.250
	+	304.40		5.295E-01	2.010E+00	2.933E+00	6.452E-01	0.181
		334.20		1.165E+00	3.178E+00	3.699E+00	8.180E-01	0.315
		79.80		-1.321E+00	1.563E+00	2.114E+00	4.600E-01	-0.625
	+	94.00		1.844E+01	4.841E+00	3.513E+00	7.713E-01	5.250
		236.00		3.670E-02	2.274E-01	3.355E-01	4.985E-02	0.109
		256.20	*	-2.268E-02	3.524E-01	5.703E-01	1.215E-01	-0.040
	+	286.10		4.573E-01	1.519E+00	2.379E+00	2.407E+00	0.192
		299.80		3.284E+00	2.100E+00	2.627E+00	5.599E-01	1.250
		304.40		5.295E-01	2.010E+00	2.933E+00	6.452E-01	0.181
TH-227	+	334.20		1.165E+00	3.178E+00	3.699E+00	8.180E-01	0.315
		85.43		3.509E-01	2.289E-01	2.516E-01	2.310E-02	1.395
		88.47		2.991E-01	8.656E-02	1.700E-01	1.605E-02	1.760
	+	100.00		1.138E-01	1.557E-01	2.738E-01	2.404E-02	0.416
		193.63	*	3.258E-01	4.503E-01	7.690E-01	8.444E-02	0.424
		210.97		5.164E-01	7.713E-01	1.181E+00	1.398E-01	0.437
PA-231	+	283.67	*	1.375E+00	1.509E+00	2.528E+00	5.009E-01	0.544
		301.29		1.314E+00	8.237E-01	1.025E+00	1.766E-01	1.282
TH-231	+	81.07		-2.313E-01	2.026E-01	2.722E-01	2.368E-02	-0.850
		83.78		2.597E-01	1.274E-01	1.862E-01	1.675E-02	1.394
		94.90		2.277E-01	2.108E-01	3.189E-01	2.873E-02	0.714
	+	122.32		1.668E+00	1.531E+00	2.702E+00	2.458E-01	0.617
		144.24		7.508E-01	8.099E-01	1.078E+00	1.074E-01	0.697
		154.21		2.290E-01	3.443E-01	5.930E-01	5.990E-02	0.386
	+	269.46		2.643E-01	2.748E-01	3.368E-01	5.066E-02	0.785
		323.87	*	6.848E-01	6.864E-01	1.045E+00	2.185E-01	0.656
		338.28		5.608E+00	1.833E+00	2.426E+00	3.905E-01	2.312
	+	445.03		3.839E-01	2.143E+00	3.639E+00	4.993E-01	0.105
		84.21		1.312E+01	6.435E+00	9.220E+00	8.334E-01	1.423
		92.29		2.137E+01	3.633E+00	5.102E+00	4.675E-01	4.188
U-231		95.87	*	-9.427E-02	1.156E+00	1.640E+00	1.469E-01	-0.057

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		-1.643E+00	1.973E+00	3.249E+00	2.782E-01	-0.506
	+	75.28		1.572E+01	3.941E+00	5.603E+00	8.453E-01	2.806
	+	86.59		3.064E+00	2.144E+00	2.623E+00	7.096E-01	1.168
	+	300.12		9.155E-01	5.793E-01	7.224E-01	1.388E-01	1.267
		311.98	*	3.003E-02	6.038E-02	9.980E-02	1.464E-02	0.301
		340.50		8.112E-01	6.866E-01	1.024E+00	2.656E-01	0.792
PA-234		398.62		-9.671E-01	1.980E+00	3.213E+00	8.794E-01	-0.301
		415.76		6.286E-01	1.465E+00	2.532E+00	5.693E-01	0.248
	+	63.00		4.821E+00	2.033E+00	2.452E+00	3.630E-01	1.966
		94.67		2.664E-01	1.573E-01	2.412E-01	3.060E-02	1.104
		98.44		7.650E-02	9.522E-02	1.377E-01	7.689E-02	0.555
		99.86		3.452E-01	3.970E-01	7.009E-01	6.157E-02	0.493
		111.00		-1.657E-03	1.528E-01	2.581E-01	3.101E-02	-0.006
		131.20		-9.426E-02	9.385E-02	1.516E-01	1.308E-02	-0.622
		152.70		1.170E-01	2.810E-01	4.789E-01	8.319E-02	0.244
	+	186.00		1.093E+01	4.082E+00	2.921E+00	9.295E-01	3.741
		226.40		-8.693E-03	3.628E-01	5.935E-01	9.559E-02	-0.015
		227.20		2.108E-01	3.888E-01	6.540E-01	8.284E-02	0.322
		248.90		7.118E-02	7.313E-01	1.197E+00	2.978E-01	0.059
		293.70		3.202E+00	1.077E+00	1.478E+00	3.146E-01	2.167
		369.80		2.896E-01	8.734E-01	1.411E+00	3.286E-01	0.205
		568.70		-2.353E-01	1.009E+00	1.627E+00	1.689E-01	-0.145
		569.50		6.134E-02	2.772E-01	4.627E-01	4.802E-02	0.133
		574.00		-1.504E-01	1.370E+00	2.234E+00	2.311E-01	-0.067
		699.00		-5.573E-01	7.238E-01	1.078E+00	2.106E-01	-0.517
		706.10		-2.144E-01	1.007E+00	1.589E+00	7.119E-01	-0.135
		733.00		-2.157E-01	4.385E-01	5.733E-01	1.298E-01	-0.376
		742.81		1.046E+00	1.470E+00	2.242E+00	1.510E+00	0.467
	+	796.30		1.823E+00	1.230E+00	1.733E+00	4.758E-01	1.052
		805.60		1.025E+00	1.025E+00	1.721E+00	5.335E-01	0.595
		819.60		4.479E-01	1.123E+00	1.855E+00	7.107E-01	0.242
		826.30		-6.920E-02	7.757E-01	1.225E+00	5.510E-01	-0.057
		831.60		-1.673E-01	6.393E-01	9.895E-01	2.990E-01	-0.169
		876.40		4.604E-01	9.188E-01	1.394E+00	1.434E+00	0.330
		880.51		1.111E-01	2.657E-01	4.631E-01	4.563E-02	0.240
		883.24		4.171E-02	2.469E-01	4.190E-01	2.824E-01	0.100
		899.00		-4.400E-02	7.830E-01	1.305E+00	5.739E-01	-0.034
		925.00		5.262E-01	1.073E+00	1.880E+00	1.833E-01	0.280
		926.50		-2.807E-03	1.608E-01	2.685E-01	6.895E-02	-0.010
		946.00	*	-2.807E-01	2.903E-01	4.278E-01	8.241E-02	-0.656
		949.00		1.194E-01	4.142E-01	7.105E-01	6.858E-02	0.168
		980.50		5.881E-01	6.737E-01	1.194E+00	1.134E-01	0.493
		1394.10		-3.068E-01	1.018E+00	1.522E+00	9.899E-01	-0.202
PA-234M		766.42		2.631E+00	1.162E+01	1.892E+01	9.640E+00	0.139
NP-236		1001.03	*	3.580E+00	5.034E+00	8.774E+00	9.333E-01	0.408
		94.67		2.037E-01	1.180E-01	1.832E-01	1.653E-02	1.112
		98.44		5.779E-02	6.454E-02	1.041E-01	9.205E-03	0.555
		111.00		-1.254E-03	1.156E-01	1.952E-01	1.663E-02	-0.006
		160.31	*	5.825E-03	6.953E-02	1.168E-01	1.111E-02	0.050

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.573E-01	1.346E-01	2.395E-01	2.106E-02	0.657
		117.00	*	-2.373E-02	1.556E-01	2.631E-01	2.226E-02	-0.090
	+	209.75		1.701E+00	9.969E-01	1.331E+00	1.567E-01	1.278
		228.18		6.318E-03	2.012E-01	3.300E-01	4.197E-02	0.019
		277.60		1.239E-01	1.711E-01	2.866E-01	4.411E-02	0.432
AM-241		334.30		6.141E-01	1.795E+00	2.087E+00	2.850E-01	0.294
		59.54	*	7.796E-02	1.288E-01	1.951E-01	1.533E-02	0.400
CM-243		99.55		1.619E-01	1.385E-01	2.464E-01	2.168E-02	0.657
		103.76	*	-8.027E-02	7.974E-02	1.304E-01	1.130E-02	-0.615
		117.00		-2.442E-02	1.601E-01	2.707E-01	2.291E-02	-0.090
	+	209.75		1.677E+00	9.828E-01	1.312E+00	1.545E-01	1.278
		228.18		6.384E-03	2.033E-01	3.335E-01	4.241E-02	0.019
AM-246		277.60		1.249E-01	1.725E-01	2.889E-01	4.448E-02	0.432
		798.80		8.097E-02	1.477E-01	2.220E-01	2.179E-02	0.365
		1036.00		-3.059E-01	2.781E-01	4.008E-01	3.677E-02	-0.763
		1062.04		-1.910E-02	2.293E-01	3.759E-01	3.381E-02	-0.051
		1078.86	*	-1.091E-01	1.399E-01	2.141E-01	1.899E-02	-0.510
CM-247		278.00		2.557E-01	7.151E-01	1.178E+00	1.816E-01	0.217
		287.40		-8.397E-01	1.181E+00	1.803E+00	2.755E-01	-0.466
		402.60	*	1.102E-02	3.357E-02	5.789E-02	6.196E-03	0.190
CF-249		252.85		-3.313E-01	8.001E-01	1.266E+00	1.776E-01	-0.262
		333.44		2.498E-01	2.147E-01	2.761E-01	3.782E-02	0.905
		387.95	*	2.896E-02	3.791E-02	6.695E-02	7.291E-03	0.433
CF-251		176.60	*	-7.145E-02	1.120E-01	1.802E-01	1.836E-02	-0.396
		227.00		1.477E-01	3.429E-01	5.740E-01	7.265E-02	0.257
		285.00		2.919E-01	1.719E+00	2.799E+00	4.294E-01	0.104

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229008      *
* Acquisition date   : 22-JAN-2010 14:03:29 Detector SN#                   *
* Detector ID        : GAM11 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.73 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G244229008 Analyst initials: MXR1                  *
* Batch Number      : 941239 Sample Quantity : 1.1876E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME : 18-NOV-2009 15:33:22 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.865E+01	2.976E+00	4.068E-01	0.000E+00
SN-126	1.565E-01	1.000E-01	1.259E-01	0.000E+00
BA-137M	7.927E-01	1.128E-01	5.805E-02	0.000E+00
CS-137	8.380E-01	1.194E-01	6.137E-02	0.000E+00
CE-141	7.089E-02	7.489E-02	9.334E-02	0.000E+00
TL-208	5.690E-01	9.581E-02	5.035E-02	0.000E+00
BI-210	2.974E+00	3.053E+00	3.616E+00	0.000E+00
PB-210	2.974E+00	3.053E+00	3.616E+00	0.000E+00
PO-210	2.974E+00	3.051E+00	3.616E+00	0.000E+00
BI-211	4.524E+00	7.433E-01	2.855E-01	0.000E+00
PB-212	1.531E+00	2.406E-01	9.392E-02	0.000E+00
PO-212	1.531E+00	2.406E-01	9.392E-02	0.000E+00
BI-214	1.248E+00	2.030E-01	1.026E-01	0.000E+00
PB-214	1.574E+00	2.708E-01	9.953E-02	0.000E+00
PO-214	1.574E+00	2.708E-01	9.953E-02	0.000E+00
PO-216	1.531E+00	2.406E-01	9.392E-02	0.000E+00
PO-218	1.574E+00	2.708E-01	9.953E-02	0.000E+00
RA-224	2.982E+00	1.050E+00	1.194E+00	0.000E+00
RA-226	1.248E+00	2.030E-01	1.026E-01	0.000E+00
AC-228	1.660E+00	3.597E-01	1.995E-01	0.000E+00
RA-228	1.660E+00	3.597E-01	1.995E-01	0.000E+00
TH-228	1.556E+00	2.445E-01	9.544E-02	0.000E+00
TH-230	1.248E+00	2.029E-01	1.026E-01	0.000E+00
TH-232	1.660E+00	3.597E-01	1.995E-01	0.000E+00
TH-234	4.136E+00	1.749E+00	1.554E+00	0.000E+00
U-234	1.248E+00	2.029E-01	1.026E-01	0.000E+00
U-235	2.317E-01	2.471E-01	3.079E-01	0.000E+00
NP-237	4.595E-01	3.081E-01	3.567E-01	0.000E+00
U-238	4.136E+00	1.749E+00	1.554E+00	0.000E+00
AM-243	3.002E-01	6.356E-02	7.671E-02	0.000E+00
ANH-511	1.107E-01	7.178E-02	4.970E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-1.406E-02	2.973E-01	5.096E-01	0.000E+00	NOT IDENT.
NA-22	-1.809E-02	4.252E-02	6.703E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.022E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.978E-02	2.703E-02	3.748E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.705E-02	6.057E-02	0.000E+00	FAIL ABUN
SC-46	-1.343E-02	3.143E-02	5.136E-02	0.000E+00	FAIL ABUN
V-48	-4.572E-02	6.546E-02	1.027E-01	0.000E+00	NOT IDENT.
CR-51	1.697E-01	3.506E-01	5.983E-01	0.000E+00	NOT IDENT.
MN-52	-5.250E-02	2.341E-01	3.685E-01	0.000E+00	NOT IDENT.
MN-54	1.303E-02	3.521E-02	6.258E-02	0.000E+00	NOT IDENT.
CO-56	-9.774E-03	3.220E-02	5.379E-02	0.000E+00	FAIL ABUN
CO-57	2.563E-02	2.173E-02	4.024E-02	0.000E+00	NOT IDENT.
CO-58	-4.153E-02	3.939E-02	5.651E-02	0.000E+00	NOT IDENT.
FE-59	3.583E-03	8.654E-02	1.462E-01	0.000E+00	NOT IDENT.
CO-60	-3.100E-04	3.945E-02	6.502E-02	0.000E+00	NOT IDENT.
ZN-65	1.823E-04	9.569E-02	1.393E-01	0.000E+00	NOT IDENT.
GE-68	4.342E-01	1.190E+00	2.078E+00	0.000E+00	NOT IDENT.
AS-73	4.487E-01	6.125E-01	1.067E+00	0.000E+00	NOT IDENT.
AS-74	8.113E-02	8.581E-02	1.554E-01	0.000E+00	NOT IDENT.
SE-75	6.066E-03	4.063E-02	6.892E-02	0.000E+00	NOT IDENT.
BR-77	-6.099E-01	1.358E+01	2.311E+01	0.000E+00	FAIL ABUN
SR-82	-5.375E-01	3.460E-01	4.581E-01	0.000E+00	NOT IDENT.
RB-83	1.753E-02	6.629E-02	1.154E-01	0.000E+00	NOT IDENT.
RB-84	7.774E-04	6.585E-02	1.133E-01	0.000E+00	NOT IDENT.
KR-85	1.095E+01	7.560E+00	1.274E+01	0.000E+00	NOT IDENT.
SR-85	5.670E-02	3.916E-02	6.600E-02	0.000E+00	NOT IDENT.
RB-86	6.201E-01	7.833E-01	1.418E+00	0.000E+00	NOT IDENT.
Y-88	6.622E-03	3.732E-02	6.422E-02	0.000E+00	NOT IDENT.
ZR-88	-9.639E-03	2.815E-02	4.812E-02	0.000E+00	NOT IDENT.
Y-91	4.619E+00	1.761E+01	3.010E+01	0.000E+00	NOT IDENT.
NB-94	3.562E-02	3.342E-02	6.005E-02	0.000E+00	NOT IDENT.
NB-95	-1.345E-04	4.268E-02	7.028E-02	0.000E+00	NOT IDENT.
NB-95M	4.956E-03	1.207E-01	1.835E-01	0.000E+00	NOT IDENT.
ZR-95	6.937E-03	7.422E-02	1.234E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.757E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.779E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.657E+01	1.475E+01	2.128E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.231E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.771E-02	2.913E-02	5.045E-02	0.000E+00	NOT IDENT.
RH-102	-3.589E-03	2.890E-02	4.931E-02	0.000E+00	NOT IDENT.
RU-103	4.110E-03	3.700E-02	6.396E-02	0.000E+00	FAIL ABUN
RH-106	2.059E-01	3.036E-01	5.366E-01	0.000E+00	FAIL ABUN
RU-106	2.059E-01	3.029E-01	5.366E-01	0.000E+00	FAIL ABUN
AG-108M	1.527E-02	3.071E-02	5.491E-02	0.000E+00	NOT IDENT.
CD-109	7.179E-01	1.002E+00	1.372E+00	0.000E+00	NOT IDENT.
AG-110M	1.931E-02	3.836E-02	5.936E-02	0.000E+00	NOT IDENT.
IN-111	8.510E-01	1.281E+00	2.027E+00	0.000E+00	NOT IDENT.
IN-113M	-8.901E-03	4.089E-02	7.052E-02	0.000E+00	NOT IDENT.
SN-113	-8.901E-03	4.089E-02	7.052E-02	0.000E+00	NOT IDENT.
IN-114M	2.102E-03	1.640E-01	2.535E-01	0.000E+00	NOT IDENT.
CD-115	-1.159E+01	1.373E+01	2.173E+01	0.000E+00	NOT IDENT.
SN-117M	-7.595E-03	4.738E-02	8.213E-02	0.000E+00	NOT IDENT.
SB-122	3.352E-01	2.589E+00	4.432E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.641E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	3.383E-03	2.389E-02	4.199E-02	0.000E+00	NOT IDENT.
I-124	-1.388E-01	7.244E-01	1.201E+00	0.000E+00	NOT IDENT.
SB-124	-8.230E-03	6.970E-02	1.148E-01	0.000E+00	FAIL ABUN
SB-125	1.755E-02	8.527E-02	1.500E-01	0.000E+00	NOT IDENT.
TE-125M	9.885E+00	7.532E+00	1.405E+01	0.000E+00	NOT IDENT.
I-126	1.675E-01	1.831E-01	2.982E-01	0.000E+00	NOT IDENT.
SB-126	-8.593E-02	1.512E-01	2.373E-01	0.000E+00	FAIL ABUN
SB-127	-4.485E-02	1.462E+00	2.426E+00	0.000E+00	NOT IDENT.
XE-127	4.785E-03	4.340E-02	7.488E-02	0.000E+00	FAIL ABUN
I-131	3.703E-02	1.207E-01	2.019E-01	0.000E+00	NOT IDENT.
TE-132	2.035E-01	7.331E-01	1.265E+00	0.000E+00	NOT IDENT.
BA-133	-1.173E-02	4.049E-02	5.699E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.268E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.741E-02	9.010E-02	0.000E+00	FAIL ABUN
CS-135	1.076E-01	1.636E-01	2.560E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.686E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.953E-02	1.061E-01	1.706E-01	0.000E+00	FAIL ABUN
CE-139	-1.253E-02	2.655E-02	4.522E-02	0.000E+00	NOT IDENT.
BA-140	-9.831E-02	2.683E-01	4.408E-01	0.000E+00	NOT IDENT.
LA-140	6.542E-02	7.723E-02	1.417E-01	0.000E+00	FAIL ABUN

CE-143	0.000E+00	2.551E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	1.306E-01	1.747E-01	3.161E-01	0.000E+00	NOT IDENT.
PM-144	-1.387E-02	3.666E-02	5.515E-02	0.000E+00	NOT IDENT.
PR-144	-9.402E-01	2.486E+00	3.739E+00	0.000E+00	NOT IDENT.
PM-146	4.981E-02	4.454E-02	8.147E-02	0.000E+00	NOT IDENT.
ND-147	-3.526E-01	5.614E-01	9.041E-01	0.000E+00	FAIL ABUN
PM-149	1.773E+01	1.176E+02	1.983E+02	0.000E+00	NOT IDENT.
EU-152	-6.010E-02	9.460E-02	1.480E-01	0.000E+00	NOT IDENT.
GD-153	-2.282E-02	7.667E-02	1.124E-01	0.000E+00	FAIL ABUN
EU-154	-5.168E-02	1.186E-01	1.867E-01	0.000E+00	FAIL ABUN
EU-155	0.000E+00	8.549E-02	1.628E-01	0.000E+00	FAIL ABUN
TB-160	8.642E-02	1.336E-01	2.422E-01	0.000E+00	FAIL ABUN
HO-166M	-2.991E-02	5.866E-02	9.260E-02	0.000E+00	FAIL ABUN
TM-171	-2.752E+00	2.381E+01	3.616E+01	0.000E+00	NOT IDENT.
LU-176	1.947E-02	2.330E-02	4.051E-02	0.000E+00	NOT IDENT.
LU-177	0.000E+00	1.522E+00	2.042E+00	0.000E+00	FAIL ABUN
LU-177M	-7.415E-03	1.565E-01	2.716E-01	0.000E+00	FAIL ABUN
HF-181	1.240E-04	3.934E-02	6.764E-02	0.000E+00	NOT IDENT.
W-181	-2.579E-01	2.995E-01	4.350E-01	0.000E+00	NOT IDENT.
TA-182	-5.686E-02	1.934E-01	3.130E-01	0.000E+00	FAIL ABUN
RE-183	4.110E-02	9.756E-02	1.731E-01	0.000E+00	FAIL ABUN
RE-184	-8.864E-02	2.098E-01	3.445E-01	0.000E+00	NOT IDENT.
OS-185	3.594E-02	3.851E-02	6.964E-02	0.000E+00	NOT IDENT.
RE-188	3.841E-02	1.441E-01	2.550E-01	0.000E+00	NOT IDENT.
W-188	-1.557E+00	7.709E+00	1.126E+01	0.000E+00	FAIL ABUN
IR-192	-5.521E-04	3.394E-02	5.574E-02	0.000E+00	FAIL ABUN
AU-195	2.765E-01	1.969E-01	3.561E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.236E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-2.575E+00	7.526E+00	1.288E+01	0.000E+00	NOT IDENT.
TL-202	-2.079E-02	6.870E-02	1.165E-01	0.000E+00	NOT IDENT.
HG-203	1.914E-02	3.842E-02	6.603E-02	0.000E+00	FAIL ABUN
BI-207	3.716E-02	5.111E-02	9.198E-02	0.000E+00	FAIL ABUN
TL-207	6.848E-01	6.727E-01	1.060E+00	0.000E+00	FAIL ABUN
PO-209	3.083E+00	7.062E+00	1.258E+01	0.000E+00	NOT IDENT.
PB-211	-7.191E-01	9.421E-01	1.367E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.326E-01	6.624E-01	0.000E+00	FAIL ABUN
PO-215	6.848E-01	6.727E-01	1.060E+00	0.000E+00	FAIL ABUN
RN-219	1.260E-01	3.755E-01	6.679E-01	0.000E+00	FAIL ABUN
RN-220	-1.710E+01	2.405E+01	3.833E+01	0.000E+00	NOT IDENT.
RA-223	6.848E-01	6.727E-01	1.060E+00	0.000E+00	FAIL ABUN
AC-227	-2.268E-02	3.454E-01	5.800E-01	0.000E+00	FAIL ABUN
TH-227	-2.268E-02	3.454E-01	5.800E-01	0.000E+00	FAIL ABUN
TH-229	3.258E-01	4.412E-01	7.845E-01	0.000E+00	FAIL ABUN
PA-231	1.375E+00	1.478E+00	2.568E+00	0.000E+00	FAIL ABUN
TH-231	6.848E-01	6.727E-01	1.060E+00	0.000E+00	FAIL ABUN
U-231	-9.427E-02	1.133E+00	1.686E+00	0.000E+00	FAIL ABUN
PA-233	3.003E-02	5.918E-02	1.013E-01	0.000E+00	FAIL ABUN
PA-234	-2.807E-01	2.845E-01	4.287E-01	0.000E+00	FAIL ABUN
PA-234M	3.580E+00	4.933E+00	8.787E+00	0.000E+00	NOT IDENT.
NP-236	5.825E-03	6.814E-02	1.194E-01	0.000E+00	NOT IDENT.
NP-239	-2.373E-02	1.525E-01	2.699E-01	0.000E+00	FAIL ABUN
AM-241	7.796E-02	1.263E-01	2.016E-01	0.000E+00	NOT IDENT.
CM-243	-8.027E-02	7.814E-02	1.340E-01	0.000E+00	FAIL ABUN
AM-246	-1.091E-01	1.371E-01	2.142E-01	0.000E+00	NOT IDENT.
CM-247	1.102E-02	3.289E-02	5.858E-02	0.000E+00	NOT IDENT.
CF-249	2.896E-02	3.715E-02	6.778E-02	0.000E+00	NOT IDENT.
CF-251	-7.145E-02	1.098E-01	1.841E-01	0.000E+00	NOT IDENT.



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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229008.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:03:29
Sample ID          : G244229008          Sample quantity  : 1.18760E+02 GRAM
Detector name      : GAM11              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.73  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941239              Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1185	10.67*	1.225E+00	2.865E+01	2.865E+01	10.60
SN-126	64.28	211	9.60	4.249E+00	1.637E+00	1.637E+00	42.06
	86.94	124	8.90	6.742E+00	6.506E-01	6.506E-01	76.75
	87.57	124	37.00*	6.742E+00	1.565E-01	1.565E-01	65.23
BA-137M	661.65	542	89.98*	2.402E+00	7.919E-01	7.927E-01	14.52
CS-137	661.65	542	85.12*	2.402E+00	8.371E-01	8.380E-01	14.53
CE-141	145.44	54	48.40*	7.024E+00	5.026E-02	7.089E-02	107.80
TL-208	277.35	-----	6.80	4.676E+00	-----	Line Not Found	-----
	510.84	103	21.60	2.952E+00	5.127E-01	5.127E-01	66.66
	583.14	403	84.20*	2.661E+00	5.690E-01	5.690E-01	17.18
	860.37	-----	12.46	1.927E+00	-----	Line Not Found	-----
BI-210	46.50	56	4.05*	1.465E+00	2.970E+00	2.974E+00	104.78
PB-210	46.50	56	4.05*	1.465E+00	2.970E+00	2.974E+00	104.78
PO-210	46.50	56	4.05*	1.465E+00	2.970E+00	2.974E+00	104.70
BI-211	72.87	-----	1.27	5.576E+00	-----	Line Not Found	-----
	351.07	726	12.94*	3.921E+00	4.524E+00	4.524E+00	16.77
PB-212	74.81	363	10.70	5.793E+00	1.852E+00	1.852E+00	23.54
	77.11	559	18.00	6.022E+00	1.630E+00	1.630E+00	15.96
	87.30	124	8.00	6.742E+00	7.238E-01	7.238E-01	65.99
	238.63	1125	44.60*	5.209E+00	1.531E+00	1.531E+00	16.04
	300.09	84	3.41	4.414E+00	1.772E+00	1.772E+00	62.38
PO-212	74.81	363	10.70	5.793E+00	1.852E+00	1.852E+00	23.54
	77.11	559	18.00	6.022E+00	1.630E+00	1.630E+00	15.96
	87.30	124	8.00	6.742E+00	7.238E-01	7.238E-01	65.99
	115.19	-----	0.60	7.407E+00	-----	Line Not Found	-----
	238.63	1125	44.60*	5.209E+00	1.531E+00	1.531E+00	16.04
	300.09	84	3.41	4.414E+00	1.772E+00	1.772E+00	62.38
BI-214	609.31	470	46.30*	2.568E+00	1.248E+00	1.248E+00	16.59
	1120.29	122	15.10	1.530E+00	1.673E+00	1.673E+00	32.42
	1764.49	67	15.80	1.070E+00	1.245E+00	1.245E+00	35.86
PB-214	74.81	363	6.21	5.793E+00	3.190E+00	3.190E+00	22.84
	77.11	559	10.50	6.022E+00	2.794E+00	2.794E+00	17.69

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	124	4.67	6.742E+00	1.240E+00	1.240E+00	65.68
	241.98	192	7.49	5.161E+00	1.573E+00	1.573E+00	36.37
	295.21	310	19.20	4.465E+00	1.143E+00	1.143E+00	28.19
	351.92	726	37.20*	3.921E+00	1.574E+00	1.574E+00	17.56
	74.81	363	6.21	5.793E+00	3.190E+00	3.190E+00	22.84
	77.11	559	10.50	6.022E+00	2.794E+00	2.794E+00	17.69
	87.30	124	4.67	6.742E+00	1.240E+00	1.240E+00	65.68
	241.98	192	7.49	5.161E+00	1.573E+00	1.573E+00	36.37
	295.21	310	19.20	4.465E+00	1.143E+00	1.143E+00	28.19
	351.92	726	37.20*	3.921E+00	1.574E+00	1.574E+00	17.56
PO-216	74.81	363	10.70	5.793E+00	1.852E+00	1.852E+00	23.54
	77.11	559	18.00	6.022E+00	1.630E+00	1.630E+00	15.96
	87.30	124	8.00	6.742E+00	7.238E-01	7.238E-01	65.99
	238.63	1125	44.60*	5.209E+00	1.531E+00	1.531E+00	16.04
	300.09	84	3.41	4.414E+00	1.772E+00	1.772E+00	62.38
	74.81	363	6.21	5.793E+00	3.190E+00	3.190E+00	22.84
PO-218	77.11	559	10.50	6.022E+00	2.794E+00	2.794E+00	17.69
	87.30	124	4.67	6.742E+00	1.240E+00	1.240E+00	65.68
	241.98	192	7.49	5.161E+00	1.573E+00	1.573E+00	36.37
	295.21	310	19.20	4.465E+00	1.143E+00	1.143E+00	28.19
	351.92	726	37.20*	3.921E+00	1.574E+00	1.574E+00	17.56
	240.98	192	3.95*	5.161E+00	2.982E+00	2.982E+00	35.93
RA-224	609.31	470	46.30*	2.568E+00	1.248E+00	1.248E+00	16.59
	1120.29	122	15.10	1.530E+00	1.673E+00	1.673E+00	32.42
	1764.49	67	15.80	1.070E+00	1.245E+00	1.245E+00	35.86
AC-228	338.32	196	11.40	4.038E+00	1.343E+00	1.343E+00	51.18
	911.07	267	27.70*	1.833E+00	1.660E+00	1.660E+00	22.12
	969.11	139	16.60	1.737E+00	1.519E+00	1.519E+00	35.44
RA-228	338.32	196	11.40	4.038E+00	1.343E+00	1.343E+00	51.18
	911.07	267	27.70*	1.833E+00	1.660E+00	1.660E+00	22.12
	969.11	139	16.60	1.737E+00	1.519E+00	1.519E+00	35.44
TH-228	74.81	363	10.70	5.793E+00	1.852E+00	1.881E+00	21.64
	77.11	559	18.00	6.022E+00	1.630E+00	1.656E+00	15.96
	87.30	124	8.00	6.742E+00	7.238E-01	7.354E-01	65.23
	238.63	1125	44.60*	5.209E+00	1.531E+00	1.556E+00	16.04
	300.09	84	3.41	4.414E+00	1.772E+00	1.801E+00	85.42
	609.31	470	46.30*	2.568E+00	1.248E+00	1.248E+00	16.59
TH-230	1120.29	122	15.10	1.530E+00	1.673E+00	1.673E+00	32.42
	1764.49	67	15.80	1.070E+00	1.245E+00	1.245E+00	35.86
	338.32	196	11.40	4.038E+00	1.343E+00	1.343E+00	31.48
TH-232	911.07	267	27.70*	1.833E+00	1.660E+00	1.660E+00	22.12
	969.11	139	16.60	1.737E+00	1.519E+00	1.519E+00	35.44
	63.29	211	3.80*	4.249E+00	4.136E+00	4.136E+00	43.15
U-234	92.38	576	5.41	7.056E+00	4.773E+00	4.773E+00	23.27
	609.31	470	46.30*	2.568E+00	1.248E+00	1.248E+00	16.59
	1120.29	122	15.10	1.530E+00	1.673E+00	1.673E+00	32.42
U-235	1764.49	67	15.80	1.070E+00	1.245E+00	1.245E+00	35.86
	89.95	178	2.70	6.932E+00	3.002E+00	3.002E+00	41.42
	93.35	576	4.50	7.056E+00	5.738E+00	5.738E+00	31.62

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	105.00	-----	2.10	7.364E+00	-----	Line Not Found	-----
	143.76	54	10.50*	7.024E+00	2.317E-01	2.317E-01	108.85
	163.35	-----	4.70	6.629E+00	-----	Line Not Found	-----
	185.71	426	54.00	6.156E+00	4.047E-01	4.047E-01	22.27
	205.31	-----	4.70	5.777E+00	-----	Line Not Found	-----
NP-237	86.50	124	12.60*	6.742E+00	4.595E-01	4.595E-01	68.42
	95.87	-----	2.60	7.169E+00	-----	Line Not Found	-----
U-238	63.29	211	3.80*	4.249E+00	4.136E+00	4.136E+00	43.15
	92.38	576	5.41	7.056E+00	4.773E+00	4.773E+00	17.00
AM-243	74.67	363	66.00*	5.793E+00	3.002E-01	3.002E-01	21.61
	86.72	124	0.34	6.742E+00	1.723E+01	1.723E+01	65.23
	117.66	-----	0.55	7.397E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.065E+00	-----	Line Not Found	-----
ANH-511	511.00	103	100.00*	2.952E+00	1.107E-01	1.107E-01	66.14

Flag: "\*" = Keyline

Total number of lines in spectrum 35  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 33 94.29%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.865E+01	2.865E+01	0.304E+01	10.60	
SN-126	1.00E+05Y	1.00	1.565E-01	1.565E-01	1.021E-01	65.23	
BA-137M	30.17Y	1.00	7.919E-01	7.927E-01	1.151E-01	14.52	
CS-137	30.17Y	1.00	8.371E-01	8.380E-01	1.218E-01	14.53	
CE-141	32.50D	1.41	5.026E-02	7.089E-02	7.642E-02	107.80	
TL-208	1.41E+10Y	1.00	5.690E-01	5.690E-01	0.978E-01	17.18	
BI-210	22.26Y	1.00	2.970E+00	2.974E+00	3.116E+00	104.78	
PB-210	22.26Y	1.00	2.970E+00	2.974E+00	3.116E+00	104.78	
PO-210	22.26Y	1.00	2.970E+00	2.974E+00	3.114E+00	104.70	
BI-211	7.04E+08Y	1.00	4.524E+00	4.524E+00	0.759E+00	16.77	
PB-212	1.41E+10Y	1.00	1.531E+00	1.531E+00	0.245E+00	16.04	
PO-212	1.41E+10Y	1.00	1.531E+00	1.531E+00	0.245E+00	16.04	
BI-214	1600.00Y	1.00	1.248E+00	1.248E+00	0.207E+00	16.59	
PB-214	1600.00Y	1.00	1.574E+00	1.574E+00	0.276E+00	17.56	
PO-214	1600.00Y	1.00	1.574E+00	1.574E+00	0.276E+00	17.56	
PO-216	1.41E+10Y	1.00	1.531E+00	1.531E+00	0.245E+00	16.04	
PO-218	1600.00Y	1.00	1.574E+00	1.574E+00	0.276E+00	17.56	
RA-224	1.41E+10Y	1.00	2.982E+00	2.982E+00	1.072E+00	35.93	
RA-226	1600.00Y	1.00	1.248E+00	1.248E+00	0.207E+00	16.59	
AC-228	1.41E+10Y	1.00	1.660E+00	1.660E+00	0.367E+00	22.12	
RA-228	1.41E+10Y	1.00	1.660E+00	1.660E+00	0.367E+00	22.12	
TH-228	1.91Y	1.02	1.531E+00	1.556E+00	0.249E+00	16.04	
TH-230	4.47E+09Y	1.00	1.248E+00	1.248E+00	0.207E+00	16.59	
TH-232	1.41E+10Y	1.00	1.660E+00	1.660E+00	0.367E+00	22.12	
TH-234	4.47E+09Y	1.00	4.136E+00	4.136E+00	1.784E+00	43.15	
U-234	4.47E+09Y	1.00	1.248E+00	1.248E+00	0.207E+00	16.59	
U-235	7.04E+08Y	1.00	2.317E-01	2.317E-01	2.522E-01	108.85	
NP-237	2.14E+06Y	1.00	4.595E-01	4.595E-01	3.144E-01	68.42	
U-238	4.47E+09Y	1.00	4.136E+00	4.136E+00	1.784E+00	43.15	
AM-243	7380.00Y	1.00	3.002E-01	3.002E-01	0.649E-01	21.61	
ANH-511	1.00E+09Y	1.00	1.107E-01	1.107E-01	0.732E-01	66.14	
Total Activity :			7.766E+01	7.772E+01			

Grand Total Activity : 7.766E+01 7.772E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.94	134	337	1.38	166.78	164	6	1.86E-02	48.2	6.58E+00	T
0	209.11	99	241	0.91	417.31	414	8	1.38E-02	57.4	5.71E+00	T
0	269.89	54	214	1.07	538.95	536	9	7.53E-03	****	4.77E+00	T
0	328.58	104	145	1.71	656.43	652	11	1.45E-02	48.8	4.13E+00	T
0	728.34	63	105	1.34	1456.42	1451	13	8.71E-03	71.0	2.22E+00	T
0	795.35	46	43	1.54	1590.50	1586	10	6.44E-03	61.6	2.06E+00	T
6	965.54	42	57	2.07	1931.04	1927	25	5.86E-03	62.7	1.74E+00	T
0	1003.29	21	71	5.16	2006.57	1997	16	2.93E-03	****	1.69E+00	T
0	1238.83	59	45	1.47	2477.82	2470	12	8.15E-03	52.7	1.40E+00	T
0	1589.76	21	21	2.26	3179.86	3171	14	2.95E-03	****	1.15E+00	
0	1631.02	18	5	1.35	3262.39	3257	10	2.50E-03	66.2	1.13E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229008.CNF;1
* Acquisition date   : 22-JAN-2010 14:03:29   Detector SN#      :
* Detector ID        : GAM11                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.73          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229008             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity  : 1.18760E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22.2MS Isotope      :
* MSD ID              :                               MSD Isotope :
* LCS ID              : 1032-A                       LCS Isotope   :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.865E+01	3.037E+00	4.079E-01	3.527E-02	70.233
SN-126	1.565E-01	1.021E-01	1.223E-01	1.154E-02	1.279
BA-137M	7.927E-01	1.151E-01	5.769E-02	5.459E-03	13.741
CS-137	8.380E-01	1.218E-01	6.099E-02	5.780E-03	13.741
CE-141	7.089E-02	7.642E-02	9.122E-02	8.360E-03	0.777
TL-208	5.690E-01	9.777E-02	4.997E-02	5.396E-03	11.388
BI-210	2.974E+00	3.116E+00	3.490E+00	3.249E-01	0.852
PB-210	2.974E+00	3.116E+00	3.490E+00	3.249E-01	0.852
PO-210	2.974E+00	3.114E+00	3.490E+00	2.942E-01	0.852
BI-211	4.524E+00	7.585E-01	2.817E-01	3.717E-02	16.057
PB-212	1.531E+00	2.455E-01	9.228E-02	1.292E-02	16.588
PO-212	1.531E+00	2.455E-01	9.228E-02	1.292E-02	16.588
BI-214	1.248E+00	2.071E-01	1.019E-01	1.152E-02	12.255
PB-214	1.574E+00	2.763E-01	9.821E-02	1.390E-02	16.023
PO-214	1.574E+00	2.763E-01	9.821E-02	1.390E-02	16.023
PO-216	1.531E+00	2.455E-01	9.228E-02	1.292E-02	16.588
PO-218	1.574E+00	2.763E-01	9.821E-02	1.390E-02	16.023
RA-224	2.982E+00	1.072E+00	1.173E+00	1.571E-01	2.543

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.248E+00	2.071E-01	1.019E-01	1.152E-02	12.255
AC-228	1.660E+00	3.671E-01	1.990E-01	2.423E-02	8.339
RA-228	1.660E+00	3.671E-01	1.990E-01	2.423E-02	8.339
TH-228	1.556E+00	2.495E-01	9.377E-02	1.313E-02	16.588
TH-230	1.248E+00	2.071E-01	1.019E-01	1.151E-02	12.255
TH-232	1.660E+00	3.671E-01	1.990E-01	2.423E-02	8.339
TH-234	4.136E+00	1.784E+00	1.505E+00	2.618E-01	2.748
U-234	1.248E+00	2.071E-01	1.019E-01	1.151E-02	12.255
U-235	2.317E-01	2.522E-01	3.008E-01	5.318E-02	0.770
NP-237	4.595E-01	3.144E-01	3.466E-01	7.846E-02	1.326
U-238	4.136E+00	1.784E+00	1.505E+00	2.618E-01	2.748
AM-243	3.002E-01	6.486E-02	7.442E-02	6.022E-03	4.033
ANH-511	1.107E-01	7.324E-02	4.925E-02	5.266E-03	2.249

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.406E-02		3.034E-01	5.046E-01	5.711E-02	-0.028
NA-22	-1.809E-02		4.339E-02	6.712E-02	5.512E-03	-0.270
NA-24	1.064E-01		1.032E+00	Half-Life	too short	
AL-26	-1.978E-02		2.758E-02	3.768E-02	3.076E-03	-0.525
TI-44	3.008E-01	+	4.801E-02	5.880E-02	4.957E-03	5.116
SC-46	-1.343E-02		3.207E-02	5.121E-02	5.044E-03	-0.262
V-48	-4.572E-02		6.679E-02	1.025E-01	9.724E-03	-0.446
CR-51	1.697E-01		3.578E-01	5.897E-01	8.559E-02	0.288
MN-52	-5.250E-02		2.389E-01	3.694E-01	3.095E-02	-0.142
MN-54	1.303E-02		3.593E-02	6.236E-02	6.141E-03	0.209
CO-56	-9.774E-03		3.286E-02	5.361E-02	5.282E-03	-0.182
CO-57	2.563E-02		2.217E-02	3.925E-02	3.320E-03	0.653
CO-58	-4.153E-02		4.020E-02	5.629E-02	5.542E-03	-0.738
FE-59	3.583E-03		8.831E-02	1.461E-01	1.374E-02	0.025
CO-60	-3.100E-04		4.026E-02	6.513E-02	5.382E-03	-0.005
ZN-65	1.823E-04		9.764E-02	1.392E-01	1.195E-02	0.001
GE-68	4.342E-01		1.215E+00	2.076E+00	1.844E-01	0.209
AS-73	4.487E-01		6.250E-01	1.032E+00	7.747E-02	0.435
AS-74	8.113E-02		8.757E-02	1.543E-01	1.568E-02	0.526
SE-75	6.066E-03		4.146E-02	6.780E-02	9.965E-03	0.089
BR-77	-6.099E-01		1.386E+01	2.290E+01	2.441E+00	-0.027
SR-82	-5.375E-01		3.530E-01	4.561E-01	4.460E-02	-1.179
RB-83	1.753E-02		6.764E-02	1.143E-01	1.218E-02	0.153
RB-84	7.774E-04		6.719E-02	1.129E-01	1.113E-02	0.007
KR-85	1.095E+01		7.714E+00	1.263E+01	1.349E+00	0.867
SR-85	5.670E-02		3.996E-02	6.540E-02	6.986E-03	0.867
RB-86	6.201E-01		7.993E-01	1.417E+00	1.259E-01	0.438
Y-88	6.622E-03		3.809E-02	6.457E-02	5.242E-03	0.103
ZR-88	-9.639E-03		2.872E-02	4.754E-02	5.070E-03	-0.203
Y-91	4.619E+00		1.797E+01	3.012E+01	2.438E+00	0.153

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-94	3.562E-02		3.411E-02	5.972E-02	5.735E-03	0.596
NB-95	-1.345E-04		4.355E-02	6.996E-02	6.829E-03	-0.002
NB-95M	4.956E-03		1.232E-01	1.803E-01	2.517E-02	0.027
ZR-95	6.937E-03		7.574E-02	1.228E-01	1.293E-02	0.056
NB-97	1.238E-01		1.406E-01	Half-Life too short		
ZR-97	6.909E+00		2.438E+00	Half-Life too short		
MO-99	-1.657E+01		1.505E+01	2.118E+01	3.351E+00	-0.782
TC-99M	3.422E+10		2.669E+11	Half-Life too short		
RH-101	1.771E-02		2.973E-02	4.946E-02	5.536E-03	0.358
RH-102	-3.589E-03		2.949E-02	4.883E-02	5.264E-03	-0.073
RU-103	4.110E-03		3.775E-02	6.336E-02	9.846E-03	0.065
RH-106	2.059E-01		3.098E-01	5.329E-01	7.584E-02	0.386
RU-106	2.059E-01		3.091E-01	5.329E-01	5.287E-02	0.386
AG-108M	1.527E-02		3.134E-02	5.431E-02	6.004E-03	0.281
CD-109	7.179E-01		1.022E+00	1.333E+00	1.264E-01	0.538
AG-110M	1.931E-02		3.915E-02	5.899E-02	5.749E-03	0.327
IN-111	8.510E-01		1.307E+00	1.992E+00	2.715E-01	0.427
IN-113M	-8.901E-03		4.173E-02	6.967E-02	7.578E-03	-0.128
SN-113	-8.901E-03		4.173E-02	6.967E-02	7.578E-03	-0.128
IN-114M	2.102E-03		1.673E-01	2.485E-01	2.688E-02	0.008
CD-115	-1.159E+01		1.401E+01	2.154E+01	2.289E+00	-0.538
SN-117M	-7.595E-03		4.834E-02	8.033E-02	7.592E-03	-0.095
SB-122	3.352E-01		2.642E+00	4.396E+00	4.580E-01	0.076
I-123	2.324E+00		8.372E+00	Half-Life too short		
TE-123M	3.383E-03		2.438E-02	4.107E-02	3.907E-03	0.082
I-124	-1.388E-01		7.391E-01	1.193E+00	1.205E-01	-0.116
SB-124	-8.230E-03		7.113E-02	1.153E-01	1.002E-02	-0.071
SB-125	1.755E-02		8.701E-02	1.483E-01	1.618E-02	0.118
TE-125M	9.885E+00		7.685E+00	1.369E+01	1.405E+00	0.722
I-126	1.675E-01		1.868E-01	2.964E-01	2.809E-02	0.565
SB-126	-8.593E-02		1.543E-01	2.360E-01	2.279E-02	-0.364
SB-127	-4.485E-02		1.491E+00	2.412E+00	2.984E-01	-0.019
XE-127	4.785E-03		4.429E-02	7.344E-02	8.394E-03	0.065
I-131	3.703E-02		1.231E-01	1.993E-01	2.503E-02	0.186
TE-132	2.035E-01		7.481E-01	1.242E+00	2.290E-01	0.164
BA-133	-1.173E-02		4.132E-02	5.625E-02	9.072E-03	-0.209
I-133	-1.592E-02		6.467E-03	Half-Life too short		
CS-134	9.390E-02	+	5.858E-02	8.973E-02	8.852E-03	1.046
CS-135	1.076E-01		1.669E-01	2.518E-01	3.951E-02	0.427
I-135	-7.512E+07		3.411E+10	Half-Life too short		
CS-136	-4.953E-02		1.083E-01	1.704E-01	1.609E-02	-0.291
CE-139	-1.253E-02		2.710E-02	4.426E-02	4.301E-03	-0.283
BA-140	-9.831E-02		2.738E-01	4.370E-01	1.473E-01	-0.225
LA-140	6.542E-02		7.880E-02	1.423E-01	1.196E-02	0.460
CE-143	3.762E-04		1.302E-04	Half-Life too short		
CE-144	1.306E-01		1.783E-01	3.086E-01	4.815E-02	0.423
PM-144	-1.387E-02		3.741E-02	5.484E-02	5.257E-03	-0.253
PR-144	-9.402E-01		2.536E+00	3.718E+00	3.563E-01	-0.253



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-146	4.981E-02		4.545E-02	8.063E-02	1.011E-02	0.618
ND-147	-3.526E-01		5.729E-01	8.963E-01	1.450E-01	-0.393
PM-149	1.773E+01		1.200E+02	1.952E+02	3.914E+01	0.091
EU-152	-6.010E-02		9.653E-02	1.460E-01	1.980E-02	-0.412
GD-153	-2.282E-02		7.824E-02	1.094E-01	9.715E-03	-0.209
EU-154	-5.168E-02		1.211E-01	1.869E-01	2.056E-02	-0.276
EU-155	1.695E-01		8.723E-02	1.586E-01	1.384E-02	1.069
TB-160	8.642E-02		1.363E-01	2.415E-01	2.379E-02	0.358
HO-166M	-2.991E-02		5.985E-02	9.210E-02	8.870E-03	-0.325
TM-171	-2.752E+00		2.430E+01	3.504E+01	2.629E+00	-0.079
LU-176	1.947E-02		2.377E-02	3.992E-02	5.868E-03	0.488
LU-177	2.650E+00	+	1.553E+00	2.003E+00	2.345E-01	1.323
LU-177M	-7.415E-03		1.597E-01	2.685E-01	2.883E-02	-0.028
HF-181	1.240E-04		4.015E-02	6.698E-02	7.214E-03	0.002
W-181	-2.579E-01		3.056E-01	4.214E-01	3.124E-02	-0.612
TA-182	-5.686E-02		1.974E-01	3.132E-01	2.545E-02	-0.182
RE-183	4.110E-02		9.955E-02	1.694E-01	1.624E-02	0.243
RE-184	-8.864E-02		2.141E-01	3.387E-01	4.752E-02	-0.262
OS-185	3.594E-02		3.929E-02	6.919E-02	6.678E-03	0.519
RE-188	3.841E-02		1.470E-01	2.493E-01	2.326E-02	0.154
W-188	-1.557E+00		7.866E+00	1.109E+01	1.684E+00	-0.140
IR-192	-5.521E-04		3.463E-02	5.494E-02	7.897E-03	-0.010
AU-195	2.765E-01		2.009E-01	3.465E-01	3.057E-02	0.798
TL-200	-1.230E-04		4.202E-04	Half-Life	too short	
TL-201	-2.575E+00		7.680E+00	1.261E+01	1.234E+00	-0.204
TL-202	-2.079E-02		7.010E-02	1.153E-01	1.243E-02	-0.180
HG-203	1.914E-02		3.920E-02	6.499E-02	1.015E-02	0.294
BI-207	3.716E-02		5.215E-02	9.190E-02	8.256E-03	0.404
TL-207	6.848E-01		6.864E-01	1.045E+00	2.185E-01	0.656
PO-209	3.083E+00		7.206E+00	1.254E+01	1.235E+00	0.246
PB-211	-7.191E-01		9.613E-01	1.351E+00	8.509E-01	-0.532
BI-212	7.567E-01	+	5.435E-01	6.590E-01	7.202E-02	1.148
PO-215	6.848E-01		6.864E-01	1.045E+00	2.185E-01	0.656
RN-219	1.260E-01		3.831E-01	6.600E-01	1.076E-01	0.191
RN-220	-1.710E+01		2.454E+01	3.801E+01	3.995E+00	-0.450
RA-223	6.848E-01		6.864E-01	1.045E+00	2.185E-01	0.656
AC-227	-2.268E-02		3.524E-01	5.703E-01	1.087E-01	-0.040
TH-227	-2.268E-02		3.524E-01	5.703E-01	1.215E-01	-0.040
TH-229	3.258E-01		4.503E-01	7.690E-01	8.444E-02	0.424
PA-231	1.375E+00		1.509E+00	2.528E+00	5.009E-01	0.544
TH-231	6.848E-01		6.864E-01	1.045E+00	2.185E-01	0.656
U-231	-9.427E-02		1.156E+00	1.640E+00	1.469E-01	-0.057
PA-233	3.003E-02		6.038E-02	9.980E-02	1.464E-02	0.301
PA-234	-2.807E-01		2.903E-01	4.278E-01	8.241E-02	-0.656
PA-234M	3.580E+00		5.034E+00	8.774E+00	9.333E-01	0.408
NP-236	5.825E-03		6.953E-02	1.168E-01	1.111E-02	0.050
NP-239	-2.373E-02		1.556E-01	2.631E-01	2.226E-02	-0.090
AM-241	7.796E-02		1.288E-01	1.951E-01	1.533E-02	0.400

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-8.027E-02		7.974E-02	1.304E-01	1.130E-02	-0.615
AM-246	-1.091E-01		1.399E-01	2.141E-01	1.899E-02	-0.510
CM-247	1.102E-02		3.357E-02	5.789E-02	6.196E-03	0.190
CF-249	2.896E-02		3.791E-02	6.695E-02	7.291E-03	0.433
CF-251	-7.145E-02		1.120E-01	1.802E-01	1.836E-02	-0.396

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229008          *
* Acquisition date   : 22-JAN-2010 14:03:29 Detector SN# :                *
* Detector ID        : GAM11 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.73 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229008 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.1876E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.865E+01	2.976E+00	2.035E-01	1.518E+00
SN-126	1.565E-01	1.000E-01	6.296E-02	5.104E-02
BA-137M	7.927E-01	1.128E-01	2.904E-02	5.757E-02
CS-137	8.380E-01	1.194E-01	3.070E-02	6.089E-02
CE-141	7.089E-02	7.489E-02	4.670E-02	3.821E-02
TL-208	5.690E-01	9.581E-02	2.519E-02	4.888E-02
BI-210	2.974E+00	3.053E+00	1.809E+00	1.558E+00
PB-210	2.974E+00	3.053E+00	1.809E+00	1.558E+00
PO-210	2.974E+00	3.051E+00	1.809E+00	1.557E+00
BI-211	4.524E+00	7.433E-01	1.428E-01	3.793E-01
PB-212	1.531E+00	2.406E-01	4.699E-02	1.227E-01
PO-212	1.531E+00	2.406E-01	4.699E-02	1.227E-01
BI-214	1.248E+00	2.030E-01	5.133E-02	1.035E-01
PB-214	1.574E+00	2.708E-01	4.979E-02	1.382E-01
PO-214	1.574E+00	2.708E-01	4.979E-02	1.382E-01
PO-216	1.531E+00	2.406E-01	4.699E-02	1.227E-01
PO-218	1.574E+00	2.708E-01	4.979E-02	1.382E-01
RA-224	2.982E+00	1.050E+00	5.971E-01	5.358E-01
RA-226	1.248E+00	2.030E-01	5.133E-02	1.035E-01
AC-228	1.660E+00	3.597E-01	9.983E-02	1.835E-01
RA-228	1.660E+00	3.597E-01	9.983E-02	1.835E-01
TH-228	1.556E+00	2.445E-01	4.775E-02	1.247E-01
TH-230	1.248E+00	2.029E-01	5.133E-02	1.035E-01
TH-232	1.660E+00	3.597E-01	9.983E-02	1.835E-01
TH-234	4.136E+00	1.749E+00	7.774E-01	8.922E-01
U-234	1.248E+00	2.029E-01	5.133E-02	1.035E-01
U-235	2.317E-01	2.471E-01	1.540E-01	1.261E-01
NP-237	4.595E-01	3.081E-01	1.784E-01	1.572E-01
U-238	4.136E+00	1.749E+00	7.774E-01	8.922E-01
AM-243	3.002E-01	6.356E-02	3.838E-02	3.243E-02
ANH-511	1.107E-01	7.178E-02	2.486E-02	3.662E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.406E-02	2.973E-01	2.550E-01	1.517E-01 NOT IDENT.
NA-22	-1.809E-02	4.252E-02	3.354E-02	2.169E-02 NOT IDENT.
NA-24	1.064E+05	2.022E+06	0.000E+00	1.032E+06 SHORT HLIF
AL-26	-1.978E-02	2.703E-02	1.875E-02	1.379E-02 NOT IDENT.
TI-44	3.008E-01	4.705E-02	3.030E-02	2.401E-02 FAIL ABUN
SC-46	-1.343E-02	3.143E-02	2.570E-02	1.604E-02 FAIL ABUN
V-48	-4.572E-02	6.546E-02	5.137E-02	3.340E-02 NOT IDENT.
CR-51	1.697E-01	3.506E-01	2.993E-01	1.789E-01 NOT IDENT.
MN-52	-5.250E-02	2.341E-01	1.843E-01	1.195E-01 NOT IDENT.
MN-54	1.303E-02	3.521E-02	3.131E-02	1.797E-02 NOT IDENT.
CO-56	-9.774E-03	3.220E-02	2.691E-02	1.643E-02 FAIL ABUN
CO-57	2.563E-02	2.173E-02	2.013E-02	1.109E-02 NOT IDENT.
CO-58	-4.153E-02	3.939E-02	2.827E-02	2.010E-02 NOT IDENT.
FE-59	3.583E-03	8.654E-02	7.314E-02	4.415E-02 NOT IDENT.
CO-60	-3.100E-04	3.945E-02	3.253E-02	2.013E-02 NOT IDENT.
ZN-65	1.823E-04	9.569E-02	6.968E-02	4.882E-02 NOT IDENT.
GE-68	4.342E-01	1.190E+00	1.039E+00	6.074E-01 NOT IDENT.
AS-73	4.487E-01	6.125E-01	5.339E-01	3.125E-01 NOT IDENT.
AS-74	8.113E-02	8.581E-02	7.774E-02	4.378E-02 NOT IDENT.
SE-75	6.066E-03	4.063E-02	3.448E-02	2.073E-02 NOT IDENT.
BR-77	-6.099E-01	1.358E+01	1.156E+01	6.929E+00 FAIL ABUN
SR-82	-5.375E-01	3.460E-01	2.292E-01	1.765E-01 NOT IDENT.
RB-83	1.753E-02	6.629E-02	5.772E-02	3.382E-02 NOT IDENT.
RB-84	7.774E-04	6.585E-02	5.667E-02	3.360E-02 NOT IDENT.
KR-85	1.095E+01	7.560E+00	6.374E+00	3.857E+00 NOT IDENT.
SR-85	5.670E-02	3.916E-02	3.302E-02	1.998E-02 NOT IDENT.
RB-86	6.201E-01	7.833E-01	7.094E-01	3.997E-01 NOT IDENT.
Y-88	6.622E-03	3.732E-02	3.213E-02	1.904E-02 NOT IDENT.
ZR-88	-9.639E-03	2.815E-02	2.407E-02	1.436E-02 NOT IDENT.
Y-91	4.619E+00	1.761E+01	1.506E+01	8.985E+00 NOT IDENT.
NB-94	3.562E-02	3.342E-02	3.004E-02	1.705E-02 NOT IDENT.
NB-95	-1.345E-04	4.268E-02	3.516E-02	2.178E-02 NOT IDENT.
NB-95M	4.956E-03	1.207E-01	9.180E-02	6.158E-02 NOT IDENT.
ZR-95	6.937E-03	7.422E-02	6.174E-02	3.787E-02 NOT IDENT.
NB-97	1.238E+05	2.757E+05	0.000E+00	1.406E+05 SHORT HLIF
ZR-97	6.909E+06	4.779E+06	0.000E+00	2.438E+06 SHORT HLIF
MO-99	-1.657E+01	1.475E+01	1.065E+01	7.525E+00 NOT IDENT.
TC-99M	3.422E+16	5.231E+17	0.000E+00	0.000E+00 SHORT HLIF
RH-101	1.771E-02	2.913E-02	2.524E-02	1.486E-02 NOT IDENT.
RH-102	-3.589E-03	2.890E-02	2.467E-02	1.475E-02 NOT IDENT.
RU-103	4.110E-03	3.700E-02	3.200E-02	1.888E-02 FAIL ABUN
RH-106	2.059E-01	3.036E-01	2.685E-01	1.549E-01 FAIL ABUN
RU-106	2.059E-01	3.029E-01	2.685E-01	1.546E-01 FAIL ABUN
AG-108M	1.527E-02	3.071E-02	2.747E-02	1.567E-02 NOT IDENT.
CD-109	7.179E-01	1.002E+00	6.864E-01	5.112E-01 NOT IDENT.
AG-110M	1.931E-02	3.836E-02	2.970E-02	1.957E-02 NOT IDENT.
IN-111	8.510E-01	1.281E+00	1.014E+00	6.533E-01 NOT IDENT.
IN-113M	-8.901E-03	4.089E-02	3.528E-02	2.086E-02 NOT IDENT.
SN-113	-8.901E-03	4.089E-02	3.528E-02	2.086E-02 NOT IDENT.
IN-114M	2.102E-03	1.640E-01	1.268E-01	8.365E-02 NOT IDENT.
CD-115	-1.159E+01	1.373E+01	1.087E+01	7.005E+00 NOT IDENT.
SN-117M	-7.595E-03	4.738E-02	4.109E-02	2.417E-02 NOT IDENT.
SB-122	3.352E-01	2.589E+00	2.217E+00	1.321E+00 NOT IDENT.
I-123	2.324E+06	1.641E+07	0.000E+00	8.372E+06 SHORT HLIF
TE-123M	3.383E-03	2.389E-02	2.101E-02	1.219E-02 NOT IDENT.
I-124	-1.388E-01	7.244E-01	6.011E-01	3.696E-01 NOT IDENT.
SB-124	-8.230E-03	6.970E-02	5.743E-02	3.556E-02 FAIL ABUN
SB-125	1.755E-02	8.527E-02	7.504E-02	4.351E-02 NOT IDENT.
TE-125M	9.885E+00	7.532E+00	7.029E+00	3.843E+00 NOT IDENT.
I-126	1.675E-01	1.831E-01	1.492E-01	9.342E-02 NOT IDENT.
SB-126	-8.593E-02	1.512E-01	1.187E-01	7.713E-02 FAIL ABUN
SB-127	-4.485E-02	1.462E+00	1.214E+00	7.457E-01 NOT IDENT.
XE-127	4.785E-03	4.340E-02	3.746E-02	2.214E-02 FAIL ABUN
I-131	3.703E-02	1.207E-01	1.010E-01	6.157E-02 NOT IDENT.
TE-132	2.035E-01	7.331E-01	6.327E-01	3.740E-01 NOT IDENT.
BA-133	-1.173E-02	4.049E-02	2.851E-02	2.066E-02 NOT IDENT.
I-133	-1.592E+04	1.268E+04	0.000E+00	6.467E+03 SHORT HLIF
CS-134	9.390E-02	5.741E-02	4.508E-02	2.929E-02 FAIL ABUN
CS-135	1.076E-01	1.636E-01	1.281E-01	8.346E-02 NOT IDENT.
I-135	-7.512E+13	6.686E+16	0.000E+00	0.000E+00 SHORT HLIF
CS-136	-4.953E-02	1.061E-01	8.533E-02	5.415E-02 FAIL ABUN
CE-139	-1.253E-02	2.655E-02	2.263E-02	1.355E-02 NOT IDENT.
BA-140	-9.831E-02	2.683E-01	2.205E-01	1.369E-01 NOT IDENT.
LA-140	6.542E-02	7.723E-02	7.090E-02	3.940E-02 FAIL ABUN

CE-143	3.762E+02	2.551E+02	0.000E+00	1.302E+02	SHORT HLIF
CE-144	1.306E-01	1.747E-01	1.581E-01	8.913E-02	NOT IDENT.
PM-144	-1.387E-02	3.666E-02	2.759E-02	1.871E-02	NOT IDENT.
PR-144	-9.402E-01	2.486E+00	1.871E+00	1.268E+00	NOT IDENT.
PM-146	4.981E-02	4.454E-02	4.076E-02	2.273E-02	NOT IDENT.
ND-147	-3.526E-01	5.614E-01	4.523E-01	2.864E-01	FAIL ABUN
PM-149	1.773E+01	1.176E+02	9.919E+01	6.001E+01	NOT IDENT.
EU-152	-6.010E-02	9.460E-02	7.405E-02	4.826E-02	NOT IDENT.
GD-153	-2.282E-02	7.667E-02	5.623E-02	3.912E-02	FAIL ABUN
EU-154	-5.168E-02	1.186E-01	9.341E-02	6.053E-02	FAIL ABUN
EU-155	1.695E-01	8.549E-02	8.147E-02	4.362E-02	FAIL ABUN
TB-160	8.642E-02	1.336E-01	1.212E-01	6.815E-02	FAIL ABUN
HO-166M	-2.991E-02	5.866E-02	4.633E-02	2.993E-02	FAIL ABUN
TM-171	-2.752E+00	2.381E+01	1.809E+01	1.215E+01	NOT IDENT.
LU-176	1.947E-02	2.330E-02	2.027E-02	1.189E-02	NOT IDENT.
LU-177	2.650E+00	1.522E+00	1.022E+00	7.767E-01	FAIL ABUN
LU-177M	-7.415E-03	1.565E-01	1.359E-01	7.986E-02	FAIL ABUN
HF-181	1.240E-04	3.934E-02	3.384E-02	2.007E-02	NOT IDENT.
W-181	-2.579E-01	2.995E-01	2.176E-01	1.528E-01	NOT IDENT.
TA-182	-5.686E-02	1.934E-01	1.566E-01	9.868E-02	FAIL ABUN
RE-183	4.110E-02	9.756E-02	8.661E-02	4.977E-02	FAIL ABUN
RE-184	-8.864E-02	2.098E-01	1.723E-01	1.070E-01	NOT IDENT.
OS-185	3.594E-02	3.851E-02	3.484E-02	1.965E-02	NOT IDENT.
RE-188	3.841E-02	1.441E-01	1.276E-01	7.351E-02	NOT IDENT.
W-188	-1.557E+00	7.709E+00	5.633E+00	3.933E+00	FAIL ABUN
IR-192	-5.521E-04	3.394E-02	2.789E-02	1.732E-02	FAIL ABUN
AU-195	2.765E-01	1.969E-01	1.781E-01	1.004E-01	FAIL ABUN
TL-200	-1.230E+02	8.236E+02	0.000E+00	4.202E+02	SHORT HLIF
TL-201	-2.575E+00	7.526E+00	6.446E+00	3.840E+00	NOT IDENT.
TL-202	-2.079E-02	6.870E-02	5.829E-02	3.505E-02	NOT IDENT.
HG-203	1.914E-02	3.842E-02	3.303E-02	1.960E-02	FAIL ABUN
BI-207	3.716E-02	5.111E-02	4.602E-02	2.608E-02	FAIL ABUN
TL-207	6.848E-01	6.727E-01	5.301E-01	3.432E-01	FAIL ABUN
PO-209	3.083E+00	7.062E+00	6.292E+00	3.603E+00	NOT IDENT.
PB-211	-7.191E-01	9.421E-01	6.838E-01	4.807E-01	NOT IDENT.
BI-212	7.567E-01	5.326E-01	3.314E-01	2.718E-01	FAIL ABUN
PO-215	6.848E-01	6.727E-01	5.301E-01	3.432E-01	FAIL ABUN
RN-219	1.260E-01	3.755E-01	3.341E-01	1.916E-01	FAIL ABUN
RN-220	-1.710E+01	2.405E+01	1.918E+01	1.227E+01	NOT IDENT.
RA-223	6.848E-01	6.727E-01	5.301E-01	3.432E-01	FAIL ABUN
AC-227	-2.268E-02	3.454E-01	2.901E-01	1.762E-01	FAIL ABUN
TH-227	-2.268E-02	3.454E-01	2.901E-01	1.762E-01	FAIL ABUN
TH-229	3.258E-01	4.412E-01	3.925E-01	2.251E-01	FAIL ABUN
PA-231	1.375E+00	1.478E+00	1.285E+00	7.543E-01	FAIL ABUN
TH-231	6.848E-01	6.727E-01	5.301E-01	3.432E-01	FAIL ABUN
U-231	-9.427E-02	1.133E+00	8.433E-01	5.781E-01	FAIL ABUN
PA-233	3.003E-02	5.918E-02	5.066E-02	3.019E-02	FAIL ABUN
PA-234	-2.807E-01	2.845E-01	2.145E-01	1.451E-01	FAIL ABUN
PA-234M	3.580E+00	4.933E+00	4.396E+00	2.517E+00	NOT IDENT.
NP-236	5.825E-03	6.814E-02	5.973E-02	3.476E-02	NOT IDENT.
NP-239	-2.373E-02	1.525E-01	1.350E-01	7.780E-02	FAIL ABUN
AM-241	7.796E-02	1.263E-01	1.008E-01	6.442E-02	NOT IDENT.
CM-243	-8.027E-02	7.814E-02	6.703E-02	3.987E-02	FAIL ABUN
AM-246	-1.091E-01	1.371E-01	1.072E-01	6.997E-02	NOT IDENT.
CM-247	1.102E-02	3.289E-02	2.930E-02	1.678E-02	NOT IDENT.
CF-249	2.896E-02	3.715E-02	3.391E-02	1.896E-02	NOT IDENT.
CF-251	-7.145E-02	1.098E-01	9.208E-02	5.602E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT          *
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ENERGY	MDA COUNTS
46.50	210.2466
46.50	210.2466
46.50	210.2466
48.70	229.4063
49.72	208.9475
51.35	235.5290
52.39	264.0794
52.97	245.6828
53.15	245.8269
53.44	243.8311
54.07	226.4770
56.28	287.6123
56.28	287.6152
57.37	0.0000
57.53	284.2220
57.53	284.2239
57.60	284.2835
57.98	283.4866
57.98	283.4866
59.32	275.1939
59.32	275.1939
59.40	275.2606
59.54	275.3763
59.72	249.7894
60.01	275.7655
61.10	310.1047
61.14	310.1411
61.30	310.2874
63.00	277.4409
63.29	277.6736
63.29	277.6736
63.58	277.9062
64.28	319.1226
65.12	307.5826
65.20	309.1906
65.20	309.1906
66.05	308.3903
66.72	312.0557
66.83	312.1544
66.91	312.2222
67.20	312.0882
67.20	312.0882
67.75	291.6473
67.85	291.7278
68.90	304.2245
68.90	304.2245
69.30	323.2251
69.67	346.9139
70.82	357.7496
70.82	357.7496
70.83	357.7589
72.80	345.4979
72.87	345.5605
72.87	345.5605
74.67	372.4303
74.81	372.5647
74.81	372.5647
74.81	372.5647
74.81	372.5647
74.81	372.5647
74.81	372.5647
74.81	372.5647
74.97	372.7184
75.28	373.0161
75.70	373.4170
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77.11	374.7542

77.11	374.7542
77.11	374.7542
77.11	374.7542
77.11	374.7542
77.11	374.7542
78.38	375.9497
79.62	377.1069
79.80	377.2749
79.80	377.2749
80.11	377.5630
80.18	377.6278
80.30	377.7383
80.30	377.7383
80.57	377.9879
81.00	378.3865
81.07	378.4513
81.07	378.4513
81.07	378.4513
81.07	378.4513
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83.37	292.6702
83.78	263.9045
83.78	263.9045
83.78	263.9045
83.78	263.9045
84.21	276.2921
84.90	271.8892
85.43	272.2275
86.29	272.7761
86.50	402.0541
86.54	258.3135
86.59	258.3443
86.72	258.4219
86.79	258.4623
86.94	258.5529
87.30	439.4202
87.30	439.4202
87.30	439.4202
87.30	439.4202
87.30	439.4202
87.30	439.4202
87.57	439.6921
87.88	440.0079
88.03	440.1590
88.36	269.1908
88.47	269.2580
89.95	361.0423
91.11	241.3244
92.29	241.9614
92.38	242.0093
92.38	242.0093
93.35	242.5297
94.00	242.8766
94.67	243.2310
94.67	243.2340
94.90	243.3551
94.90	243.3551
94.90	243.3551
94.90	243.3551
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95.87	248.8464
96.73	295.8482
97.43	272.9863
98.44	252.7219
98.44	252.7235
98.88	242.4402
99.55	249.9727
99.55	249.9727
99.86	250.1369
100.00	250.2099
100.10	251.1017
103.18	274.6115
103.76	267.3494
105.00	192.7751
105.31	186.1285
108.00	258.5874
109.28	204.6655

111.00	227.6047
111.00	227.6047
111.76	243.3662
112.95	237.9144
115.19	219.0952
116.30	218.6920
117.00	222.4424
117.00	222.4424
117.66	235.7173
121.11	226.7608
121.62	223.4805
121.78	223.5456
122.06	211.4287
122.32	213.2766
122.32	213.2766
122.32	213.2766
122.32	213.2766
123.07	231.0725
127.23	240.7343
129.76	224.9766
131.20	277.0403
133.02	235.1545
133.54	216.6419
135.34	227.1412
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136.25	248.0895
136.48	249.9772
140.51	216.4795
140.51	0.0000
142.18	263.1978
142.65	262.0443
143.76	228.5109
144.24	228.6877
144.24	228.6877
144.24	228.6877
144.24	228.6877
145.22	211.3251
145.44	222.3094
147.16	205.1422
152.43	225.2313
152.70	213.3700
153.22	198.8152
154.21	208.3346
154.21	208.3346
154.21	208.3346
154.21	208.3346
155.03	206.7518
156.02	226.4774
158.56	201.3669
159.00	0.0000
159.00	201.4994
160.31	212.1288
161.27	224.5450
162.32	216.4970
162.64	224.0674
163.35	218.6942
163.89	204.8380
165.85	234.5047
167.43	217.1782
171.28	206.0914
171.86	210.0446
172.10	210.1168
176.55	215.2407
176.60	215.2568
181.06	199.8104
184.41	180.9833
185.71	181.3008
186.00	181.3696
190.27	168.8156
192.34	188.7308
193.63	179.3019
197.04	199.6670
198.01	176.3947
198.60	182.4107
200.40	203.4708
201.83	209.7455
202.84	208.0401
205.31	197.3082



208.36	221.8767
208.81	197.6639
209.75	193.9130
209.75	193.9130
210.97	191.2148
215.65	187.2872
216.55	180.4706
218.09	194.8644
222.10	172.5742
223.80	179.9954
226.40	172.4228
227.00	160.3627
227.08	160.3771
227.20	160.3996
228.16	157.5275
228.18	165.6613
228.18	165.6613
231.56	0.0000
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236.00	183.0250
236.00	183.0250
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238.63	212.8686
238.63	212.8686
238.63	212.8686
239.00	404.3058
240.98	266.0021
241.98	188.8844
241.98	188.8844
241.98	188.8844
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245.39	132.0888
247.94	158.9439
248.90	139.3489
249.79	142.6038
252.40	160.7456
252.85	152.4680
252.85	152.4680
254.15	0.0000
256.20	148.8151
256.20	148.8151
260.50	142.1136
260.90	156.9150
262.80	144.5619
264.65	142.7206
268.24	146.4257
268.79	144.9146
269.46	143.4210
269.46	143.4210
269.46	143.4210
269.46	143.4210
271.23	164.4297
273.65	150.4235
276.40	151.9064
277.35	137.0573
277.60	139.2332
277.60	139.2332
278.00	148.9318
278.60	130.7941
279.20	139.4527
279.53	149.1552
280.46	179.3640
281.68	150.5444
283.67	128.2097
284.30	129.3652
285.00	143.4772
285.90	139.2828
286.10	129.5898
286.10	129.5898
287.40	149.2164
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290.67	141.5476
290.80	146.4478
291.72	131.9167
293.26	0.0000
293.70	143.5854
295.21	145.4235
295.21	145.4235

295.21	145.4235
295.96	145.5267
296.50	130.8765
297.23	130.9668
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300.09	137.8817
300.09	137.8817
300.12	137.8843
301.29	129.8167
302.84	138.2303
303.76	128.4662
303.91	130.1301
304.40	128.5424
304.40	128.5424
304.84	123.9786
306.84	112.3116
308.46	135.6348
311.98	110.6242
316.51	121.0704
318.01	124.5667
319.02	102.4144
319.41	96.8820
320.08	108.0810
323.87	97.2626
323.87	97.2626
323.87	97.2626
323.87	97.2626
325.23	83.9462
328.77	114.5176
333.44	91.3063
334.20	121.8208
334.20	121.8208
334.30	121.8318
338.28	129.0339
338.28	129.0339
338.28	129.0339
338.28	129.0339
338.32	129.0386
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338.32	129.0386
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340.57	112.2733
344.27	129.6857
345.85	99.0999
350.59	0.0000
351.07	94.9522
351.92	95.0180
351.92	95.0180
351.92	95.0180
355.39	0.0000
356.01	87.8695
364.48	100.6115
366.43	122.7738
367.43	115.9159
367.94	0.0000
369.80	108.0043
374.96	125.9319
383.85	108.3082
387.95	98.0464
388.63	101.6322
391.69	108.0680
391.69	108.0680
392.90	108.1648
398.62	112.1899
400.65	98.0896
401.10	90.9869
401.81	98.1752
402.60	93.7672
404.84	111.8107
410.95	106.9177
411.60	117.7553
413.65	95.4236
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415.30	82.0175

415.76	82.0452
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427.08	93.6125
427.89	92.7566
432.53	95.7939
433.93	88.5812
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439.56	99.0104
439.89	93.5316
443.98	91.0345
444.90	87.4114
445.03	87.4187
445.03	87.4187
445.03	87.4187
445.03	87.4187
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463.38	89.4287
468.07	94.3762
473.00	87.1790
475.06	98.5593
475.35	97.6381
476.78	96.7888
477.59	82.7363
477.96	83.6969
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484.57	74.6062
487.03	84.1803
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492.35	75.9216
497.08	73.2908
507.63	0.0000
510.53	0.0000
510.84	97.9106
511.00	97.9199
511.85	97.9713
511.85	97.9713
513.99	75.4003
513.99	75.4003
520.41	77.2363
520.65	85.9390
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528.96	0.0000
529.64	94.1641
529.87	0.0000
531.02	83.5540
537.32	86.7891
543.00	70.4443
546.56	0.0000
549.76	79.5589
552.65	74.7708
555.20	81.7766
563.23	72.2492
563.90	81.1867
568.70	74.4576
569.32	70.5103
569.50	69.5236
569.67	69.5300
573.80	70.6858
574.00	69.6967
574.64	66.7342
578.91	57.5068
579.30	0.0000
583.14	58.0407
585.48	68.9344
591.81	56.3025
592.07	68.3777
593.00	73.4411
595.88	55.4179
600.56	70.7092
602.52	0.0000
602.71	77.8694
602.71	77.8694
603.60	79.5909
604.41	74.4984
604.70	74.5097
609.31	67.9937

609.31	67.9937
609.31	67.9937
609.31	67.9937
610.33	68.0285
612.46	63.4302
614.37	65.1211
618.01	65.2441
621.84	60.2676
621.84	60.2676
631.29	75.9579
633.02	53.4235
633.10	53.4250
634.78	57.5842
635.90	58.6456
636.97	66.9122
645.85	50.6688
646.12	47.5723
656.30	53.2203
657.75	63.2437
657.90	0.0000
661.65	71.9122
661.65	71.9122
664.57	0.0000
666.33	45.1261
666.33	45.1261
675.00	45.1075
677.61	53.5665
685.20	56.9251
692.80	67.7109
695.00	61.4268
696.49	73.1272
696.49	73.1272
697.00	92.2278
697.49	103.9127
698.33	95.4684
698.50	95.4739
699.00	81.7021
702.63	60.5851
706.10	67.0702
706.58	0.0000
706.67	60.6982
709.31	73.5673
711.68	70.4473
713.82	61.9684
717.42	68.4941
720.50	75.0201
721.93	0.0000
722.20	55.7737
722.78	46.3469
722.78	46.3469
722.89	46.3496
722.95	46.3509
723.30	56.6591
724.18	66.9874
727.18	61.9189
733.00	70.7050
735.90	56.7379
739.58	73.5096
742.81	46.5523
744.21	54.1641
747.13	63.9965
751.79	68.4756
752.31	77.1904
753.82	56.5703
755.35	62.0515
756.15	67.5192
756.87	67.5400
763.93	78.6775
765.79	72.1794
766.42	71.1057
766.84	70.0234
776.49	62.6255
778.00	48.3748
778.57	39.5892
778.89	41.7944
783.80	66.1304
785.46	52.9409
792.07	51.3207

795.84	70.9004
796.30	69.1412
798.80	46.1424
801.93	59.6581
805.60	43.3823
810.29	59.0702
810.76	62.4258
815.85	44.6838
817.79	46.9552
818.51	46.9693
819.60	39.1592
826.30	48.2425
828.27	0.0000
831.60	61.8381
831.96	61.8481
834.83	57.6422
836.80	0.0000
846.75	43.4391
848.13	44.3692
856.28	0.0000
856.80	82.6843
860.37	55.5046
867.32	43.7953
867.82	47.4538
871.10	42.0323
873.19	58.5281
874.81	54.9038
875.33	0.0000
876.40	43.0355
879.36	44.9183
880.27	44.9338
880.51	44.9380
881.50	48.6252
883.24	38.5588
884.67	36.7432
889.25	39.5682
896.60	47.0629
898.02	46.1646
899.00	48.9525
903.28	51.3970
911.07	47.3219
911.07	47.3219
911.07	47.3219
919.63	48.6115
920.93	37.2520
925.00	39.1740
925.24	44.7750
926.50	44.7961
935.52	44.0086
937.48	49.6629
944.10	40.3902
946.00	57.3379
949.00	43.2856
962.29	59.8837
964.01	44.1522
966.15	45.4477
968.20	45.4816
969.11	45.4969
969.11	45.4969
969.11	45.4969
977.42	41.1952
980.50	32.7802
983.50	47.6355
989.30	41.0495
996.32	47.8503
1001.03	46.9699
1001.68	46.9807
1004.76	44.7913
1021.30	0.0000
1024.50	0.0000
1034.80	51.3955
1036.00	52.3863
1037.82	43.6816
1038.57	39.8088
1038.76	0.0000
1045.16	44.7646
1046.59	50.6264
1048.07	49.6777

1050.47	49.7175
1050.47	49.7175
1062.04	50.8879
1063.62	42.1014
1076.63	39.3320
1077.35	43.2760
1078.86	51.1697
1085.78	46.3528
1099.22	45.5643
1112.02	49.7290
1112.84	56.3761
1115.52	49.7852
1120.29	57.8386
1120.29	57.8386
1120.29	57.8386
1120.29	57.8386
1120.51	57.8414
1121.28	57.8556
1124.00	0.0000
1129.67	47.7848
1131.51	0.0000
1147.95	0.0000
1167.94	49.5910
1173.22	53.7246
1175.09	44.6273
1177.93	49.7417
1189.05	47.8721
1204.90	48.0993
1205.75	0.0000
1213.00	60.5240
1221.42	61.7021
1230.97	47.1429
1235.34	74.0007
1236.41	0.0000
1238.25	67.1741
1246.25	63.1862
1260.41	0.0000
1271.85	45.9121
1274.45	45.9465
1274.54	45.9465
1291.56	41.9707
1298.22	0.0000
1312.09	35.8793
1325.50	30.7162
1325.50	30.7162
1332.49	33.9578
1333.61	32.9072
1360.21	26.7285
1362.66	0.0000
1365.15	21.4111
1368.21	21.4287
1368.53	0.0000
1376.25	23.6221
1384.27	24.7475
1394.10	20.4964
1395.20	21.5820
1407.95	18.4053
1434.06	20.7098
1436.60	19.6321
1457.56	0.0000
1460.81	13.1689
1489.15	16.5776
1509.49	12.9587
1596.49	10.0803
1620.62	9.5032
1678.03	0.0000
1691.02	13.5169
1691.02	13.5169
1706.46	0.0000
1750.46	0.0000
1764.49	8.4089
1764.49	8.4089
1764.49	8.4089
1764.49	8.4089
1770.23	15.1549
1771.40	15.1586
1791.20	0.0000
1808.65	13.8633

1836.01

14.9377

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229008

Total Uranium Activity	1.2410E+01	ug/g
Total Uranium Counting Unc.	5.2037E+00	ug/g
Total Uranium Tpu	2.6550E-06	ug/g
Total Uranium Mda	2.3139E+00	ug/g



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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON, SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941239          SAMPLE ID   : G244229008
*  ANALYST       : MXR1           DETECTOR    : GAM11
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 14:03:29.58  SAMPLE ALQT: 118.760 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.008E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.504E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.431E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.658E+00

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## VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 16:04:53.84

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229009.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:04:02
Sample ID          : G244229009          Sample quantity  : 1.23310E+02 GRAM
Detector name      : GAM14              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.47  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941239             Detector SN#      :
Matrix Spike ID    :                   LCS ID             : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.72*	348	615	1.29	126.99	123	10	4.83E-02	14.6	
2	1	74.87	543	576	1.54	149.28	143	17	7.54E-02	9.6	2.22E+00
3	1	77.17*	801	486	1.36	153.87	143	17	1.11E-01	6.3	
4	0	87.74	87	817	0.81	174.99	169	9	1.21E-02	60.0	
5	0	93.13*	389	771	1.44	185.75	181	10	5.41E-02	15.0	
6	0	185.91*	352	505	1.40	371.14	365	14	4.89E-02	14.9	
7	0	209.34*	133	260	1.74	417.96	414	9	1.84E-02	24.0	
8	4	238.54*	1225	224	1.32	476.30	471	18	1.70E-01	3.7	9.22E-01
9	4	241.47	298	360	2.27	482.16	471	18	4.15E-02	19.0	
10	0	270.28	171	226	1.46	539.74	533	13	2.38E-02	19.7	
11	0	277.62	79	145	1.83	554.40	551	8	1.10E-02	28.7	
12	0	295.19	357	251	1.35	589.52	584	13	4.96E-02	10.7	
13	0	299.92	59	168	1.04	598.97	596	9	8.17E-03	41.5	
14	0	328.23	29	192	1.20	655.55	650	9	4.06E-03	87.7	
15	0	338.52	293	215	1.56	676.11	670	14	4.06E-02	12.2	
16	0	351.92	716	183	1.62	702.90	697	12	9.95E-02	5.3	
17	0	463.12	53	175	1.41	925.16	918	13	7.39E-03	53.1	
18	0	511.00*	137	182	2.37	1020.86	1012	21	1.90E-02	28.2	
19	0	569.49*	165	137	2.77	1137.78	1131	16	2.30E-02	18.1	
20	0	583.49*	355	126	1.44	1165.77	1158	14	4.93E-02	8.7	
21	0	609.44*	497	97	1.48	1217.65	1210	13	6.90E-02	6.1	
22	0	661.94	492	97	1.87	1322.61	1316	12	6.84E-02	6.0	
23	0	727.44*	99	108	1.76	1453.57	1444	16	1.38E-02	25.8	
24	0	768.42	75	60	1.57	1535.52	1529	12	1.04E-02	23.6	
25	0	773.98	28	64	1.64	1546.63	1541	12	3.84E-03	60.6	
26	0	795.75	51	63	1.36	1590.16	1584	13	7.03E-03	35.6	
27	0	861.17	81	59	1.67	1720.99	1712	18	1.13E-02	24.7	
28	0	911.71*	254	54	1.53	1822.07	1816	12	3.53E-02	8.6	
29	0	971.07*	68	148	1.07	1940.78	1931	12	9.39E-03	38.3	
30	0	1121.01	137	62	1.82	2240.70	2231	19	1.91E-02	16.2	
31	0	1238.89	45	49	2.17	2476.54	2472	11	6.24E-03	34.3	
32	0	1380.39	26	46	0.96	2759.65	2750	20	3.63E-03	68.6	
33	0	1410.22	12	24	1.35	2819.36	2813	9	1.69E-03	78.7	
34	0	1461.72*	1142	25	2.19	2922.42	2914	18	1.59E-01	3.2	
35	0	1497.44	23	8	2.94	2993.91	2988	11	3.16E-03	32.2	
36	0	1765.21*	92	4	2.77	3529.89	3521	15	1.28E-02	11.9	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 16:04:57

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229009.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 14:04:02
Sample ID        : G244229009             Sample quantity  : 123.31 GRAM
Sample type       : SOLID                  Sample geometry   :
Detector name     : GAMMA14                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:01.47   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance  : 1.50 keV               Half life ratio   : 8.00
Errors propagated: Yes                     Systematic Error  : 0.00 %
Efficiency type   : Empirical               Efficiencies at   : Peak Energy
Abundance limit   : 75.00                  WTM error limit   : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.691E+01	2.591E+00	5.315E-01	3.859E-02	50.637
CD-109	+	88.03	*	1.036E+00	1.247E+00	1.627E+00	1.423E-01	0.637
SN-126	+	64.28		2.352E+00	7.643E-01	7.726E-01	1.101E-01	3.044
	+	86.94		4.226E-01	5.368E-01	6.400E-01	2.647E-01	0.660
	+	87.57	*	1.016E-01	1.224E-01	1.655E-01	1.440E-02	0.614
BA-137M	+	661.65	*	6.756E-01	9.067E-02	6.134E-02	3.648E-03	11.013
CS-137	+	661.65	*	7.142E-01	9.593E-02	6.485E-02	3.871E-03	11.013
TL-208	+	277.35		7.105E-01	4.153E-01	6.063E-01	6.411E-02	1.172
	+	510.84		6.231E-01	3.575E-01	2.155E-01	2.198E-02	2.891
	+	583.14	*	4.651E-01	8.664E-02	6.345E-02	4.339E-03	7.330
	+	860.37		1.023E+00	5.142E-01	4.281E-01	4.027E-02	2.390
BI-211		72.87		1.057E+01	3.634E+00	5.598E+00	4.125E-01	1.888
	+	351.07	*	4.034E+00	4.990E-01	3.291E-01	2.085E-02	12.258
PB-212	+	74.81		2.537E+00	5.727E-01	5.322E-01	6.383E-02	4.768
	+	77.11		2.147E+00	3.171E-01	3.055E-01	2.352E-02	7.030
	+	87.30		4.701E-01	5.680E-01	7.803E-01	1.033E-01	0.602
	+	238.63	*	1.501E+00	1.550E-01	8.952E-02	6.521E-03	16.772
	+	300.09		1.113E+00	9.285E-01	1.288E+00	1.065E-01	0.864
PO-212	+	74.81		2.537E+00	5.727E-01	5.322E-01	6.383E-02	4.768
	+	77.11		2.147E+00	3.171E-01	3.055E-01	2.352E-02	7.030
	+	87.30		4.701E-01	5.680E-01	7.803E-01	1.033E-01	0.602
	+	115.19		2.235E+00	3.849E+00	6.330E+00	4.606E-01	0.353
	+	238.63	*	1.501E+00	1.550E-01	8.952E-02	6.521E-03	16.772
	+	300.09		1.113E+00	9.285E-01	1.288E+00	1.065E-01	0.864
BI-214	+	609.31	*	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
	+	1120.29		1.817E+00	6.111E-01	4.157E-01	3.851E-02	4.370
	+	1764.49		1.683E+00	4.127E-01	2.311E-01	1.386E-02	7.285
PB-214	+	74.81		4.372E+00	9.549E-01	9.170E-01	9.677E-02	4.768
	+	77.11		3.681E+00	6.118E-01	5.236E-01	5.672E-02	7.030
	+	87.30		8.053E-01	9.717E-01	1.337E+00	1.551E-01	0.602
	+	241.98		2.197E+00	8.523E-01	5.387E-01	4.327E-02	4.078
	+	295.21		1.187E+00	2.735E-01	2.232E-01	1.908E-02	5.317
	+	351.92	*	1.403E+00	1.884E-01	1.198E-01	9.827E-03	11.718
PO-214	+	74.81		4.372E+00	9.549E-01	9.170E-01	9.677E-02	4.768

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		3.681E+00	6.118E-01	5.236E-01	5.672E-02	7.030
	+	87.30		8.053E-01	9.717E-01	1.337E+00	1.551E-01	0.602
	+	241.98		2.197E+00	8.523E-01	5.387E-01	4.327E-02	4.078
	+	295.21		1.187E+00	2.735E-01	2.232E-01	1.908E-02	5.317
	+	351.92	*	1.403E+00	1.884E-01	1.198E-01	9.827E-03	11.718
	+	74.81		2.537E+00	5.727E-01	5.322E-01	6.383E-02	4.768
	+	77.11		2.147E+00	3.171E-01	3.055E-01	2.352E-02	7.030
	+	87.30		4.701E-01	5.680E-01	7.803E-01	1.033E-01	0.602
PO-218	+	238.63	*	1.501E+00	1.550E-01	8.952E-02	6.521E-03	16.772
	+	300.09		1.113E+00	9.285E-01	1.288E+00	1.065E-01	0.864
	+	74.81		4.372E+00	9.549E-01	9.170E-01	9.677E-02	4.768
	+	77.11		3.681E+00	6.118E-01	5.236E-01	5.672E-02	7.030
	+	87.30		8.053E-01	9.717E-01	1.337E+00	1.551E-01	0.602
	+	241.98		2.197E+00	8.523E-01	5.387E-01	4.327E-02	4.078
	+	295.21		1.187E+00	2.735E-01	2.232E-01	1.908E-02	5.317
	+	351.92	*	1.403E+00	1.884E-01	1.198E-01	9.827E-03	11.718
RA-224	+	240.98	*	4.166E+00	1.599E+00	1.018E+00	5.853E-02	4.091
RA-226	+	609.31	*	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
TH-228	+	1120.29		1.817E+00	6.111E-01	4.157E-01	3.851E-02	4.370
	+	1764.49		1.683E+00	4.127E-01	2.311E-01	1.386E-02	7.285
	+	74.81		2.578E+00	5.306E-01	5.408E-01	4.109E-02	4.768
	+	77.11		2.182E+00	3.223E-01	3.104E-01	2.390E-02	7.030
	+	87.30		4.777E-01	5.752E-01	7.929E-01	6.876E-02	0.602
	+	238.63	*	1.526E+00	1.575E-01	9.097E-02	6.626E-03	16.772
	+	300.09		1.131E+00	1.151E+00	1.308E+00	7.712E-01	0.864
	+	609.31	*	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
TH-230	+	1120.29		1.817E+00	6.111E-01	4.157E-01	3.851E-02	4.370
	+	1764.49		1.683E+00	4.127E-01	2.311E-01	1.386E-02	7.285
	+	63.29	*	5.941E+00	2.014E+00	1.971E+00	3.388E-01	3.014
	+	92.38		2.989E+00	1.046E+00	1.118E+00	2.008E-01	2.675
	+	609.31	*	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
	+	1120.29		1.817E+00	6.111E-01	4.157E-01	3.851E-02	4.370
	+	1764.49		1.683E+00	4.127E-01	2.311E-01	1.386E-02	7.285
	+	86.50	*	2.985E-01	3.646E-01	4.426E-01	9.893E-02	0.674
NP-237	+	95.87		-1.190E-01	1.150E+00	1.618E+00	3.957E-01	-0.074
U-238	+	63.29	*	5.941E+00	2.014E+00	1.971E+00	3.388E-01	3.014
	+	92.38		2.989E+00	9.316E-01	1.118E+00	9.350E-02	2.675
	+	74.67	*	4.114E-01	8.452E-02	8.648E-02	6.490E-03	4.757
	+	86.72		1.119E+01	1.348E+01	1.700E+01	1.464E+00	0.658
		117.66		-1.017E+00	4.169E+00	6.654E+00	4.797E-01	-0.153
		142.18		1.047E+01	1.910E+01	3.125E+01	1.965E+00	0.335
	+	511.00	*	1.346E-01	7.641E-02	4.657E-02	2.736E-03	2.890

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-8.577E-02	3.491E-01	5.631E-01	3.795E-02	-0.152
NA-22		1274.54	*	8.124E-04	4.840E-02	7.978E-02	5.211E-03	0.010

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-24	1368.53	*		5.420E-01	4.840E-02	Half-Life too short		
AL-26	1129.67			6.640E-01	1.839E+00	2.848E+00	1.799E-01	0.233
	1808.65	*		3.140E-03	3.200E-02	5.267E-02	3.053E-03	0.060
TI-44	67.85			6.295E-03	5.424E-02	7.179E-02	5.053E-03	0.088
	78.38	*	+	3.963E-01	5.853E-02	8.024E-02	6.265E-03	4.939
SC-46	889.25	*		-7.966E-03	4.038E-02	6.640E-02	6.136E-03	-0.120
	1120.51	*	+	3.135E-01	1.034E-01	1.365E-01	8.839E-03	2.297
V-48	944.10			3.958E-01	1.029E+00	1.770E+00	1.581E-01	0.224
	983.50	*		-3.020E-02	7.225E-02	1.155E-01	9.805E-03	-0.262
	1312.09			4.778E-02	8.407E-02	1.467E-01	1.014E-02	0.326
CR-51	320.08	*		2.986E-01	3.909E-01	6.731E-01	4.350E-02	0.444
MN-52	744.21			1.812E-02	2.719E-01	4.405E-01	3.109E-02	0.041
	848.13			4.753E-01	7.429E+00	1.252E+01	1.076E+00	0.038
	935.52			2.670E-01	3.183E-01	5.637E-01	5.088E-02	0.474
	1246.25			5.491E+00	9.371E+00	1.476E+01	9.199E-01	0.372
	1333.61			-6.724E-01	6.323E+00	1.026E+01	7.313E-01	-0.066
	1434.06	*		1.088E-01	2.513E-01	4.365E-01	3.059E-02	0.249
MN-54	834.83	*		7.400E-03	3.748E-02	6.382E-02	5.353E-03	0.116
CO-56	846.75	*		-1.731E-02	3.955E-02	6.380E-02	5.468E-03	-0.271
	977.42			2.110E+00	2.966E+00	5.160E+00	4.419E-01	0.409
	1037.82			-7.603E-02	3.089E-01	5.011E-01	4.151E-02	-0.152
	1175.09			3.167E-01	2.379E+00	3.976E+00	2.197E-01	0.080
	1238.25		+	1.690E-01	1.165E-01	1.775E-01	1.153E-02	0.952
	1360.21			1.896E-01	9.153E-01	1.544E+00	1.097E-01	0.123
	1771.40			-1.131E+00	3.876E-01	3.330E-01	1.987E-02	-3.395
CO-57	122.06	*		8.372E-03	2.703E-02	4.402E-02	3.132E-03	0.190
	136.48			-9.290E-02	2.247E-01	3.548E-01	2.604E-02	-0.262
CO-58	810.76	*		-1.339E-02	4.134E-02	6.429E-02	5.173E-03	-0.208
FE-59	142.65			2.689E+00	2.968E+00	4.915E+00	3.082E-01	0.547
	192.34			-3.417E-01	1.106E+00	1.583E+00	1.848E-01	-0.216
	1099.22	*		-8.557E-02	9.402E-02	1.418E-01	1.092E-02	-0.604
	1291.56			-7.404E-02	1.287E-01	1.982E-01	1.614E-02	-0.374
CO-60	1173.22			1.891E-03	4.865E-02	8.065E-02	4.442E-03	0.023
	1332.49	*		3.495E-02	4.339E-02	7.711E-02	5.495E-03	0.453
ZN-65	1115.52	*		-7.327E-02	1.009E-01	1.286E-01	8.452E-03	-0.570
GE-68	1077.35	*		-1.259E+00	1.335E+00	2.016E+00	1.449E-01	-0.625
AS-73	53.44	*		-4.154E-01	6.981E-01	1.117E+00	7.284E-02	-0.372
AS-74	595.88	*		-1.301E-02	9.513E-02	1.530E-01	9.150E-03	-0.085
	634.78			-1.026E-01	3.512E-01	5.548E-01	3.313E-02	-0.185
SE-75	66.05			3.361E+00	5.343E+00	7.797E+00	7.091E-01	0.431
	96.73			-2.072E-01	9.213E-01	1.287E+00	1.710E-01	-0.161
	121.11			8.587E-02	1.458E-01	2.396E-01	2.425E-02	0.358
	136.00			-2.314E-02	4.239E-02	6.656E-02	4.396E-03	-0.348
	198.60			1.752E-01	1.879E+00	3.114E+00	2.156E-01	0.056
	264.65	*		-7.171E-02	5.277E-02	6.843E-02	4.018E-03	-1.048
	279.53			1.767E-01	1.216E-01	1.925E-01	1.212E-02	0.918
	303.91			2.208E+00	2.345E+00	3.602E+00	3.442E-01	0.613
	400.65			-1.696E-01	2.877E-01	4.586E-01	4.084E-02	-0.370
BR-77	87.88		+	2.964E+02	3.569E+02	4.732E+02	4.133E+01	0.626

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		200.40		4.595E+01	2.215E+02	3.754E+02	2.088E+01	0.122
	+	239.00		3.199E+02	2.974E+01	4.951E+01	2.843E+00	6.460
		249.79		2.582E+01	8.688E+01	1.472E+02	8.504E+00	0.175
		281.68		8.097E+01	1.297E+02	1.961E+02	1.144E+01	0.413
		297.23		5.263E+02	1.100E+02	1.627E+02	9.488E+00	3.235
		303.76		2.137E+02	2.669E+02	4.071E+02	2.372E+01	0.525
		439.47		1.193E+02	2.051E+02	3.486E+02	1.971E+01	0.342
		484.57		2.236E+02	3.115E+02	5.341E+02	3.102E+01	0.419
		520.65	*	-7.403E-01	1.518E+01	2.237E+01	1.319E+00	-0.033
		574.64		-6.346E+01	3.581E+02	4.644E+02	2.773E+01	-0.137
		578.91		2.604E+01	1.435E+02	1.941E+02	1.159E+01	0.134
		585.48		2.246E+03	3.905E+02	7.109E+02	4.249E+01	3.159
		755.35		1.835E+02	2.280E+02	3.914E+02	2.824E+01	0.469
		817.79		-3.440E+01	1.702E+02	2.808E+02	2.283E+01	-0.123
SR-82		698.33		2.223E+01	3.890E+01	6.541E+01	4.204E+00	0.340
		776.49	*	2.342E-01	4.082E-01	6.106E-01	4.590E-02	0.384
		1395.20		-7.423E+00	1.106E+01	1.636E+01	1.156E+00	-0.454
RB-83		520.41	*	1.035E-03	7.652E-02	1.135E-01	6.690E-03	0.009
		529.64		6.078E-02	1.056E-01	1.795E-01	1.061E-02	0.339
		552.65		1.872E-02	2.004E-01	3.289E-01	1.957E-02	0.057
RB-84		881.50	*	-4.622E-03	7.404E-02	1.233E-01	1.124E-02	-0.037
KR-85		513.99	*	2.058E+01	8.007E+00	1.480E+01	8.702E-01	1.391
SR-85		513.99	*	1.066E-01	4.147E-02	7.664E-02	4.508E-03	1.391
RB-86		1076.63	*	-8.630E-01	8.649E-01	1.297E+00	9.339E-02	-0.665
Y-88		898.02		-4.662E-03	3.983E-02	6.591E-02	6.208E-03	-0.071
		1836.01	*	2.429E-03	3.157E-02	5.182E-02	2.943E-03	0.047
ZR-88		392.90	*	-2.205E-02	3.446E-02	5.486E-02	2.987E-03	-0.402
Y-91		1204.90	*	5.160E+00	1.897E+01	3.205E+01	1.865E+00	0.161
NB-94		702.63	*	1.322E-02	3.675E-02	6.093E-02	3.951E-03	0.217
		871.10		-3.473E-02	3.281E-02	4.762E-02	4.263E-03	-0.729
NB-95		765.79	*	5.814E-02	4.863E-02	7.660E-02	5.641E-03	0.759
NB-95M		235.69	*	5.944E-01	1.626E-01	2.686E-01	2.007E-02	2.213
ZR-95		724.18		2.001E-02	1.213E-01	1.716E-01	1.322E-02	0.117
		756.15	*	6.177E-02	7.567E-02	1.298E-01	1.071E-02	0.476
NB-97		657.90	*	-1.028E-01	7.567E-02	Half-Life	too short	
		1024.50		-3.546E+00	7.567E-02	Half-Life	too short	
ZR-97		254.15		-5.089E+00	7.567E-02	Half-Life	too short	
		355.39		1.512E+01	7.567E-02	Half-Life	too short	
		507.63	*	1.135E+01	7.567E-02	Half-Life	too short	
		602.52		-3.205E+00	7.567E-02	Half-Life	too short	
		1021.30		5.218E+00	7.567E-02	Half-Life	too short	
		1147.95		-5.259E+00	7.567E-02	Half-Life	too short	
		1362.66		3.602E+00	7.567E-02	Half-Life	too short	
		1750.46		1.529E+01	7.567E-02	Half-Life	too short	
MO-99		140.51		-4.394E+01	3.856E+01	5.591E+01	1.514E+01	-0.786
		181.06		-1.410E+01	2.486E+01	3.527E+01	6.005E+00	-0.400
		366.43		-6.394E+01	1.108E+02	1.771E+02	9.937E+00	-0.361
		739.58	*	1.629E+00	1.491E+01	2.425E+01	3.473E+00	0.067
		778.00		1.473E+01	4.698E+01	6.789E+01	5.120E+00	0.217

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	140.51	*		-7.283E+11	4.698E+01	Half-Life	too short	
RH-101	127.23			5.751E-02	3.433E-02	5.824E-02	4.007E-03	0.987
	198.01	*		-2.622E-03	3.397E-02	5.593E-02	3.103E-03	-0.047
	325.23			-3.926E-03	2.687E-01	3.869E-01	2.239E-02	-0.010
RH-102	418.52			-3.549E-02	3.109E-01	5.086E-01	2.831E-02	-0.070
	475.06	*		1.042E-03	3.128E-02	5.139E-02	2.970E-03	0.020
	631.29			-6.001E-02	5.311E-02	7.722E-02	4.614E-03	-0.777
	697.49			2.107E-02	8.545E-02	1.405E-01	9.016E-03	0.150
	766.84			1.388E-01	1.375E-01	2.103E-01	1.551E-02	0.660
	1046.59			7.410E-03	1.152E-01	1.924E-01	1.473E-02	0.039
	1112.84			7.794E-02	2.462E-01	3.662E-01	2.420E-02	0.213
RU-103	497.08	*		-1.068E-02	4.110E-02	6.598E-02	8.356E-03	-0.162
	610.33			1.353E+01	2.669E+00	3.004E+00	4.653E-01	4.502
RH-106	511.85	+		6.735E-01	3.824E-01	4.346E-01	2.554E-02	1.550
	621.84	*		6.539E-02	3.377E-01	5.559E-01	6.575E-02	0.118
	1050.47			7.094E-02	2.521E+00	4.106E+00	3.119E-01	0.017
RU-106	511.85	+		6.735E-01	3.824E-01	4.346E-01	2.554E-02	1.550
	621.84	*		6.539E-02	3.376E-01	5.559E-01	3.324E-02	0.118
	1050.47			7.094E-02	2.521E+00	4.106E+00	3.119E-01	0.017
AG-108M	433.93	*		4.600E-03	3.608E-02	5.977E-02	3.672E-03	0.077
	614.37			1.039E-03	4.467E-02	6.277E-02	4.055E-03	0.017
	722.95			2.692E-02	4.860E-02	7.187E-02	5.165E-03	0.375
AG-110M	657.75	*		-2.771E-02	4.419E-02	5.731E-02	3.620E-03	-0.483
	677.61			3.942E-02	3.075E-01	5.027E-01	3.262E-02	0.078
	706.67			3.598E-03	2.123E-01	3.432E-01	2.351E-02	0.010
	763.93			6.376E-02	1.833E-01	2.653E-01	2.022E-02	0.240
	884.67			-2.282E-02	5.100E-02	8.197E-02	7.729E-03	-0.278
	937.48			-4.517E-02	1.278E-01	2.073E-01	1.929E-02	-0.218
	1384.27			-2.150E-03	1.861E-01	2.610E-01	1.924E-02	-0.008
IN-111	171.28			3.863E-01	1.394E+00	2.251E+00	1.214E-01	0.172
	245.39	*		3.528E-01	1.459E+00	2.158E+00	1.243E-01	0.164
IN-113M	391.69	*		-2.873E-02	4.824E-02	7.692E-02	4.501E-03	-0.373
SN-113	391.69	*		-2.873E-02	4.824E-02	7.692E-02	4.501E-03	-0.373
IN-114M	190.27	*		7.353E-03	2.088E-01	3.070E-01	1.690E-02	0.024
CD-115	260.90			7.049E+01	1.795E+02	3.050E+02	1.770E+01	0.231
	492.35			-9.212E-01	4.661E+01	7.620E+01	4.442E+00	-0.012
	527.90	*		1.342E+01	1.477E+01	2.564E+01	1.515E+00	0.523
SN-117M	156.02			2.083E+00	2.636E+00	4.343E+00	2.500E-01	0.480
	158.56	*		-6.664E-02	6.437E-02	9.855E-02	5.575E-03	-0.676
SB-122	563.90	*		-1.148E+00	3.141E+00	4.247E+00	2.532E-01	-0.270
	692.80			-2.173E+01	5.722E+01	8.951E+01	5.687E+00	-0.243
I-123	159.00	*		-1.646E+01	5.722E+01	Half-Life	too short	
	528.96			1.399E+03	5.722E+01	Half-Life	too short	
TE-123M	159.00	*		-2.396E-02	3.123E-02	4.835E-02	2.765E-03	-0.495
I-124	602.71	*		-1.714E-01	9.127E-01	1.255E+00	7.505E-02	-0.137
	722.78			3.031E+00	5.942E+00	8.749E+00	5.914E-01	0.346
	1325.50			-2.533E+01	4.079E+01	6.181E+01	4.359E+00	-0.410
	1376.25			4.537E+01	4.336E+01	7.092E+01	5.027E+00	0.640
	1509.49			1.125E+01	1.830E+01	3.239E+01	2.222E+00	0.347

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	1691.02			1.697E+00	3.735E+00	6.651E+00	4.190E-01	0.255
	602.71			-8.580E-03	4.568E-02	6.278E-02	3.757E-03	-0.137
	645.85			7.509E-02	5.041E-01	8.270E-01	5.532E-02	0.091
	709.31			-2.365E+00	2.873E+00	4.300E+00	2.827E-01	-0.550
	713.82			4.405E-01	1.635E+00	2.672E+00	2.861E-01	0.165
	722.78			2.199E-01	4.311E-01	6.347E-01	4.440E-02	0.346
	968.20			1.390E+01	4.537E+00	7.734E+00	6.706E-01	1.797
	1045.16			-1.298E+00	2.498E+00	3.940E+00	3.023E-01	-0.329
	1325.50			-1.963E+00	3.161E+00	4.790E+00	3.378E-01	-0.410
	1368.21			-6.603E-02	1.619E+00	2.640E+00	3.315E-01	-0.025
SB-125	1436.60			7.987E-01	3.566E+00	6.025E+00	4.221E-01	0.133
	1691.02			2.904E-02	6.392E-02	1.138E-01	7.693E-03	0.255
	427.89		*	-9.561E-02	1.018E-01	1.579E-01	9.252E-03	-0.606
	463.38			4.724E-01	5.024E-01	5.698E-01	3.825E-02	0.829
	600.56			1.080E-01	1.846E-01	3.050E-01	2.094E-02	0.354
	635.90			-1.166E-01	2.697E-01	4.210E-01	2.921E-02	-0.277
	109.28		*	-2.964E+00	1.013E+01	1.617E+01	1.518E+00	-0.183
	388.63			7.871E-02	2.267E-01	3.813E-01	2.083E-02	0.206
	666.33		*	-9.025E-03	2.361E-01	3.282E-01	1.971E-02	-0.027
	753.82			5.167E-01	1.621E+00	2.679E+00	1.927E-01	0.193
SB-126	223.80			2.419E+00	4.365E+00	7.477E+00	4.247E-01	0.323
	278.60			4.959E+00	2.866E+00	4.701E+00	2.741E-01	1.055
	296.50			1.247E+01	2.767E+00	3.631E+00	2.118E-01	3.435
	414.70			7.449E-03	8.745E-02	1.447E-01	8.031E-03	0.051
	415.30			6.359E+00	7.005E+00	1.212E+01	6.728E-01	0.525
	555.20			-6.139E+00	4.355E+00	6.295E+00	3.746E-01	-0.975
	573.80			-2.444E-01	1.368E+00	1.889E+00	1.128E-01	-0.129
	593.00			-7.825E-01	9.810E-01	1.490E+00	8.910E-02	-0.525
	656.30			2.640E+00	4.134E+00	6.191E+00	3.686E-01	0.426
	666.33			-3.780E-03	9.888E-02	1.375E-01	8.255E-03	-0.027
SB-127	675.00			4.020E-01	2.180E+00	3.578E+00	2.189E-01	0.112
	695.00			2.094E-02	8.753E-02	1.440E-01	9.192E-03	0.145
	697.00			-2.815E-02	3.083E-01	4.945E-01	3.169E-02	-0.057
	720.50		*	1.898E-01	1.671E-01	2.641E-01	1.777E-02	0.719
	856.80			-4.224E-01	5.622E-01	7.320E-01	6.388E-02	-0.577
	989.30			-8.511E-01	1.392E+00	2.171E+00	1.828E-01	-0.392
	1034.80			1.733E+00	9.457E+00	1.598E+01	1.250E+00	0.108
	1213.00			6.021E-02	4.998E+00	8.254E+00	4.868E-01	0.007
	61.10			8.777E+01	7.360E+01	1.089E+02	1.098E+01	0.806
	252.40			7.785E-02	5.169E+00	8.650E+00	3.600E+00	0.009
SB-127	290.80			8.361E+00	2.924E+01	4.312E+01	4.112E+00	0.194
	411.60			-7.573E-01	1.535E+01	2.523E+01	3.658E+00	-0.030
	444.90			-1.609E+00	1.229E+01	2.003E+01	2.209E+00	-0.080
	473.00			-4.832E-01	2.205E+00	3.565E+00	4.082E-01	-0.136
	543.00			-5.821E-02	2.075E+01	3.385E+01	4.474E+00	-0.002
	603.60			-5.437E+00	1.625E+01	2.196E+01	2.451E+00	-0.248
	685.20		*	8.042E-01	1.626E+00	2.735E+00	2.748E-01	0.294
	698.50			1.195E+01	2.018E+01	3.387E+01	5.068E+00	0.353
	722.20			5.512E+01	4.025E+01	6.430E+01	6.509E+00	0.857



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127	783.80			1.190E+00	4.036E+00	6.664E+00	8.014E-01	0.179
	57.60			3.471E-01	5.795E+00	9.153E+00	6.028E-01	0.038
	145.22			9.251E-01	7.678E-01	1.283E+00	7.919E-02	0.721
	172.10			-5.591E-02	1.323E-01	2.075E-01	1.120E-02	-0.269
	202.84	*		-1.569E-02	5.208E-02	8.171E-02	4.555E-03	-0.192
I-131	374.96			-5.218E-02	2.163E-01	3.458E-01	1.922E-02	-0.151
	80.18			-3.728E+00	5.783E+00	7.977E+00	6.409E-01	-0.467
	284.30			-4.775E-01	1.633E+00	2.609E+00	1.693E-01	-0.183
	364.48	*		5.035E-02	1.256E-01	2.125E-01	1.344E-02	0.237
	636.97			2.752E-01	1.683E+00	2.766E+00	1.841E-01	0.099
TE-132	722.89			4.786E+00	8.887E+00	1.312E+01	8.977E-01	0.365
	49.72			-4.106E+00	1.861E+01	3.006E+01	2.864E+00	-0.137
	111.76			-2.850E+01	4.001E+01	6.270E+01	6.387E+00	-0.455
	116.30			-9.897E+00	3.721E+01	5.935E+01	5.987E+00	-0.167
	228.16	*		-1.796E-01	8.689E-01	1.444E+00	2.097E-01	-0.124
BA-133	53.15			-4.685E-01	2.934E+00	4.768E+00	3.106E-01	-0.098
	79.62			3.468E+00	1.617E+00	2.366E+00	3.511E-01	1.466
	81.00			-1.223E-01	1.370E-01	1.531E-01	2.384E-02	-0.799
	276.40	+		7.023E-01	4.139E-01	6.757E-01	8.768E-02	1.039
	302.84			1.388E-01	1.629E-01	2.482E-01	2.897E-02	0.559
I-133	356.01	*		1.721E-02	5.027E-02	7.408E-02	8.515E-03	0.232
	383.85			7.054E-02	3.186E-01	5.324E-01	5.704E-02	0.133
	510.53	+		2.972E+00	3.186E-01	Half-Life	too short	
	529.87	*		6.135E-03	3.186E-01	Half-Life	too short	
	706.58			-1.860E-01	3.186E-01	Half-Life	too short	
CS-134	856.28			-6.751E-01	3.186E-01	Half-Life	too short	
	875.33			1.501E-01	3.186E-01	Half-Life	too short	
	1236.41			2.136E+00	3.186E-01	Half-Life	too short	
	1298.22			3.225E-01	3.186E-01	Half-Life	too short	
	475.35			5.999E-01	2.029E+00	3.389E+00	1.959E-01	0.177
CS-135	563.23			-2.797E-01	4.345E-01	5.691E-01	3.459E-02	-0.492
	569.32	+		1.176E+00	4.310E-01	5.445E-01	3.340E-02	2.160
	604.70			-3.638E-03	3.930E-02	5.459E-02	3.283E-03	-0.067
	795.84	*		9.734E-02	6.982E-02	9.088E-02	7.153E-03	1.071
	801.93			-3.976E-02	5.003E-01	6.846E-01	5.439E-02	-0.058
I-135	1038.57			5.277E-01	3.681E+00	6.202E+00	4.818E-01	0.085
	1167.94			-5.703E-01	2.595E+00	4.205E+00	2.359E-01	-0.136
	1365.15			-9.286E-01	1.182E+00	1.717E+00	1.300E-01	-0.541
	268.24	*		3.896E-01	1.811E-01	2.938E-01	2.254E-02	1.326
	288.45			-4.329E+10	1.811E-01	Half-Life	too short	
CS-135	417.63			2.141E+11	1.811E-01	Half-Life	too short	
	546.56			-7.574E+10	1.811E-01	Half-Life	too short	
	836.80			3.739E+10	1.811E-01	Half-Life	too short	
	1038.76			8.894E+09	1.811E-01	Half-Life	too short	
	1124.00			1.156E+12	1.811E-01	Half-Life	too short	
I-135	1131.51			2.935E+10	1.811E-01	Half-Life	too short	
	1260.41	*		-3.574E+10	1.811E-01	Half-Life	too short	
	1457.56			1.918E+12	1.811E-01	Half-Life	too short	
	1678.03			-8.123E+10	1.811E-01	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1706.46		1.399E+10	1.811E-01	Half-Life	too short	
		1791.20		-1.136E+09	1.811E-01	Half-Life	too short	
		66.91		-6.504E-02	8.969E-01	1.275E+00	1.859E-01	-0.051
	+	86.29		1.396E+00	1.686E+00	2.221E+00	2.846E-01	0.628
		153.22		1.136E+00	7.572E-01	1.274E+00	9.273E-02	0.892
		163.89		5.733E-01	1.214E+00	1.977E+00	1.378E-01	0.290
		176.55		1.629E-01	4.128E-01	6.631E-01	4.102E-02	0.246
		273.65		3.395E-01	7.223E-01	7.491E-01	4.972E-02	0.453
		340.57		4.433E-01	1.689E-01	2.790E-01	1.704E-02	1.589
		818.51		-2.327E-02	7.517E-02	1.228E-01	1.001E-02	-0.190
CE-139		1048.07	*	6.128E-02	1.173E-01	2.036E-01	1.638E-02	0.301
		1235.34		2.193E-01	7.505E-01	1.098E+00	1.117E-01	0.200
		165.85	*	-5.780E-03	3.351E-02	5.318E-02	2.855E-03	-0.109
		162.64		-3.820E-01	8.639E-01	1.356E+00	8.481E-02	-0.282
BA-140		304.84		-4.007E-02	1.531E+00	2.207E+00	6.026E-01	-0.018
		423.70		5.211E-01	2.124E+00	3.536E+00	1.123E+00	0.147
LA-140	+	537.32	*	-3.009E-02	2.684E-01	4.340E-01	1.413E-01	-0.069
		328.77		2.358E-01	4.140E-01	5.806E-01	3.760E-02	0.406
		432.53		7.017E-01	2.365E+00	3.957E+00	2.473E-01	0.177
		487.03		1.231E-02	1.477E-01	2.433E-01	1.600E-02	0.051
		751.79		-1.708E+00	1.888E+00	2.783E+00	2.296E-01	-0.614
		815.85		-3.241E-02	3.245E-01	5.402E-01	4.943E-02	-0.060
		867.82		-4.625E-01	1.451E+00	1.995E+00	1.864E-01	-0.232
		919.63		-3.021E+00	3.012E+00	4.244E+00	4.714E-01	-0.712
		925.24		3.007E-01	1.100E+00	1.884E+00	1.817E-01	0.160
		1596.49	*	-3.726E-02	8.683E-02	1.310E-01	8.683E-03	-0.284
CE-141		145.44	*	8.405E-02	6.945E-02	1.161E-01	7.409E-03	0.724
CE-143		57.37		-5.095E-04	6.945E-02	Half-Life	too short	
		231.56		-7.007E-04	6.945E-02	Half-Life	too short	
		293.26	*	1.573E-03	6.945E-02	Half-Life	too short	
	+	350.59		5.213E-02	6.945E-02	Half-Life	too short	
		490.36		-3.351E-03	6.945E-02	Half-Life	too short	
		664.57		1.948E-02	6.945E-02	Half-Life	too short	
		721.93		3.554E-03	6.945E-02	Half-Life	too short	
		80.11		-1.397E+00	2.458E+00	3.403E+00	2.709E-01	-0.410
		133.54	*	-4.547E-02	2.195E-01	3.496E-01	5.089E-02	-0.130
		476.78		-4.819E-03	7.315E-02	1.194E-01	8.275E-03	-0.040
PM-144		618.01		-1.258E-02	3.407E-02	5.374E-02	3.396E-03	-0.234
		696.49	*	-1.526E-02	3.782E-02	5.917E-02	3.791E-03	-0.258
PR-144		778.57		8.052E-01	2.446E+00	3.543E+00	2.676E-01	0.227
		696.49	*	-1.035E+00	2.564E+00	4.012E+00	2.569E-01	-0.258
PM-146		1489.15		1.706E+00	1.087E+01	1.744E+01	1.204E+00	0.098
		453.90	*	-1.207E-02	4.670E-02	7.543E-02	6.457E-03	-0.160
ND-147		633.02		-3.755E-01	1.303E+00	2.046E+00	7.539E-01	-0.184
		735.90		-4.535E-02	1.420E-01	2.209E-01	6.215E-02	-0.205
		747.13		-4.027E-02	9.112E-02	1.404E-01	1.848E-02	-0.287
		91.11		6.055E-01	6.038E-01	6.634E-01	6.098E-02	0.913
		319.41		3.486E+00	3.591E+00	6.244E+00	3.624E-01	0.558
		439.89		4.847E+00	6.633E+00	1.137E+01	6.433E-01	0.426

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149 EU-152	531.02	*		-3.008E-01	6.141E-01	9.644E-01	1.309E-01	-0.312
	285.90	*		-3.641E+01	1.214E+02	1.992E+02	2.827E+01	-0.183
	121.78			2.263E-02	7.863E-02	1.280E-01	1.107E-02	0.177
	244.69			3.882E-01	3.741E-01	5.776E-01	3.327E-02	0.672
	344.27	*		4.465E-03	1.193E-01	1.625E-01	1.051E-02	0.027
	443.98			2.386E-01	1.010E+00	1.683E+00	9.546E-02	0.142
	778.89			-8.772E-02	2.991E-01	3.970E-01	2.999E-02	-0.221
	867.32			-1.744E-01	8.142E-01	1.138E+00	1.012E-01	-0.153
	964.01			2.761E-01	3.785E-01	5.824E-01	5.078E-02	0.474
	1085.78			-9.127E-02	3.960E-01	6.420E-01	4.530E-02	-0.142
GD-153	1112.02			7.593E-02	3.513E-01	5.155E-01	3.413E-02	0.147
	1407.95			1.182E-01	2.137E-01	3.708E-01	2.613E-02	0.319
	69.67			4.299E-01	2.156E+00	2.609E+00	1.865E-01	0.165
	83.37			9.433E+00	2.079E+01	2.539E+01	2.099E+00	0.372
	97.43	*		1.061E-02	9.461E-02	1.344E-01	1.078E-02	0.079
	103.18			2.019E-02	1.134E-01	1.844E-01	1.422E-02	0.110
	123.07			-4.796E-02	5.626E-02	8.720E-02	8.922E-03	-0.550
	247.94			-2.916E-01	4.217E-01	5.852E-01	5.573E-02	-0.498
	591.81			-6.006E-01	6.319E-01	9.446E-01	9.335E-02	-0.636
	723.30			9.526E-02	2.088E-01	3.052E-01	2.409E-02	0.312
EU-154	756.87			7.942E-01	8.224E-01	1.421E+00	1.567E-01	0.559
	873.19			1.615E-01	2.768E-01	4.868E-01	6.086E-02	0.332
	996.32			-1.865E-01	3.972E-01	6.325E-01	1.115E-01	-0.295
	1004.76			-5.528E-02	2.229E-01	3.627E-01	4.117E-02	-0.152
	1274.45	*		4.552E-03	1.353E-01	2.234E-01	2.191E-02	0.020
	48.70			3.626E-01	1.871E+00	3.066E+00	1.965E-01	0.118
	60.01			3.588E+00	5.122E+00	7.487E+00	4.977E-01	0.479
	86.54			1.225E-01	1.475E-01	1.937E-01	1.681E-02	0.632
	105.31	*		-5.847E-02	1.165E-01	1.846E-01	1.429E-02	-0.317
	86.79			3.300E-01	3.974E-01	5.162E-01	4.448E-02	0.639
TB-160	197.04			-1.590E-01	5.852E-01	9.565E-01	5.301E-02	-0.166
	215.65			4.070E-01	7.963E-01	1.293E+00	7.293E-02	0.315
	298.57			1.634E-01	1.360E-01	1.937E-01	1.129E-02	0.844
	879.36	*		-5.125E-02	1.452E-01	2.357E-01	2.140E-02	-0.217
	962.29			-3.554E-01	6.713E-01	9.062E-01	7.919E-02	-0.392
	966.15			5.952E-01	2.748E-01	4.660E-01	4.052E-02	1.277
	1177.93			-2.653E-01	3.989E-01	6.245E-01	3.469E-02	-0.425
	1271.85			6.203E-01	7.550E-01	1.338E+00	8.685E-02	0.464
	80.57			-4.075E-01	3.407E-01	4.211E-01	3.370E-02	-0.968
	184.41			2.185E-01	4.629E-02	7.916E-02	4.330E-03	2.759
HO-166M	280.46			7.986E-02	9.167E-02	1.408E-01	8.208E-03	0.567
	410.95			1.676E-01	2.521E-01	4.308E-01	2.383E-02	0.389
	711.68	*		-1.639E-02	6.132E-02	9.563E-02	6.319E-03	-0.171
	752.31			-2.030E-01	2.825E-01	4.245E-01	3.044E-02	-0.478
	810.29			-1.492E-02	6.256E-02	9.815E-02	7.868E-03	-0.152
	51.35			-2.461E+01	2.456E+01	3.870E+01	2.509E+00	-0.636
	52.39			-6.442E+00	1.270E+01	2.038E+01	1.325E+00	-0.316
	59.40			3.379E+01	2.721E+01	4.060E+01	2.690E+00	0.832
	66.72	*		4.112E+00	3.089E+01	4.427E+01	3.087E+00	0.093
TM-171								

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	+	88.36		2.411E-01	2.903E-01	3.927E-01	3.421E-02	0.614
		201.83		-1.504E-02	2.953E-02	4.873E-02	2.714E-03	-0.309
		306.84	*	-1.276E-02	2.640E-02	4.022E-02	2.343E-03	-0.317
		401.10		-2.682E+00	7.431E+00	1.201E+01	6.590E-01	-0.223
LU-177	+	112.95		-1.998E-01	1.950E+00	3.132E+00	2.300E-01	-0.064
		208.36	*	3.195E+00	1.546E+00	2.272E+00	1.273E-01	1.406
LU-177M	+	52.97		-5.226E-01	1.341E+00	2.162E+00	1.408E-01	-0.242
		54.07		-8.442E-01	7.258E-01	1.136E+00	7.417E-02	-0.743
		61.30		2.948E+00	1.610E+00	2.448E+00	1.641E-01	1.204
		121.62		2.034E-01	4.029E-01	6.608E-01	4.699E-02	0.308
		147.16		-3.218E-01	7.105E-01	1.118E+00	6.819E-02	-0.288
		171.86		-1.753E-01	5.274E-01	8.303E-01	4.481E-02	-0.211
		218.09		4.662E-01	8.755E-01	1.499E+00	8.474E-02	0.311
		268.79		3.229E+00	1.284E+00	1.549E+00	9.011E-02	2.085
		319.02		1.575E-01	2.673E-01	4.568E-01	2.651E-02	0.345
		367.43		-6.585E-01	9.185E-01	1.454E+00	8.151E-02	-0.453
		413.65	*	-2.015E-01	1.966E-01	3.046E-01	1.689E-02	-0.661
HF-181	+	56.28		6.016E-02	8.459E-01	1.384E+00	9.084E-02	0.043
		57.53		3.022E-03	4.853E-01	7.652E-01	5.038E-02	0.004
		65.20		4.665E+00	1.399E+00	1.709E+00	1.177E-01	2.730
		133.02		-2.857E-02	7.168E-02	1.134E-01	7.531E-03	-0.252
W-181	+	136.25		-3.570E-02	4.968E-01	7.955E-01	5.184E-02	-0.045
		345.85		5.793E-02	2.866E-01	3.320E-01	1.897E-02	0.175
		482.03	*	-3.168E-02	4.708E-02	7.371E-02	4.275E-03	-0.430
		56.28		2.413E-02	3.278E-01	5.364E-01	3.520E-02	0.045
		57.53		8.739E-04	1.882E-01	2.966E-01	1.953E-02	0.003
		65.20	*	1.794E+00	5.383E-01	6.573E-01	4.528E-02	2.730
TA-182	+	67.75		1.358E-02	1.301E-01	1.721E-01	1.211E-02	0.079
		100.10		2.570E-01	1.911E-01	3.216E-01	2.530E-02	0.799
		152.43		1.535E-01	3.728E-01	6.064E-01	3.575E-02	0.253
		222.10		-7.483E-02	3.600E-01	5.991E-01	3.398E-02	-0.125
		1001.68		2.203E+00	2.151E+00	3.865E+00	3.195E-01	0.570
		1121.28		8.639E-01	2.849E-01	3.787E-01	2.447E-02	2.281
RE-183	+	1189.05		-1.686E-01	3.159E-01	4.960E-01	2.808E-02	-0.340
		1221.42	*	-3.919E-02	2.070E-01	3.359E-01	2.009E-02	-0.117
		1230.97		-1.261E-01	5.402E-01	8.308E-01	5.049E-02	-0.152
		57.98		1.278E-01	1.963E-01	3.034E-01	2.001E-02	0.421
		59.32		1.370E-01	1.127E-01	1.680E-01	1.113E-02	0.815
		67.20		-4.356E-02	2.200E-01	3.110E-01	2.177E-02	-0.140
RE-184	+	162.32	*	-6.983E-02	1.200E-01	1.872E-01	1.031E-02	-0.373
		208.81		2.623E+00	1.269E+00	1.868E+00	1.047E-01	1.405
		291.72		1.327E+00	1.088E+00	1.696E+00	9.895E-02	0.783
		57.98		4.685E-01	7.194E-01	1.112E+00	7.331E-02	0.421
		59.32		5.016E-01	4.127E-01	6.152E-01	4.075E-02	0.815
		67.20		-1.596E-01	8.059E-01	1.139E+00	7.975E-02	-0.140
		161.27		-1.787E-01	3.865E-01	6.063E-01	3.365E-02	-0.295
		216.55		4.138E-02	2.697E-01	4.555E-01	2.572E-02	0.091
		252.85	*	-7.352E-02	2.402E-01	3.963E-01	2.292E-02	-0.186
		318.01		1.503E-01	4.521E-01	7.637E-01	4.433E-02	0.197

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185	792.07			2.305E-01	1.167E+00	1.655E+00	1.282E-01	0.139
	903.28			-8.300E-02	1.001E+00	1.584E+00	1.479E-01	-0.052
	920.93			-3.974E-01	4.257E-01	6.425E-01	5.892E-02	-0.619
	59.72			2.294E-01	3.070E-01	4.496E-01	2.984E-02	0.510
	61.14			2.295E-01	1.770E-01	2.637E-01	1.765E-02	0.870
	69.30			4.419E-01	4.326E-01	4.741E-01	3.379E-02	0.932
	592.07			-1.680E+00	2.541E+00	3.907E+00	2.336E-01	-0.430
	646.12	*		-1.402E-03	4.299E-02	6.946E-02	4.143E-03	-0.020
	717.42			-8.512E-01	9.675E-01	1.389E+00	9.285E-02	-0.613
	874.81			3.206E-01	5.850E-01	1.024E+00	9.226E-02	0.313
RE-188	880.27			-1.961E-01	8.158E-01	1.338E+00	1.217E-01	-0.147
	155.03	*		2.085E-01	1.939E-01	3.223E-01	1.868E-02	0.647
	477.96			-8.639E-01	3.346E+00	5.394E+00	3.122E-01	-0.160
	633.10			-7.484E-01	2.644E+00	4.179E+00	2.496E-01	-0.179
W-188	63.58	+		2.411E+02	7.233E+01	9.686E+01	6.594E+00	2.489
	227.08			-1.087E+00	1.325E+01	2.215E+01	1.261E+00	-0.049
IR-192	290.67	*		2.115E+00	8.570E+00	1.261E+01	7.358E-01	0.168
	295.96	+		9.131E-01	2.028E-01	2.728E-01	1.616E-02	3.347
	308.46			-1.959E-02	9.516E-02	1.565E-01	9.215E-03	-0.125
	316.51	*		5.560E-03	3.457E-02	5.792E-02	3.381E-03	0.096
	468.07			-3.722E-03	8.290E-02	1.172E-01	7.794E-03	-0.032
	604.41			-8.717E-02	5.383E-01	7.421E-01	8.492E-02	-0.117
	612.46			3.843E+00	9.973E-01	1.763E+00	1.360E-01	2.180
AU-195	65.12	+		8.275E-01	2.483E-01	3.064E-01	2.110E-02	2.701
	66.83			8.820E-03	1.023E-01	1.464E-01	1.022E-02	0.060
	75.70	+		1.336E+00	2.745E-01	4.679E-01	3.549E-02	2.856
	98.88	*		2.034E-01	2.573E-01	3.967E-01	3.148E-02	0.513
TL-200	129.76			7.170E-01	3.074E+00	4.984E+00	3.377E-01	0.144
	367.94	*		-4.516E-04	3.074E+00	Half-Life	too short	
	579.30			1.383E-03	3.074E+00	Half-Life	too short	
	828.27			-8.737E-03	3.074E+00	Half-Life	too short	
	1205.75			1.283E-03	3.074E+00	Half-Life	too short	
TL-201	68.90			1.139E+01	8.455E+00	9.470E+00	6.725E-01	1.203
	70.82			-1.346E+00	3.728E+00	5.226E+00	3.777E-01	-0.258
	80.30			-5.597E+00	7.210E+00	9.881E+00	7.883E-01	-0.566
	135.34			-3.568E+01	3.367E+01	5.164E+01	3.384E+00	-0.691
TL-202	167.43	*		9.254E+00	9.606E+00	1.591E+01	8.549E-01	0.582
	68.90			8.681E-01	6.443E-01	7.216E-01	5.125E-02	1.203
	70.82			-1.023E-01	2.833E-01	3.972E-01	2.870E-02	-0.258
	80.30			-4.254E-01	5.481E-01	7.511E-01	5.992E-02	-0.566
HG-203	439.56	*		4.640E-02	7.909E-02	1.345E-01	7.603E-03	0.345
	70.83			-4.248E-01	1.180E+00	1.653E+00	2.111E-01	-0.257
	72.87			2.132E+00	7.637E-01	1.130E+00	1.403E-01	1.888
	82.60			2.490E-01	1.845E+00	1.897E+00	2.557E-01	0.131
BI-207	279.20	*		6.915E-02	4.721E-02	7.459E-02	4.615E-03	0.927
	72.80			5.639E-01	2.102E-01	3.226E-01	2.376E-02	1.748
	74.97	+		7.384E-01	1.517E-01	2.380E-01	1.791E-02	3.103
	84.90			3.470E-01	2.319E-01	3.441E-01	2.898E-02	1.008
	569.67	+		1.831E-01	6.707E-02	8.452E-02	5.043E-03	2.167

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207	1063.62	*		-1.016E-02	5.368E-02	8.754E-02	6.479E-03	-0.116
	1770.23			2.273E-01	4.307E-01	6.986E-01	4.173E-02	0.325
	81.07			-2.608E-01	3.004E-01	3.387E-01	2.726E-02	-0.770
	83.78			2.577E-02	1.618E-01	2.145E-01	1.782E-02	0.120
	94.90			1.105E+00	3.084E-01	4.788E-01	3.918E-02	2.308
	122.32			4.261E-01	1.856E+00	3.014E+00	2.365E-01	0.141
	144.24			4.584E-01	7.434E-01	1.218E+00	9.216E-02	0.376
	154.21			7.586E-01	4.381E-01	7.418E-01	5.218E-02	1.023
	269.46			7.528E-01	2.996E-01	3.669E-01	2.231E-02	2.052
	323.87	*		-1.445E-01	7.915E-01	1.126E+00	1.859E-01	-0.128
PO-209	338.28			7.581E+00	2.017E+00	2.499E+00	2.624E-01	3.034
	445.03			-3.344E-01	2.404E+00	3.915E+00	3.993E-01	-0.085
	260.50			4.333E+00	9.837E+00	1.675E+01	9.719E-01	0.259
	262.80			-2.248E+00	2.908E+01	4.502E+01	2.615E+00	-0.050
	896.60	*		1.162E+00	7.070E+00	1.200E+01	1.123E+00	0.097
	46.50	*		7.593E-01	2.554E+00	4.243E+00	3.146E-01	0.179
PB-210	46.50	*		7.593E-01	2.554E+00	4.243E+00	3.146E-01	0.179
PO-210	46.50	*		7.593E-01	2.554E+00	4.243E+00	2.662E-01	0.179
PB-211	404.84	*		-7.278E-01	1.133E+00	1.646E+00	1.026E+00	-0.442
BI-212	427.08			8.508E-02	2.203E+00	3.633E+00	2.245E+00	0.023
	831.96			4.305E-01	1.237E+00	2.050E+00	1.284E+00	0.210
	727.18	*		1.130E+00	5.907E-01	6.941E-01	5.905E-02	1.628
	785.46			8.750E-01	1.718E+00	2.886E+00	2.207E-01	0.303
	1620.62			7.861E-01	1.184E+00	2.134E+00	1.398E-01	0.368
PO-215	81.07			-2.608E-01	3.004E-01	3.387E-01	2.726E-02	-0.770
	83.78			2.577E-02	1.618E-01	2.145E-01	1.782E-02	0.120
	94.90			1.105E+00	3.084E-01	4.788E-01	3.918E-02	2.308
	122.32			4.261E-01	1.856E+00	3.014E+00	2.365E-01	0.141
	144.24			4.584E-01	7.434E-01	1.218E+00	9.216E-02	0.376
	154.21			7.586E-01	4.381E-01	7.418E-01	5.218E-02	1.023
	269.46			7.528E-01	2.996E-01	3.669E-01	2.231E-02	2.052
	323.87	*		-1.445E-01	7.915E-01	1.126E+00	1.859E-01	-0.128
	338.28			7.581E+00	2.017E+00	2.499E+00	2.624E-01	3.034
	445.03			-3.344E-01	2.404E+00	3.915E+00	3.993E-01	-0.085
RN-219	271.23			9.659E-01	3.879E-01	4.609E-01	3.742E-02	2.096
	401.81	*		2.771E-01	4.502E-01	7.645E-01	1.030E-01	0.362
RN-220	549.76	*		2.669E+01	2.660E+01	4.642E+01	2.759E+00	0.575
RA-223	81.07			-2.608E-01	3.004E-01	3.387E-01	2.726E-02	-0.770
	83.78			2.577E-02	1.618E-01	2.145E-01	1.782E-02	0.120
	94.90			1.105E+00	3.084E-01	4.788E-01	3.918E-02	2.308
	122.32			4.261E-01	1.856E+00	3.014E+00	2.365E-01	0.141
	144.24			4.584E-01	7.434E-01	1.218E+00	9.216E-02	0.376
	154.21			7.586E-01	4.381E-01	7.418E-01	5.218E-02	1.023
	269.46			7.528E-01	2.996E-01	3.669E-01	2.231E-02	2.052
	323.87	*		-1.445E-01	7.915E-01	1.126E+00	1.859E-01	-0.128
	338.28			7.581E+00	2.017E+00	2.499E+00	2.624E-01	3.034
	445.03			-3.344E-01	2.404E+00	3.915E+00	3.993E-01	-0.085
	79.80			2.844E+00	2.000E+00	2.868E+00	6.091E-01	0.992
AC-227	236.00			1.981E+00	3.821E-01	5.853E-01	6.095E-02	3.385

---- Non-Identified Nuclides ----

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TH-227		256.20	*	1.057E-01	3.877E-01	6.553E-01	9.147E-02	0.161
		286.10		-3.211E-01	1.493E+00	2.460E+00	2.848E-01	-0.131
	+	299.80		2.062E+00	1.745E+00	2.514E+00	4.096E-01	0.820
		304.40		5.937E-01	2.149E+00	3.163E+00	5.474E-01	0.188
		334.20		-1.131E+00	2.927E+00	3.840E+00	7.036E-01	-0.295
		79.80		2.844E+00	2.003E+00	2.868E+00	6.171E-01	0.992
	+	94.00		1.155E+01	4.277E+00	4.449E+00	9.624E-01	2.596
		236.00		1.981E+00	3.679E-01	5.853E-01	5.275E-02	3.385
		256.20	*	1.057E-01	3.878E-01	6.553E-01	1.107E-01	0.161
		286.10		-3.211E-01	1.527E+00	2.460E+00	2.465E+00	-0.131
AC-228	+	299.80		2.062E+00	1.745E+00	2.514E+00	4.096E-01	0.820
		304.40		5.937E-01	2.149E+00	3.163E+00	5.474E-01	0.188
		334.20		-1.131E+00	2.927E+00	3.840E+00	7.036E-01	-0.295
	+	338.32		1.816E+00	8.629E-01	5.986E-01	2.440E-01	3.033
	+	911.07	*	1.517E+00	3.161E-01	4.858E-01	5.706E-02	3.122
RA-228		969.11		1.170E+00	4.593E-01	7.100E-01	1.658E-01	1.648
	+	338.32		1.816E+00	8.629E-01	5.986E-01	2.440E-01	3.033
TH-229	+	911.07	*	1.517E+00	3.161E-01	4.858E-01	5.706E-02	3.122
		969.11		1.170E+00	4.593E-01	7.100E-01	1.658E-01	1.648
PA-231		85.43		6.070E-01	2.371E-01	3.589E-01	3.042E-02	1.691
	+	88.47		1.388E-01	1.671E-01	2.265E-01	1.971E-02	0.613
		100.00		2.835E-01	1.979E-01	3.338E-01	2.628E-02	0.849
		193.63	*	-1.391E-02	5.407E-01	8.508E-01	4.699E-02	-0.016
		210.97		1.466E+00	8.827E-01	1.396E+00	7.843E-02	1.050
		283.67	*	-9.461E-01	1.603E+00	2.429E+00	3.350E-01	-0.390
	+	301.29		8.249E-01	6.903E-01	1.036E+00	1.085E-01	0.796
	TH-231	81.07		-2.608E-01	3.004E-01	3.387E-01	2.726E-02	-0.770
		83.78		2.577E-02	1.618E-01	2.145E-01	1.782E-02	0.120
		94.90		1.105E+00	3.084E-01	4.788E-01	3.918E-02	2.308
U-231		122.32		4.261E-01	1.856E+00	3.014E+00	2.365E-01	0.141
		144.24		4.584E-01	7.434E-01	1.218E+00	9.216E-02	0.376
		154.21		7.586E-01	4.381E-01	7.418E-01	5.218E-02	1.023
	+	269.46		7.528E-01	2.996E-01	3.669E-01	2.231E-02	2.052
		323.87	*	-1.445E-01	7.915E-01	1.126E+00	1.859E-01	-0.128
	+	338.28		7.581E+00	2.017E+00	2.499E+00	2.624E-01	3.034
		445.03		-3.344E-01	2.404E+00	3.915E+00	3.993E-01	-0.085
	+	84.21		4.817E+00	7.570E+00	1.095E+01	9.149E-01	0.440
	+	92.29		1.338E+01	4.172E+00	5.606E+00	4.694E-01	2.388
		95.87	*	-1.583E-01	1.529E+00	2.151E+00	1.746E-01	-0.074
TH-232		108.00		3.752E-02	2.547E+00	4.114E+00	3.091E-01	0.009
	+	338.32		1.816E+00	4.559E-01	5.986E-01	3.439E-02	3.033
	+	911.07	*	1.517E+00	3.161E-01	4.858E-01	5.706E-02	3.122
PA-233		969.11		1.170E+00	4.593E-01	7.100E-01	1.658E-01	1.648
	+	75.28		2.155E+01	5.205E+00	7.260E+00	1.073E+00	2.968
	+	86.59		1.990E+00	2.449E+00	3.143E+00	8.428E-01	0.633
	+	300.12		5.749E-01	4.836E-01	6.970E-01	9.376E-02	0.825
		311.98	*	2.349E-02	6.074E-02	1.030E-01	6.362E-03	0.228
		340.50		2.228E+00	9.294E-01	1.310E+00	3.006E-01	1.701
		398.62		-1.384E+00	2.338E+00	3.686E+00	9.504E-01	-0.376

---- Non-Identified Nuclides ----

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PA-234	+	415.76		1.595E+00	1.779E+00	3.030E+00	6.217E-01	0.526
		63.00		6.925E+00	2.261E+00	2.824E+00	4.111E-01	2.452
		94.67		1.141E+00	2.534E-01	3.620E-01	4.385E-02	3.153
		98.44		6.728E-02	1.164E-01	1.604E-01	8.930E-02	0.420
		99.86		8.739E-01	5.012E-01	8.512E-01	6.708E-02	1.027
		111.00		4.487E-02	1.970E-01	3.203E-01	3.605E-02	0.140
		131.20		8.972E-03	1.146E-01	1.846E-01	1.240E-02	0.049
		152.70		2.274E-01	3.614E-01	5.897E-01	9.341E-02	0.386
		186.00		8.203E+00	3.496E+00	2.926E+00	8.925E-01	2.803
		226.40		8.114E-03	4.057E-01	6.810E-01	7.836E-02	0.012
		227.20		-5.863E-02	4.423E-01	7.379E-01	4.202E-02	-0.079
		248.90		-1.523E-01	8.546E-01	1.337E+00	2.871E-01	-0.114
		293.70		5.696E+00	1.525E+00	1.729E+00	2.783E-01	3.294
		369.80		-1.798E-01	8.529E-01	1.392E+00	2.890E-01	-0.129
		568.70		5.959E+00	2.183E+00	2.722E+00	1.624E-01	2.190
		569.50		1.625E+00	5.953E-01	7.523E-01	4.488E-02	2.160
		574.00		-5.172E-01	1.850E+00	2.527E+00	1.508E-01	-0.205
		699.00		3.258E-01	7.917E-01	1.314E+00	2.391E-01	0.248
		706.10		-1.424E-01	1.082E+00	1.725E+00	7.629E-01	-0.083
		733.00		-1.998E-01	4.131E-01	5.319E-01	1.148E-01	-0.376
		742.81		7.453E-01	1.467E+00	2.326E+00	1.559E+00	0.320
		796.30		1.890E+00	1.440E+00	1.759E+00	4.716E-01	1.074
		805.60		1.235E+00	1.144E+00	1.900E+00	5.789E-01	0.650
		819.60		-5.900E-02	1.190E+00	1.989E+00	7.543E-01	-0.030
		826.30		-7.619E-01	8.199E-01	1.130E+00	5.048E-01	-0.674
		831.60		4.061E-01	6.277E-01	1.071E+00	3.186E-01	0.379
		876.40		2.307E-01	8.731E-01	1.439E+00	1.480E+00	0.160
		880.51		-7.042E-02	2.929E-01	4.802E-01	4.370E-02	-0.147
		883.24		9.938E-02	2.901E-01	4.869E-01	3.277E-01	0.204
		899.00		-4.043E-01	8.151E-01	1.267E+00	5.560E-01	-0.319
		925.00		2.544E-01	1.080E+00	1.844E+00	1.684E-01	0.138
		926.50		7.870E-02	1.645E-01	2.849E-01	7.252E-02	0.276
		946.00	*	-7.480E-02	3.251E-01	5.316E-01	1.005E-01	-0.141
		949.00		-2.925E-01	4.809E-01	7.598E-01	6.751E-02	-0.385
		980.50		-3.701E-01	7.277E-01	1.153E+00	9.832E-02	-0.321
		1394.10		-3.968E-01	1.198E+00	1.827E+00	1.186E+00	-0.217
PA-234M	+	766.42		1.661E+01	1.606E+01	2.149E+01	1.086E+01	0.773
		1001.03	*	4.578E+00	4.856E+00	8.668E+00	8.380E-01	0.528
U-235	+	89.95		-1.222E+00	2.213E+00	2.137E+00	6.592E-01	-0.572
		93.35		3.593E+00	1.474E+00	1.429E+00	3.992E-01	2.514
		105.00		-3.254E-01	1.149E+00	1.831E+00	5.414E-01	-0.178
		143.76	*	1.145E-01	2.293E-01	3.734E-01	6.147E-02	0.307
		163.35		1.728E-01	5.121E-01	8.284E-01	1.481E-01	0.209
		185.71		3.038E-01	9.196E-02	1.082E-01	5.927E-03	2.808
NP-236	+	205.31		8.541E-02	6.007E-01	8.861E-01	1.587E-01	0.096
		94.67		8.698E-01	1.763E-01	2.749E-01	2.254E-02	3.164
		98.44		5.087E-02	8.341E-02	1.212E-01	9.650E-03	0.420
		111.00		3.394E-02	1.490E-01	2.423E-01	1.795E-02	0.140
		160.31	*	-2.302E-02	8.562E-02	1.354E-01	7.568E-03	-0.170



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		2.732E-01	1.736E-01	2.849E-01	2.251E-02	0.959
		117.00	*	-1.501E-01	2.108E-01	3.303E-01	2.387E-02	-0.454
	+	209.75		2.050E+00	9.918E-01	1.445E+00	8.110E-02	1.418
		228.18		-4.899E-02	2.311E-01	3.842E-01	2.190E-02	-0.127
	+	277.60		3.427E-01	1.980E-01	3.199E-01	1.865E-02	1.071
AM-241		334.30		-6.412E-01	1.655E+00	2.176E+00	1.253E-01	-0.295
		59.54	*	1.290E-01	1.608E-01	2.360E-01	1.752E-02	0.547
CM-243		99.55		2.811E-01	1.787E-01	2.932E-01	2.316E-02	0.959
		103.76	*	-2.342E-02	1.046E-01	1.675E-01	1.288E-02	-0.140
		117.00		-1.544E-01	2.169E-01	3.398E-01	2.456E-02	-0.454
	+	209.75		2.021E+00	9.778E-01	1.425E+00	7.996E-02	1.418
		228.18		-4.950E-02	2.335E-01	3.883E-01	2.213E-02	-0.127
AM-246	+	277.60		3.455E-01	1.996E-01	3.226E-01	1.880E-02	1.071
		798.80		-1.262E-01	1.716E-01	2.138E-01	1.678E-02	-0.590
		1036.00		2.195E-02	2.994E-01	5.010E-01	3.910E-02	0.044
		1062.04		1.040E-02	2.317E-01	3.863E-01	2.868E-02	0.027
		1078.86	*	4.858E-02	1.401E-01	2.399E-01	1.719E-02	0.203
CM-247	+	278.00		1.421E+00	8.212E-01	1.323E+00	7.715E-02	1.074
		287.40		-6.968E-01	1.245E+00	1.959E+00	1.143E-01	-0.356
		402.60	*	4.383E-02	3.953E-02	6.899E-02	3.790E-03	0.635
CF-249		252.85		-2.748E-01	8.978E-01	1.481E+00	8.567E-02	-0.186
		333.44		-1.650E-01	2.705E-01	2.854E-01	1.645E-02	-0.578
CF-251		387.95	*	3.525E-03	4.219E-02	6.998E-02	3.826E-03	0.050
		176.60	*	5.570E-02	1.353E-01	2.176E-01	1.180E-02	0.256
		227.00		-1.856E-02	3.944E-01	6.601E-01	3.759E-02	-0.028
		285.00		-4.111E-01	1.715E+00	2.824E+00	1.648E-01	-0.146

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229009      *
* Acquisition date   : 22-JAN-2010 14:04:02 Detector SN#      :              *
* Detector ID        : GAM14                      Sensitivity    : 5.000      *
* Geometry           : CAN                      Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00           Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.47           Half life ratio  : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229009           Analyst initials: MXR1          *
* Batch Number       : 941239               Sample Quantity : 1.2331E+02 GRAM  *
* Recovery           : 1.00000              Carrier Weight  : 0.00000        *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope         :
* MSD DPM             : 0.000                MSD Isotope      :
* LCS DPM             : 0.000                LCS Isotope       :
* LCSD DPM            : 0.000                LCSD Isotope      :
*****

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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.691E+01	2.539E+00	5.308E-01	0.000E+00
CD-109	1.036E+00	1.222E+00	1.686E+00	0.000E+00
SN-126	1.016E-01	1.199E-01	1.715E-01	0.000E+00
BA-137M	6.756E-01	8.886E-02	6.192E-02	0.000E+00
CS-137	7.142E-01	9.401E-02	6.545E-02	0.000E+00
TL-208	4.651E-01	8.491E-02	6.415E-02	0.000E+00
BI-211	4.034E+00	4.890E-01	3.350E-01	0.000E+00
PB-212	1.501E+00	1.519E-01	9.158E-02	0.000E+00
PO-212	1.501E+00	1.519E-01	9.158E-02	0.000E+00
BI-214	1.231E+00	1.758E-01	1.141E-01	0.000E+00
PB-214	1.403E+00	1.846E-01	1.219E-01	0.000E+00
PO-214	1.403E+00	1.846E-01	1.219E-01	0.000E+00
PO-216	1.501E+00	1.519E-01	9.158E-02	0.000E+00
PO-218	1.403E+00	1.846E-01	1.219E-01	0.000E+00
RA-224	4.166E+00	1.567E+00	1.041E+00	0.000E+00
RA-226	1.231E+00	1.758E-01	1.141E-01	0.000E+00
TH-228	1.526E+00	1.543E-01	9.306E-02	0.000E+00
TH-230	1.231E+00	1.758E-01	1.141E-01	0.000E+00
TH-234	5.941E+00	1.974E+00	2.051E+00	0.000E+00
U-234	1.231E+00	1.758E-01	1.141E-01	0.000E+00
NP-237	2.985E-01	3.573E-01	4.587E-01	0.000E+00
U-238	5.941E+00	1.974E+00	2.051E+00	0.000E+00
AM-243	4.114E-01	8.283E-02	8.979E-02	0.000E+00
ANH-511	1.346E-01	7.488E-02	4.717E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-8.577E-02	3.421E-01	5.708E-01	0.000E+00 NOT IDENT.
NA-22	8.124E-04	4.743E-02	7.981E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	1.908E+06	0.000E+00	0.000E+00 SHORT HLIF

AL-26	3.140E-03	3.136E-02	5.244E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.735E-02	8.326E-02	0.000E+00	FAIL ABUN
SC-46	-7.966E-03	3.957E-02	6.675E-02	0.000E+00	FAIL ABUN
V-48	-3.020E-02	7.081E-02	1.159E-01	0.000E+00	NOT IDENT.
CR-51	2.986E-01	3.831E-01	6.859E-01	0.000E+00	NOT IDENT.
MN-52	1.088E-01	2.462E-01	4.360E-01	0.000E+00	NOT IDENT.
MN-54	7.400E-03	3.673E-02	6.421E-02	0.000E+00	NOT IDENT.
CO-56	-1.731E-02	3.875E-02	6.418E-02	0.000E+00	FAIL ABUN
CO-57	8.372E-03	2.649E-02	4.542E-02	0.000E+00	NOT IDENT.
CO-58	-1.339E-02	4.052E-02	6.471E-02	0.000E+00	NOT IDENT.
FE-59	-8.557E-02	9.214E-02	1.421E-01	0.000E+00	NOT IDENT.
CO-60	3.495E-02	4.252E-02	7.710E-02	0.000E+00	NOT IDENT.
ZN-65	-7.327E-02	9.884E-02	1.289E-01	0.000E+00	NOT IDENT.
GE-68	-1.259E+00	1.308E+00	2.022E+00	0.000E+00	NOT IDENT.
AS-73	-4.154E-01	6.842E-01	1.165E+00	0.000E+00	NOT IDENT.
AS-74	-1.301E-02	9.323E-02	1.546E-01	0.000E+00	NOT IDENT.
SE-75	-7.171E-02	5.171E-02	6.991E-02	0.000E+00	NOT IDENT.
BR-77	-7.403E-01	1.487E+01	2.265E+01	0.000E+00	FAIL ABUN
SR-82	2.342E-01	4.000E-01	6.149E-01	0.000E+00	NOT IDENT.
RB-83	1.035E-03	7.499E-02	1.149E-01	0.000E+00	NOT IDENT.
RB-84	-4.622E-03	7.256E-02	1.239E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.847E+00	1.498E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	4.064E-02	7.762E-02	0.000E+00	NOT IDENT.
RB-86	-8.630E-01	8.476E-01	1.301E+00	0.000E+00	NOT IDENT.
Y-88	2.429E-03	3.093E-02	5.159E-02	0.000E+00	NOT IDENT.
ZR-88	-2.205E-02	3.377E-02	5.576E-02	0.000E+00	NOT IDENT.
Y-91	5.160E+00	1.859E+01	3.209E+01	0.000E+00	NOT IDENT.
NB-94	1.322E-02	3.602E-02	6.145E-02	0.000E+00	NOT IDENT.
NB-95	5.814E-02	4.766E-02	7.716E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.593E-01	2.748E-01	0.000E+00	NOT IDENT.
ZR-95	6.177E-02	7.415E-02	1.308E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.183E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	5.143E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.629E+00	1.461E+01	2.444E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.339E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.622E-03	3.329E-02	5.735E-02	0.000E+00	NOT IDENT.
RH-102	1.042E-03	3.065E-02	5.209E-02	0.000E+00	NOT IDENT.
RU-103	-1.068E-02	4.028E-02	6.685E-02	0.000E+00	FAIL ABUN
RH-106	6.539E-02	3.309E-01	5.615E-01	0.000E+00	FAIL ABUN
RU-106	6.539E-02	3.309E-01	5.615E-01	0.000E+00	FAIL ABUN
AG-108M	4.600E-03	3.535E-02	6.067E-02	0.000E+00	NOT IDENT.
AG-110M	-2.771E-02	4.331E-02	5.785E-02	0.000E+00	NOT IDENT.
IN-111	3.528E-01	1.430E+00	2.207E+00	0.000E+00	NOT IDENT.
IN-113M	-2.873E-02	4.728E-02	7.818E-02	0.000E+00	NOT IDENT.
SN-113	-2.873E-02	4.728E-02	7.818E-02	0.000E+00	NOT IDENT.
IN-114M	7.353E-03	2.046E-01	3.150E-01	0.000E+00	NOT IDENT.
CD-115	1.342E+01	1.447E+01	2.596E+01	0.000E+00	NOT IDENT.
SN-117M	-6.664E-02	6.308E-02	1.013E-01	0.000E+00	NOT IDENT.
SB-122	-1.148E+00	2.078E+00	4.296E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.103E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.396E-02	3.060E-02	4.972E-02	0.000E+00	NOT IDENT.
I-124	-1.714E-01	8.944E-01	1.268E+00	0.000E+00	NOT IDENT.
SB-124	2.904E-02	6.264E-02	1.134E-01	0.000E+00	NOT IDENT.
SB-125	-9.561E-02	9.972E-02	1.603E-01	0.000E+00	FAIL ABUN
TE-125M	-2.964E+00	9.932E+00	1.671E+01	0.000E+00	NOT IDENT.
I-126	-9.025E-03	2.314E-01	3.312E-01	0.000E+00	NOT IDENT.
SB-126	1.898E-01	1.638E-01	2.662E-01	0.000E+00	FAIL ABUN
SB-127	8.042E-01	1.594E+00	2.759E+00	0.000E+00	NOT IDENT.
XE-127	-1.569E-02	5.104E-02	8.376E-02	0.000E+00	NOT IDENT.
I-131	5.035E-02	1.231E-01	2.161E-01	0.000E+00	NOT IDENT.
TE-132	-1.796E-01	8.515E-01	1.478E+00	0.000E+00	NOT IDENT.
BA-133	1.721E-02	4.926E-02	7.538E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.275E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.842E-02	9.150E-02	0.000E+00	FAIL ABUN
CS-135	0.000E+00	1.775E-01	3.001E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.529E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.128E-02	1.149E-01	2.042E-01	0.000E+00	FAIL ABUN
CE-139	-5.780E-03	3.284E-02	5.466E-02	0.000E+00	NOT IDENT.
BA-140	-3.009E-02	2.630E-01	4.393E-01	0.000E+00	NOT IDENT.
LA-140	-3.726E-02	8.509E-02	1.306E-01	0.000E+00	FAIL ABUN
CE-141	8.405E-02	6.806E-02	1.195E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.452E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-4.547E-02	2.151E-01	3.603E-01	0.000E+00	NOT IDENT.
PM-144	-1.526E-02	3.706E-02	5.968E-02	0.000E+00	NOT IDENT.
PR-144	-1.035E+00	2.513E+00	4.046E+00	0.000E+00	NOT IDENT.
PM-146	-1.207E-02	4.576E-02	7.651E-02	0.000E+00	NOT IDENT.
ND-147	-3.008E-01	6.018E-01	9.762E-01	0.000E+00	NOT IDENT.
PM-149	-3.641E+01	1.190E+02	2.033E+02	0.000E+00	NOT IDENT.

EU-152	4.465E-03	1.170E-01	1.654E-01	0.000E+00	NOT IDENT.
GD-153	1.061E-02	9.272E-02	1.391E-01	0.000E+00	NOT IDENT.
EU-154	4.552E-03	1.326E-01	2.235E-01	0.000E+00	NOT IDENT.
EU-155	-5.847E-02	1.142E-01	1.909E-01	0.000E+00	FAIL ABUN
TB-160	-5.125E-02	1.423E-01	2.369E-01	0.000E+00	FAIL ABUN
HO-166M	-1.639E-02	6.010E-02	9.642E-02	0.000E+00	NOT IDENT.
TM-171	4.112E+00	3.027E+01	4.603E+01	0.000E+00	NOT IDENT.
LU-176	-1.276E-02	2.587E-02	4.101E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.515E+00	2.328E+00	0.000E+00	FAIL ABUN
LU-177M	-2.015E-01	1.926E-01	3.094E-01	0.000E+00	FAIL ABUN
HF-181	-3.168E-02	4.613E-02	7.471E-02	0.000E+00	FAIL ABUN
W-181	0.000E+00	5.275E-01	6.836E-01	0.000E+00	FAIL ABUN
TA-182	-3.919E-02	2.029E-01	3.363E-01	0.000E+00	FAIL ABUN
RE-183	-6.983E-02	1.176E-01	1.925E-01	0.000E+00	FAIL ABUN
RE-184	-7.352E-02	2.354E-01	4.051E-01	0.000E+00	NOT IDENT.
OS-185	-1.402E-03	4.213E-02	7.013E-02	0.000E+00	NOT IDENT.
RE-188	2.085E-01	1.900E-01	3.315E-01	0.000E+00	NOT IDENT.
W-188	2.115E+00	8.398E+00	1.287E+01	0.000E+00	FAIL ABUN
IR-192	5.560E-03	3.388E-02	5.903E-02	0.000E+00	FAIL ABUN
AU-195	2.034E-01	2.522E-01	4.104E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.363E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	9.254E+00	9.414E+00	1.635E+01	0.000E+00	NOT IDENT.
TL-202	4.640E-02	7.751E-02	1.364E-01	0.000E+00	NOT IDENT.
HG-203	6.915E-02	4.626E-02	7.614E-02	0.000E+00	NOT IDENT.
BI-207	-1.016E-02	5.260E-02	8.780E-02	0.000E+00	FAIL ABUN
TL-207	-1.445E-01	7.757E-01	1.147E+00	0.000E+00	FAIL ABUN
PO-209	1.162E+00	6.929E+00	1.206E+01	0.000E+00	NOT IDENT.
BI-210	7.593E-01	2.503E+00	4.431E+00	0.000E+00	NOT IDENT.
PB-210	7.593E-01	2.503E+00	4.431E+00	0.000E+00	NOT IDENT.
PO-210	7.593E-01	2.503E+00	4.431E+00	0.000E+00	NOT IDENT.
PB-211	-7.278E-01	1.110E+00	1.672E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.789E-01	6.997E-01	0.000E+00	FAIL ABUN
PO-215	-1.445E-01	7.757E-01	1.147E+00	0.000E+00	FAIL ABUN
RN-219	2.771E-01	4.412E-01	7.767E-01	0.000E+00	FAIL ABUN
RN-220	2.669E+01	2.607E+01	4.697E+01	0.000E+00	NOT IDENT.
RA-223	-1.445E-01	7.757E-01	1.147E+00	0.000E+00	FAIL ABUN
AC-227	1.057E-01	3.799E-01	6.698E-01	0.000E+00	FAIL ABUN
TH-227	1.057E-01	3.801E-01	6.698E-01	0.000E+00	FAIL ABUN
AC-228	0.000E+00	3.097E-01	4.882E-01	0.000E+00	FAIL ABUN
RA-228	0.000E+00	3.097E-01	4.882E-01	0.000E+00	FAIL ABUN
TH-229	-1.391E-02	5.299E-01	8.726E-01	0.000E+00	FAIL ABUN
PA-231	-9.461E-01	1.571E+00	2.479E+00	0.000E+00	FAIL ABUN
TH-231	-1.445E-01	7.757E-01	1.147E+00	0.000E+00	FAIL ABUN
U-231	-1.583E-01	1.498E+00	2.226E+00	0.000E+00	FAIL ABUN
TH-232	0.000E+00	3.097E-01	4.882E-01	0.000E+00	FAIL ABUN
PA-233	2.349E-02	5.953E-02	1.050E-01	0.000E+00	FAIL ABUN
PA-234	-7.480E-02	3.186E-01	5.340E-01	0.000E+00	FAIL ABUN
PA-234M	4.578E+00	4.759E+00	8.700E+00	0.000E+00	NOT IDENT.
U-235	1.145E-01	2.247E-01	3.845E-01	0.000E+00	FAIL ABUN
NP-236	-2.302E-02	8.391E-02	1.393E-01	0.000E+00	NOT IDENT.
NP-239	-1.501E-01	2.066E-01	3.409E-01	0.000E+00	FAIL ABUN
AM-241	1.290E-01	1.576E-01	2.457E-01	0.000E+00	NOT IDENT.
CM-243	-2.342E-02	1.025E-01	1.732E-01	0.000E+00	FAIL ABUN
AM-246	4.858E-02	1.373E-01	2.406E-01	0.000E+00	NOT IDENT.
CM-247	4.383E-02	3.874E-02	7.009E-02	0.000E+00	FAIL ABUN
CF-249	3.525E-03	4.135E-02	7.113E-02	0.000E+00	NOT IDENT.
CF-251	5.570E-02	1.326E-01	2.235E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229009.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:04:02
Sample ID          : G244229009          Sample quantity  : 1.23310E+02 GRAM
Detector name      : GAM14              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.47  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID          : 941239              Detector SN#      :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1142	10.67*	1.211E+00	2.691E+01	2.691E+01	9.63
CD-109	88.03	87	3.72*	7.078E+00	1.011E+00	1.036E+00	120.41
SN-126	64.28	348	9.60	4.691E+00	2.352E+00	2.352E+00	32.50
	86.94	87	8.90	7.078E+00	4.226E-01	4.226E-01	127.03
	87.57	87	37.00*	7.078E+00	1.016E-01	1.016E-01	120.41
BA-137M	661.65	492	89.98*	2.468E+00	6.749E-01	6.756E-01	13.42
CS-137	661.65	492	85.12*	2.468E+00	7.134E-01	7.142E-01	13.43
TL-208	277.35	79	6.80	4.998E+00	7.105E-01	7.105E-01	58.46
	510.84	137	21.60	3.088E+00	6.231E-01	6.231E-01	57.38
	583.14	355	84.20*	2.757E+00	4.651E-01	4.651E-01	18.63
	860.37	81	12.46	1.943E+00	1.023E+00	1.023E+00	50.25
BI-211	72.87	-----	1.27	5.875E+00	-----	Line Not Found	-----
	351.07	716	12.94*	4.177E+00	4.034E+00	4.034E+00	12.37
PB-212	74.81	543	10.70	6.088E+00	2.537E+00	2.537E+00	22.57
	77.11	801	18.00	6.311E+00	2.147E+00	2.147E+00	14.77
	87.30	87	8.00	7.078E+00	4.701E-01	4.701E-01	120.83
	238.63	1225	44.60*	5.569E+00	1.501E+00	1.501E+00	10.32
	300.09	59	3.41	4.720E+00	1.113E+00	1.113E+00	83.44
PO-212	74.81	543	10.70	6.088E+00	2.537E+00	2.537E+00	22.57
	77.11	801	18.00	6.311E+00	2.147E+00	2.147E+00	14.77
	87.30	87	8.00	7.078E+00	4.701E-01	4.701E-01	120.83
	115.19	-----	0.60	7.689E+00	-----	Line Not Found	-----
	238.63	1225	44.60*	5.569E+00	1.501E+00	1.501E+00	10.32
	300.09	59	3.41	4.720E+00	1.113E+00	1.113E+00	83.44
BI-214	609.31	497	46.30*	2.654E+00	1.231E+00	1.231E+00	14.57
	1120.29	137	15.10	1.523E+00	1.817E+00	1.817E+00	33.64
	1764.49	92	15.80	1.059E+00	1.683E+00	1.683E+00	24.52
PB-214	74.81	543	6.21	6.088E+00	4.372E+00	4.372E+00	21.84
	77.11	801	10.50	6.311E+00	3.681E+00	3.681E+00	16.62
	87.30	87	4.67	7.078E+00	8.053E-01	8.053E-01	120.66
	241.98	298	7.49	5.522E+00	2.197E+00	2.197E+00	38.80
	295.21	357	19.20	4.776E+00	1.187E+00	1.187E+00	23.05

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	716	37.20*	4.177E+00	1.403E+00	1.403E+00	13.42
	74.81	543	6.21	6.088E+00	4.372E+00	4.372E+00	21.84
	77.11	801	10.50	6.311E+00	3.681E+00	3.681E+00	16.62
	87.30	87	4.67	7.078E+00	8.053E-01	8.053E-01	120.66
	241.98	298	7.49	5.522E+00	2.197E+00	2.197E+00	38.80
PO-216	295.21	357	19.20	4.776E+00	1.187E+00	1.187E+00	23.05
	351.92	716	37.20*	4.177E+00	1.403E+00	1.403E+00	13.42
	74.81	543	10.70	6.088E+00	2.537E+00	2.537E+00	22.57
	77.11	801	18.00	6.311E+00	2.147E+00	2.147E+00	14.77
	87.30	87	8.00	7.078E+00	4.701E-01	4.701E-01	120.83
PO-218	238.63	1225	44.60*	5.569E+00	1.501E+00	1.501E+00	10.32
	300.09	59	3.41	4.720E+00	1.113E+00	1.113E+00	83.44
	74.81	543	6.21	6.088E+00	4.372E+00	4.372E+00	21.84
	77.11	801	10.50	6.311E+00	3.681E+00	3.681E+00	16.62
	87.30	87	4.67	7.078E+00	8.053E-01	8.053E-01	120.66
RA-224	241.98	298	7.49	5.522E+00	2.197E+00	2.197E+00	38.80
	295.21	357	19.20	4.776E+00	1.187E+00	1.187E+00	23.05
	351.92	716	37.20*	4.177E+00	1.403E+00	1.403E+00	13.42
	240.98	298	3.95*	5.522E+00	4.166E+00	4.166E+00	38.39
	609.31	497	46.30*	2.654E+00	1.231E+00	1.231E+00	14.57
TH-228	1120.29	137	15.10	1.523E+00	1.817E+00	1.817E+00	33.64
	1764.49	92	15.80	1.059E+00	1.683E+00	1.683E+00	24.52
	74.81	543	10.70	6.088E+00	2.537E+00	2.537E+00	20.58
	77.11	801	18.00	6.311E+00	2.147E+00	2.182E+00	14.77
	87.30	87	8.00	7.078E+00	4.701E-01	4.777E-01	120.41
TH-230	238.63	1225	44.60*	5.569E+00	1.501E+00	1.526E+00	10.32
	300.09	59	3.41	4.720E+00	1.113E+00	1.131E+00	101.82
	609.31	497	46.30*	2.654E+00	1.231E+00	1.231E+00	14.57
	1120.29	137	15.10	1.523E+00	1.817E+00	1.817E+00	33.64
	1764.49	92	15.80	1.059E+00	1.683E+00	1.683E+00	24.52
TH-234	63.29	348	3.80*	4.691E+00	5.941E+00	5.941E+00	33.90
	92.38	389	5.41	7.328E+00	2.989E+00	2.989E+00	34.99
U-234	609.31	497	46.30*	2.654E+00	1.231E+00	1.231E+00	14.57
	1120.29	137	15.10	1.523E+00	1.817E+00	1.817E+00	33.64
	1764.49	92	15.80	1.059E+00	1.683E+00	1.683E+00	24.52
NP-237	86.50	87	12.60*	7.078E+00	2.985E-01	2.985E-01	122.17
	95.87	-----	2.60	7.425E+00	-----	Line Not Found	-----
U-238	63.29	348	3.80*	4.691E+00	5.941E+00	5.941E+00	33.90
	92.38	389	5.41	7.328E+00	2.989E+00	2.989E+00	31.17
AM-243	74.67	543	66.00*	6.088E+00	4.114E-01	4.114E-01	20.55
	86.72	87	0.34	7.078E+00	1.119E+01	1.119E+01	120.41
	117.66	-----	0.55	7.685E+00	-----	Line Not Found	-----
ANH-511	142.18	-----	0.13	7.399E+00	-----	Line Not Found	-----
	511.00	137	100.00*	3.088E+00	1.346E-01	1.346E-01	56.77

Flag: "\*" = Keyline

Total number of lines in spectrum 36  
Number of unidentified lines 6  
Number of lines tentatively identified by NID 30 83.33%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.691E+01	2.691E+01	0.259E+01	9.63	
CD-109	464.00D	1.02	1.011E+00	1.036E+00	1.247E+00	120.41	
SN-126	1.00E+05Y	1.00	1.016E-01	1.016E-01	1.224E-01	120.41	
BA-137M	30.17Y	1.00	6.749E-01	6.756E-01	0.907E-01	13.42	
CS-137	30.17Y	1.00	7.134E-01	7.142E-01	0.959E-01	13.43	
TL-208	1.41E+10Y	1.00	4.651E-01	4.651E-01	0.866E-01	18.63	
BI-211	7.04E+08Y	1.00	4.034E+00	4.034E+00	0.499E+00	12.37	
PB-212	1.41E+10Y	1.00	1.501E+00	1.501E+00	0.155E+00	10.32	
PO-212	1.41E+10Y	1.00	1.501E+00	1.501E+00	0.155E+00	10.32	
BI-214	1600.00Y	1.00	1.231E+00	1.231E+00	0.179E+00	14.57	
PB-214	1600.00Y	1.00	1.403E+00	1.403E+00	0.188E+00	13.42	
PO-214	1600.00Y	1.00	1.403E+00	1.403E+00	0.188E+00	13.42	
PO-216	1.41E+10Y	1.00	1.501E+00	1.501E+00	0.155E+00	10.32	
PO-218	1600.00Y	1.00	1.403E+00	1.403E+00	0.188E+00	13.42	
RA-224	1.41E+10Y	1.00	4.166E+00	4.166E+00	1.599E+00	38.39	
RA-226	1600.00Y	1.00	1.231E+00	1.231E+00	0.179E+00	14.57	
TH-228	1.91Y	1.02	1.501E+00	1.526E+00	0.157E+00	10.32	
TH-230	4.47E+09Y	1.00	1.231E+00	1.231E+00	0.179E+00	14.57	
TH-234	4.47E+09Y	1.00	5.941E+00	5.941E+00	2.014E+00	33.90	
U-234	4.47E+09Y	1.00	1.231E+00	1.231E+00	0.179E+00	14.57	
NP-237	2.14E+06Y	1.00	2.985E-01	2.985E-01	3.646E-01	122.17	
U-238	4.47E+09Y	1.00	5.941E+00	5.941E+00	2.014E+00	33.90	
AM-243	7380.00Y	1.00	4.114E-01	4.114E-01	0.845E-01	20.55	
ANH-511	1.00E+09Y	1.00	1.346E-01	1.346E-01	0.764E-01	56.77	
Total Activity :			6.595E+01	6.600E+01			

Grand Total Activity : 6.595E+01 6.600E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	185.91	352	505	1.40	371.14	365	14	4.89E-02	29.8	6.53E+00	T
0	209.34	133	260	1.74	417.96	414	9	1.84E-02	48.1	6.07E+00	T
0	270.28	171	226	1.46	539.74	533	13	2.38E-02	39.3	5.10E+00	T
0	328.23	29	192	1.20	655.55	650	9	4.06E-03	****	4.41E+00	T
0	338.52	293	215	1.56	676.11	670	14	4.06E-02	24.4	4.30E+00	T
0	463.12	53	175	1.41	925.16	918	13	7.39E-03	****	3.35E+00	T
0	569.49	165	137	2.77	1137.78	1131	16	2.30E-02	36.1	2.82E+00	T
0	727.44	99	108	1.76	1453.57	1444	16	1.38E-02	51.6	2.27E+00	T
0	768.42	75	60	1.57	1535.52	1529	12	1.04E-02	47.3	2.16E+00	
0	773.98	28	64	1.64	1546.63	1541	12	3.84E-03	****	2.14E+00	
0	795.75	51	63	1.36	1590.16	1584	13	7.03E-03	71.3	2.09E+00	T
0	911.71	254	54	1.53	1822.07	1816	12	3.53E-02	17.2	1.84E+00	T
0	971.07	68	148	1.07	1940.78	1931	12	9.39E-03	76.6	1.74E+00	
0	1238.89	45	49	2.17	2476.54	2472	11	6.24E-03	68.7	1.39E+00	T
0	1380.39	26	46	0.96	2759.65	2750	20	3.63E-03	****	1.27E+00	
0	1410.22	12	24	1.35	2819.36	2813	9	1.69E-03	****	1.25E+00	
0	1497.44	23	8	2.94	2993.91	2988	11	3.16E-03	64.4	1.19E+00	

Flags: "T" = Tentatively associated



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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229009.CNF;1
* Acquisition date   : 22-JAN-2010 14:04:02  Detector SN#      :
* Detector ID        : GAM14                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.47          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                             *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244229009           Analyst initials: MXR1
* Batch Number       : 941239               Sample Quantity : 1.23310E+02 GRAM
*****
*                               QC DATA                                *
*
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06.61MS Isotope      :
* MSD ID             :                               MSD Isotope :
* LCS ID             : 1032-A                          LCS Isotope  :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.691E+01	2.591E+00	5.315E-01	3.859E-02	50.637
CD-109	1.036E+00	1.247E+00	1.627E+00	1.423E-01	0.637
SN-126	1.016E-01	1.224E-01	1.655E-01	1.440E-02	0.614
BA-137M	6.756E-01	9.067E-02	6.134E-02	3.648E-03	11.013
CS-137	7.142E-01	9.593E-02	6.485E-02	3.871E-03	11.013
TL-208	4.651E-01	8.664E-02	6.345E-02	4.339E-03	7.330
BI-211	4.034E+00	4.990E-01	3.291E-01	2.085E-02	12.258
PB-212	1.501E+00	1.550E-01	8.952E-02	6.521E-03	16.772
PO-212	1.501E+00	1.550E-01	8.952E-02	6.521E-03	16.772
BI-214	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
PB-214	1.403E+00	1.884E-01	1.198E-01	9.827E-03	11.718
PO-214	1.403E+00	1.884E-01	1.198E-01	9.827E-03	11.718
PO-216	1.501E+00	1.550E-01	8.952E-02	6.521E-03	16.772
PO-218	1.403E+00	1.884E-01	1.198E-01	9.827E-03	11.718
RA-224	4.166E+00	1.599E+00	1.018E+00	5.853E-02	4.091
RA-226	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
TH-228	1.526E+00	1.575E-01	9.097E-02	6.626E-03	16.772
TH-230	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-234	5.941E+00	2.014E+00	1.971E+00	3.388E-01	3.014
U-234	1.231E+00	1.794E-01	1.129E-01	8.940E-03	10.903
NP-237	2.985E-01	3.646E-01	4.426E-01	9.893E-02	0.674
U-238	5.941E+00	2.014E+00	1.971E+00	3.388E-01	3.014
AM-243	4.114E-01	8.452E-02	8.648E-02	6.490E-03	4.757
ANH-511	1.346E-01	7.641E-02	4.657E-02	2.736E-03	2.890

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-8.577E-02		3.491E-01	5.631E-01	3.795E-02	-0.152
NA-22	8.124E-04		4.840E-02	7.978E-02	5.211E-03	0.010
NA-24	5.420E-01		9.733E-01	Half-Life	too short	
AL-26	3.140E-03		3.200E-02	5.267E-02	3.053E-03	0.060
TI-44	3.963E-01	+	5.853E-02	8.024E-02	6.265E-03	4.939
SC-46	-7.966E-03		4.038E-02	6.640E-02	6.136E-03	-0.120
V-48	-3.020E-02		7.225E-02	1.155E-01	9.805E-03	-0.262
CR-51	2.986E-01		3.909E-01	6.731E-01	4.350E-02	0.444
MN-52	1.088E-01		2.513E-01	4.365E-01	3.059E-02	0.249
MN-54	7.400E-03		3.748E-02	6.382E-02	5.353E-03	0.116
CO-56	-1.731E-02		3.955E-02	6.380E-02	5.468E-03	-0.271
CO-57	8.372E-03		2.703E-02	4.402E-02	3.132E-03	0.190
CO-58	-1.339E-02		4.134E-02	6.429E-02	5.173E-03	-0.208
FE-59	-8.557E-02		9.402E-02	1.418E-01	1.092E-02	-0.604
CO-60	3.495E-02		4.339E-02	7.711E-02	5.495E-03	0.453
ZN-65	-7.327E-02		1.009E-01	1.286E-01	8.452E-03	-0.570
GE-68	-1.259E+00		1.335E+00	2.016E+00	1.449E-01	-0.625
AS-73	-4.154E-01		6.981E-01	1.117E+00	7.284E-02	-0.372
AS-74	-1.301E-02		9.513E-02	1.530E-01	9.150E-03	-0.085
SE-75	-7.171E-02		5.277E-02	6.843E-02	4.018E-03	-1.048
BR-77	-7.403E-01		1.518E+01	2.237E+01	1.319E+00	-0.033
SR-82	2.342E-01		4.082E-01	6.106E-01	4.590E-02	0.384
RB-83	1.035E-03		7.652E-02	1.135E-01	6.690E-03	0.009
RB-84	-4.622E-03		7.404E-02	1.233E-01	1.124E-02	-0.037
KR-85	2.058E+01		8.007E+00	1.480E+01	8.702E-01	1.391
SR-85	1.066E-01		4.147E-02	7.664E-02	4.508E-03	1.391
RB-86	-8.630E-01		8.649E-01	1.297E+00	9.339E-02	-0.665
Y-88	2.429E-03		3.157E-02	5.182E-02	2.943E-03	0.047
ZR-88	-2.205E-02		3.446E-02	5.486E-02	2.987E-03	-0.402
Y-91	5.160E+00		1.897E+01	3.205E+01	1.865E+00	0.161
NB-94	1.322E-02		3.675E-02	6.093E-02	3.951E-03	0.217
NB-95	5.814E-02		4.863E-02	7.660E-02	5.641E-03	0.759
NB-95M	5.944E-01		1.626E-01	2.686E-01	2.007E-02	2.213
ZR-95	6.177E-02		7.567E-02	1.298E-01	1.071E-02	0.476
NB-97	-1.028E-01		1.624E-01	Half-Life	too short	
ZR-97	1.135E+01		2.624E+00	Half-Life	too short	
MO-99	1.629E+00		1.491E+01	2.425E+01	3.473E+00	0.067

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	-7.283E+11		3.234E+11	Half-Life too short		
RH-101	-2.622E-03		3.397E-02	5.593E-02	3.103E-03	-0.047
RH-102	1.042E-03		3.128E-02	5.139E-02	2.970E-03	0.020
RU-103	-1.068E-02		4.110E-02	6.598E-02	8.356E-03	-0.162
RH-106	6.539E-02		3.377E-01	5.559E-01	6.575E-02	0.118
RU-106	6.539E-02		3.376E-01	5.559E-01	3.324E-02	0.118
AG-108M	4.600E-03		3.608E-02	5.977E-02	3.672E-03	0.077
AG-110M	-2.771E-02		4.419E-02	5.731E-02	3.620E-03	-0.483
IN-111	3.528E-01		1.459E+00	2.158E+00	1.243E-01	0.164
IN-113M	-2.873E-02		4.824E-02	7.692E-02	4.501E-03	-0.373
SN-113	-2.873E-02		4.824E-02	7.692E-02	4.501E-03	-0.373
IN-114M	7.353E-03		2.088E-01	3.070E-01	1.690E-02	0.024
CD-115	1.342E+01		1.477E+01	2.564E+01	1.515E+00	0.523
SN-117M	-6.664E-02		6.437E-02	9.855E-02	5.575E-03	-0.676
SB-122	-1.148E+00		3.141E+00	4.247E+00	2.532E-01	-0.270
I-123	-1.646E+01		1.073E+01	Half-Life too short		
TE-123M	-2.396E-02		3.123E-02	4.835E-02	2.765E-03	-0.495
I-124	-1.714E-01		9.127E-01	1.255E+00	7.505E-02	-0.137
SB-124	2.904E-02		6.392E-02	1.138E-01	7.693E-03	0.255
SB-125	-9.561E-02		1.018E-01	1.579E-01	9.252E-03	-0.606
TE-125M	-2.964E+00		1.013E+01	1.617E+01	1.518E+00	-0.183
I-126	-9.025E-03		2.361E-01	3.282E-01	1.971E-02	-0.027
SB-126	1.898E-01		1.671E-01	2.641E-01	1.777E-02	0.719
SB-127	8.042E-01		1.626E+00	2.735E+00	2.748E-01	0.294
XE-127	-1.569E-02		5.208E-02	8.171E-02	4.555E-03	-0.192
I-131	5.035E-02		1.256E-01	2.125E-01	1.344E-02	0.237
TE-132	-1.796E-01		8.689E-01	1.444E+00	2.097E-01	-0.124
BA-133	1.721E-02		5.027E-02	7.408E-02	8.515E-03	0.232
I-133	6.135E-03		6.505E-03	Half-Life too short		
CS-134	9.734E-02	+	6.982E-02	9.088E-02	7.153E-03	1.071
CS-135	3.896E-01		1.811E-01	2.938E-01	2.254E-02	1.326
I-135	-3.574E+10		3.331E+10	Half-Life too short		
CS-136	6.128E-02		1.173E-01	2.036E-01	1.638E-02	0.301
CE-139	-5.780E-03		3.351E-02	5.318E-02	2.855E-03	-0.109
BA-140	-3.009E-02		2.684E-01	4.340E-01	1.413E-01	-0.069
LA-140	-3.726E-02		8.683E-02	1.310E-01	8.683E-03	-0.284
CE-141	8.405E-02		6.945E-02	1.161E-01	7.409E-03	0.724
CE-143	1.573E-03		2.271E-04	Half-Life too short		
CE-144	-4.547E-02		2.195E-01	3.496E-01	5.089E-02	-0.130
PM-144	-1.526E-02		3.782E-02	5.917E-02	3.791E-03	-0.258
PR-144	-1.035E+00		2.564E+00	4.012E+00	2.569E-01	-0.258
PM-146	-1.207E-02		4.670E-02	7.543E-02	6.457E-03	-0.160
ND-147	-3.008E-01		6.141E-01	9.644E-01	1.309E-01	-0.312
PM-149	-3.641E+01		1.214E+02	1.992E+02	2.827E+01	-0.183
EU-152	4.465E-03		1.193E-01	1.625E-01	1.051E-02	0.027
GD-153	1.061E-02		9.461E-02	1.344E-01	1.078E-02	0.079
EU-154	4.552E-03		1.353E-01	2.234E-01	2.191E-02	0.020
EU-155	-5.847E-02		1.165E-01	1.846E-01	1.429E-02	-0.317

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TB-160	-5.125E-02		1.452E-01	2.357E-01	2.140E-02	-0.217
HO-166M	-1.639E-02		6.132E-02	9.563E-02	6.319E-03	-0.171
TM-171	4.112E+00		3.089E+01	4.427E+01	3.087E+00	0.093
LU-176	-1.276E-02		2.640E-02	4.022E-02	2.343E-03	-0.317
LU-177	3.195E+00	+	1.546E+00	2.272E+00	1.273E-01	1.406
LU-177M	-2.015E-01		1.966E-01	3.046E-01	1.689E-02	-0.661
HF-181	-3.168E-02		4.708E-02	7.371E-02	4.275E-03	-0.430
W-181	1.794E+00	+	5.383E-01	6.573E-01	4.528E-02	2.730
TA-182	-3.919E-02		2.070E-01	3.359E-01	2.009E-02	-0.117
RE-183	-6.983E-02		1.200E-01	1.872E-01	1.031E-02	-0.373
RE-184	-7.352E-02		2.402E-01	3.963E-01	2.292E-02	-0.186
OS-185	-1.402E-03		4.299E-02	6.946E-02	4.143E-03	-0.020
RE-188	2.085E-01		1.939E-01	3.223E-01	1.868E-02	0.647
W-188	2.115E+00		8.570E+00	1.261E+01	7.358E-01	0.168
IR-192	5.560E-03		3.457E-02	5.792E-02	3.381E-03	0.096
AU-195	2.034E-01		2.573E-01	3.967E-01	3.148E-02	0.513
TL-200	-4.516E-04		4.267E-04	Half-Life too short		
TL-201	9.254E+00		9.606E+00	1.591E+01	8.549E-01	0.582
TL-202	4.640E-02		7.909E-02	1.345E-01	7.603E-03	0.345
HG-203	6.915E-02		4.721E-02	7.459E-02	4.615E-03	0.927
BI-207	-1.016E-02		5.368E-02	8.754E-02	6.479E-03	-0.116
TL-207	-1.445E-01		7.915E-01	1.126E+00	1.859E-01	-0.128
PO-209	1.162E+00		7.070E+00	1.200E+01	1.123E+00	0.097
BI-210	7.593E-01		2.554E+00	4.243E+00	3.146E-01	0.179
PB-210	7.593E-01		2.554E+00	4.243E+00	3.146E-01	0.179
PO-210	7.593E-01		2.554E+00	4.243E+00	2.662E-01	0.179
PB-211	-7.278E-01		1.133E+00	1.646E+00	1.026E+00	-0.442
BI-212	1.130E+00	+	5.907E-01	6.941E-01	5.905E-02	1.628
PO-215	-1.445E-01		7.915E-01	1.126E+00	1.859E-01	-0.128
RN-219	2.771E-01		4.502E-01	7.645E-01	1.030E-01	0.362
RN-220	2.669E+01		2.660E+01	4.642E+01	2.759E+00	0.575
RA-223	-1.445E-01		7.915E-01	1.126E+00	1.859E-01	-0.128
AC-227	1.057E-01		3.877E-01	6.553E-01	9.147E-02	0.161
TH-227	1.057E-01		3.878E-01	6.553E-01	1.107E-01	0.161
AC-228	1.517E+00	+	3.161E-01	4.858E-01	5.706E-02	3.122
RA-228	1.517E+00	+	3.161E-01	4.858E-01	5.706E-02	3.122
TH-229	-1.391E-02		5.407E-01	8.508E-01	4.699E-02	-0.016
PA-231	-9.461E-01		1.603E+00	2.429E+00	3.350E-01	-0.390
TH-231	-1.445E-01		7.915E-01	1.126E+00	1.859E-01	-0.128
U-231	-1.583E-01		1.529E+00	2.151E+00	1.746E-01	-0.074
TH-232	1.517E+00	+	3.161E-01	4.858E-01	5.706E-02	3.122
PA-233	2.349E-02		6.074E-02	1.030E-01	6.362E-03	0.228
PA-234	-7.480E-02		3.251E-01	5.316E-01	1.005E-01	-0.141
PA-234M	4.578E+00		4.856E+00	8.668E+00	8.380E-01	0.528
U-235	1.145E-01		2.293E-01	3.734E-01	6.147E-02	0.307
NP-236	-2.302E-02		8.562E-02	1.354E-01	7.568E-03	-0.170
NP-239	-1.501E-01		2.108E-01	3.303E-01	2.387E-02	-0.454
AM-241	1.290E-01		1.608E-01	2.360E-01	1.752E-02	0.547

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-2.342E-02		1.046E-01	1.675E-01	1.288E-02	-0.140
AM-246	4.858E-02		1.401E-01	2.399E-01	1.719E-02	0.203
CM-247	4.383E-02		3.953E-02	6.899E-02	3.790E-03	0.635
CF-249	3.525E-03		4.219E-02	6.998E-02	3.826E-03	0.050
CF-251	5.570E-02		1.353E-01	2.176E-01	1.180E-02	0.256

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229009          *
* Acquisition date   : 22-JAN-2010 14:04:02 Detector SN#      :             *
* Detector ID        : GAM14                      Sensitivity   : 5.000        *
* Geometry           : CAN                        Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:01.47              Half life ratio : 8.000        *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G244229009              Analyst initials: MXR1          *
* Batch Number       : 941239                  Sample Quantity : 1.2331E+02 GRAM  *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000        *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 6-MAR-2009 11:43:06 MS Isotope         :             *
* MSD DPM             : 0.000                   MSD Isotope     :             *
* LCS DPM             : 0.000                   LCS Isotope     :             *
* LCSD DPM            : 0.000                   LCSD Isotope    :             *
*****

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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.691E+01	2.539E+00	2.655E-01	1.296E+00
CD-109	1.036E+00	1.222E+00	8.433E-01	6.235E-01
SN-126	1.016E-01	1.199E-01	8.581E-02	6.120E-02
BA-137M	6.756E-01	8.886E-02	3.098E-02	4.534E-02
CS-137	7.142E-01	9.401E-02	3.274E-02	4.796E-02
TL-208	4.651E-01	8.491E-02	3.210E-02	4.332E-02
BI-211	4.034E+00	4.890E-01	1.676E-01	2.495E-01
PB-212	1.501E+00	1.519E-01	4.582E-02	7.749E-02
PO-212	1.501E+00	1.519E-01	4.582E-02	7.749E-02
BI-214	1.231E+00	1.758E-01	5.709E-02	8.970E-02
PB-214	1.403E+00	1.846E-01	6.098E-02	9.420E-02
PO-214	1.403E+00	1.846E-01	6.098E-02	9.420E-02
PO-216	1.501E+00	1.519E-01	4.582E-02	7.749E-02
PO-218	1.403E+00	1.846E-01	6.098E-02	9.420E-02
RA-224	4.166E+00	1.567E+00	5.211E-01	7.995E-01
RA-226	1.231E+00	1.758E-01	5.709E-02	8.970E-02
TH-228	1.526E+00	1.543E-01	4.656E-02	7.874E-02
TH-230	1.231E+00	1.758E-01	5.709E-02	8.970E-02
TH-234	5.941E+00	1.974E+00	1.026E+00	1.007E+00
U-234	1.231E+00	1.758E-01	5.709E-02	8.970E-02
NP-237	2.985E-01	3.573E-01	2.295E-01	1.823E-01
U-238	5.941E+00	1.974E+00	1.026E+00	1.007E+00
AM-243	4.114E-01	8.283E-02	4.492E-02	4.226E-02
ANH-511	1.346E-01	7.488E-02	2.360E-02	3.821E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-8.577E-02	3.421E-01	2.856E-01	1.745E-01 NOT IDENT.
NA-22	8.124E-04	4.743E-02	3.993E-02	2.420E-02 NOT IDENT.
NA-24	5.420E+05	1.908E+06	0.000E+00	9.733E+05 SHORT HLIF

AL-26	3.140E-03	3.136E-02	2.624E-02	1.600E-02	NOT IDENT.
TI-44	3.963E-01	5.735E-02	4.165E-02	2.926E-02	FAIL ABUN
SC-46	-7.966E-03	3.957E-02	3.340E-02	2.019E-02	FAIL ABUN
V-48	-3.020E-02	7.081E-02	5.800E-02	3.613E-02	NOT IDENT.
CR-51	2.986E-01	3.831E-01	3.432E-01	1.954E-01	NOT IDENT.
MN-52	1.088E-01	2.462E-01	2.181E-01	1.256E-01	NOT IDENT.
MN-54	7.400E-03	3.673E-02	3.212E-02	1.874E-02	NOT IDENT.
CO-56	-1.731E-02	3.875E-02	3.211E-02	1.977E-02	FAIL ABUN
CO-57	8.372E-03	2.649E-02	2.272E-02	1.351E-02	NOT IDENT.
CO-58	-1.339E-02	4.052E-02	3.238E-02	2.067E-02	NOT IDENT.
FE-59	-8.557E-02	9.214E-02	7.111E-02	4.701E-02	NOT IDENT.
CO-60	3.495E-02	4.252E-02	3.857E-02	2.169E-02	NOT IDENT.
ZN-65	-7.327E-02	9.884E-02	6.447E-02	5.043E-02	NOT IDENT.
GE-68	-1.259E+00	1.308E+00	1.011E+00	6.673E-01	NOT IDENT.
AS-73	-4.154E-01	6.842E-01	5.828E-01	3.491E-01	NOT IDENT.
AS-74	-1.301E-02	9.323E-02	7.736E-02	4.757E-02	NOT IDENT.
SE-75	-7.171E-02	5.171E-02	3.497E-02	2.638E-02	NOT IDENT.
BR-77	-7.403E-01	1.487E+01	1.133E+01	7.588E+00	FAIL ABUN
SR-82	2.342E-01	4.000E-01	3.077E-01	2.041E-01	NOT IDENT.
RB-83	1.035E-03	7.499E-02	5.749E-02	3.826E-02	NOT IDENT.
RB-84	-4.622E-03	7.256E-02	6.201E-02	3.702E-02	NOT IDENT.
KR-85	2.058E+01	7.847E+00	7.497E+00	4.003E+00	NOT IDENT.
SR-85	1.066E-01	4.064E-02	3.883E-02	2.074E-02	NOT IDENT.
RB-86	-8.630E-01	8.476E-01	6.507E-01	4.325E-01	NOT IDENT.
Y-88	2.429E-03	3.093E-02	2.581E-02	1.578E-02	NOT IDENT.
ZR-88	-2.205E-02	3.377E-02	2.789E-02	1.723E-02	NOT IDENT.
Y-91	5.160E+00	1.859E+01	1.606E+01	9.485E+00	NOT IDENT.
NB-94	1.322E-02	3.602E-02	3.074E-02	1.838E-02	NOT IDENT.
NB-95	5.814E-02	4.766E-02	3.860E-02	2.432E-02	NOT IDENT.
NB-95M	5.944E-01	1.593E-01	1.375E-01	8.129E-02	NOT IDENT.
ZR-95	6.177E-02	7.415E-02	6.543E-02	3.783E-02	NOT IDENT.
NB-97	-1.028E+05	3.183E+05	0.000E+00	1.624E+05	SHORT HLIF
ZR-97	1.135E+07	5.143E+06	0.000E+00	2.624E+06	SHORT HLIF
MO-99	1.629E+00	1.461E+01	1.223E+01	7.453E+00	NOT IDENT.
TC-99M	-7.283E+17	6.339E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.622E-03	3.329E-02	2.869E-02	1.699E-02	NOT IDENT.
RH-102	1.042E-03	3.065E-02	2.606E-02	1.564E-02	NOT IDENT.
RU-103	-1.068E-02	4.028E-02	3.345E-02	2.055E-02	FAIL ABUN
RH-106	6.539E-02	3.309E-01	2.809E-01	1.688E-01	FAIL ABUN
RU-106	6.539E-02	3.309E-01	2.809E-01	1.688E-01	FAIL ABUN
AG-108M	4.600E-03	3.535E-02	3.035E-02	1.804E-02	NOT IDENT.
AG-110M	-2.771E-02	4.331E-02	2.894E-02	2.210E-02	NOT IDENT.
IN-111	3.528E-01	1.430E+00	1.104E+00	7.296E-01	NOT IDENT.
IN-113M	-2.873E-02	4.728E-02	3.911E-02	2.412E-02	NOT IDENT.
SN-113	-2.873E-02	4.728E-02	3.911E-02	2.412E-02	NOT IDENT.
IN-114M	7.353E-03	2.046E-01	1.576E-01	1.044E-01	NOT IDENT.
CD-115	1.342E+01	1.447E+01	1.299E+01	7.384E+00	NOT IDENT.
SN-117M	-6.664E-02	6.308E-02	5.070E-02	3.218E-02	NOT IDENT.
SB-122	-1.148E+00	3.078E+00	2.149E+00	1.570E+00	NOT IDENT.
I-123	-1.646E+07	2.103E+07	0.000E+00	1.073E+07	SHORT HLIF
TE-123M	-2.396E-02	3.060E-02	2.488E-02	1.561E-02	NOT IDENT.
I-124	-1.714E-01	8.944E-01	6.343E-01	4.563E-01	NOT IDENT.
SB-124	2.904E-02	6.264E-02	5.674E-02	3.196E-02	NOT IDENT.
SB-125	-9.561E-02	9.972E-02	8.018E-02	5.088E-02	FAIL ABUN
TE-125M	-2.964E+00	9.932E+00	8.360E+00	5.067E+00	NOT IDENT.
I-126	-9.025E-03	2.314E-01	1.657E-01	1.180E-01	NOT IDENT.
SB-126	1.898E-01	1.638E-01	1.332E-01	8.355E-02	FAIL ABUN
SB-127	8.042E-01	1.594E+00	1.380E+00	8.132E-01	NOT IDENT.
XE-127	-1.569E-02	5.104E-02	4.191E-02	2.604E-02	NOT IDENT.
I-131	5.035E-02	1.231E-01	1.081E-01	6.281E-02	NOT IDENT.
TE-132	-1.796E-01	8.515E-01	7.396E-01	4.344E-01	NOT IDENT.
BA-133	1.721E-02	4.926E-02	3.771E-02	2.513E-02	FAIL ABUN
I-133	6.135E+03	1.275E+04	0.000E+00	6.505E+03	SHORT HLIF
CS-134	9.734E-02	6.842E-02	4.578E-02	3.491E-02	FAIL ABUN
CS-135	3.896E-01	1.775E-01	1.501E-01	9.057E-02	NOT IDENT.
I-135	-3.574E+16	6.529E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.128E-02	1.149E-01	1.022E-01	5.863E-02	FAIL ABUN
CE-139	-5.780E-03	3.284E-02	2.735E-02	1.675E-02	NOT IDENT.
BA-140	-3.009E-02	2.630E-01	2.198E-01	1.342E-01	NOT IDENT.
LA-140	-3.726E-02	8.509E-02	6.536E-02	4.341E-02	FAIL ABUN
CE-141	8.405E-02	6.806E-02	5.980E-02	3.473E-02	NOT IDENT.
CE-143	1.573E+03	4.452E+02	0.000E+00	2.271E+02	SHORT HLIF
CE-144	-4.547E-02	2.151E-01	1.803E-01	1.097E-01	NOT IDENT.
PM-144	-1.526E-02	3.706E-02	2.986E-02	1.891E-02	NOT IDENT.
PR-144	-1.035E+00	2.513E+00	2.024E+00	1.282E+00	NOT IDENT.
PM-146	-1.207E-02	4.576E-02	3.828E-02	2.335E-02	NOT IDENT.
ND-147	-3.008E-01	6.018E-01	4.884E-01	3.071E-01	NOT IDENT.
PM-149	-3.641E+01	1.190E+02	1.017E+02	6.071E+01	NOT IDENT.

EU-152	4.465E-03	1.170E-01	8.275E-02	5.967E-02	NOT IDENT.
GD-153	1.061E-02	9.272E-02	6.960E-02	4.731E-02	NOT IDENT.
EU-154	4.552E-03	1.326E-01	1.118E-01	6.767E-02	NOT IDENT.
EU-155	-5.847E-02	1.142E-01	9.549E-02	5.827E-02	FAIL ABUN
TB-160	-5.125E-02	1.423E-01	1.185E-01	7.261E-02	FAIL ABUN
HO-166M	-1.639E-02	6.010E-02	4.824E-02	3.066E-02	NOT IDENT.
TM-171	4.112E+00	3.027E+01	2.303E+01	1.544E+01	NOT IDENT.
LU-176	-1.276E-02	2.587E-02	2.052E-02	1.320E-02	FAIL ABUN
LU-177	3.195E+00	1.515E+00	1.165E+00	7.728E-01	FAIL ABUN
LU-177M	-2.015E-01	1.926E-01	1.548E-01	9.829E-02	FAIL ABUN
HF-181	-3.168E-02	4.613E-02	3.737E-02	2.354E-02	FAIL ABUN
W-181	1.794E+00	5.275E-01	3.420E-01	2.692E-01	FAIL ABUN
TA-182	-3.919E-02	2.029E-01	1.682E-01	1.035E-01	FAIL ABUN
RE-183	-6.983E-02	1.176E-01	9.630E-02	6.000E-02	FAIL ABUN
RE-184	-7.352E-02	2.354E-01	2.026E-01	1.201E-01	NOT IDENT.
OS-185	-1.402E-03	4.213E-02	3.509E-02	2.149E-02	NOT IDENT.
RE-188	2.085E-01	1.900E-01	1.659E-01	9.694E-02	NOT IDENT.
W-188	2.115E+00	8.398E+00	6.437E+00	4.285E+00	FAIL ABUN
IR-192	5.560E-03	3.388E-02	2.953E-02	1.729E-02	FAIL ABUN
AU-195	2.034E-01	2.522E-01	2.053E-01	1.287E-01	FAIL ABUN
TL-200	-4.516E+02	8.363E+02	0.000E+00	4.267E+02	SHORT HLIF
TL-201	9.254E+00	9.414E+00	8.182E+00	4.803E+00	NOT IDENT.
TL-202	4.640E-02	7.751E-02	6.826E-02	3.955E-02	NOT IDENT.
HG-203	6.915E-02	4.626E-02	3.809E-02	2.360E-02	NOT IDENT.
BI-207	-1.016E-02	5.260E-02	4.392E-02	2.684E-02	FAIL ABUN
TL-207	-1.445E-01	7.757E-01	5.737E-01	3.958E-01	FAIL ABUN
PO-209	1.162E+00	6.929E+00	6.034E+00	3.535E+00	NOT IDENT.
BI-210	7.593E-01	2.503E+00	2.217E+00	1.277E+00	NOT IDENT.
PB-210	7.593E-01	2.503E+00	2.217E+00	1.277E+00	NOT IDENT.
PO-210	7.593E-01	2.503E+00	2.217E+00	1.277E+00	NOT IDENT.
PB-211	-7.278E-01	1.110E+00	8.366E-01	5.664E-01	NOT IDENT.
BI-212	1.130E+00	5.789E-01	3.501E-01	2.954E-01	FAIL ABUN
PO-215	-1.445E-01	7.757E-01	5.737E-01	3.958E-01	FAIL ABUN
RN-219	2.771E-01	4.412E-01	3.886E-01	2.251E-01	FAIL ABUN
RN-220	2.669E+01	2.607E+01	2.350E+01	1.330E+01	NOT IDENT.
RA-223	-1.445E-01	7.757E-01	5.737E-01	3.958E-01	FAIL ABUN
AC-227	1.057E-01	3.799E-01	1.331E-01	1.938E-01	FAIL ABUN
TH-227	1.057E-01	3.801E-01	3.351E-01	1.939E-01	FAIL ABUN
AC-228	1.517E+00	3.097E-01	2.443E-01	1.580E-01	FAIL ABUN
RA-228	1.517E+00	3.097E-01	2.443E-01	1.580E-01	FAIL ABUN
TH-229	-1.391E-02	5.299E-01	4.366E-01	2.704E-01	FAIL ABUN
PA-231	-9.461E-01	1.571E+00	1.240E+00	8.017E-01	FAIL ABUN
TH-231	-1.445E-01	7.757E-01	5.737E-01	3.958E-01	FAIL ABUN
U-231	-1.583E-01	1.498E+00	1.114E+00	7.645E-01	FAIL ABUN
TH-232	1.517E+00	3.097E-01	2.443E-01	1.580E-01	FAIL ABUN
PA-233	2.349E-02	5.953E-02	5.255E-02	3.037E-02	FAIL ABUN
PA-234	-7.480E-02	3.186E-01	2.672E-01	1.626E-01	FAIL ABUN
PA-234M	4.578E+00	4.759E+00	4.353E+00	2.428E+00	NOT IDENT.
U-235	1.145E-01	2.247E-01	1.923E-01	1.146E-01	FAIL ABUN
NP-236	-2.302E-02	8.391E-02	6.967E-02	4.281E-02	NOT IDENT.
NP-239	-1.501E-01	2.066E-01	1.706E-01	1.054E-01	FAIL ABUN
AM-241	1.290E-01	1.576E-01	1.229E-01	8.042E-02	NOT IDENT.
CM-243	-2.342E-02	1.025E-01	8.666E-02	5.228E-02	FAIL ABUN
AM-246	4.858E-02	1.373E-01	1.203E-01	7.005E-02	NOT IDENT.
CM-247	4.383E-02	3.874E-02	3.507E-02	1.977E-02	FAIL ABUN
CF-249	3.525E-03	4.135E-02	3.559E-02	2.110E-02	NOT IDENT.
CF-251	5.570E-02	1.326E-01	1.118E-01	6.767E-02	NOT IDENT.



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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON, SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
46.50	418.6222
46.50	418.6222
46.50	418.6222
48.70	452.3077
49.72	459.9815
51.35	488.4254
52.39	465.4671
52.97	477.0285
53.15	462.7895
53.44	490.5911
54.07	514.5048
56.28	506.4927
56.28	506.4941
57.37	0.0000
57.53	533.7700
57.53	533.7710
57.60	533.8096
57.98	513.2437
57.98	513.2437
59.32	479.8845
59.32	479.8845
59.40	479.9244
59.54	512.9839
59.72	513.0798
60.01	513.2335
61.10	553.4615
61.14	553.4841
61.30	553.5750
63.00	582.6708
63.29	599.3990
63.29	599.3990
63.58	625.2453
64.28	625.6837
65.12	603.8109
65.20	603.8593
65.20	603.8593
66.05	592.7417
66.72	591.4675
66.83	591.5327
66.91	601.5488
67.20	601.7189
67.20	601.7189
67.75	590.3977
67.85	590.4540
68.90	491.1559
68.90	491.1559
69.30	520.4907
69.67	599.8184
70.82	635.4984
70.82	635.4984
70.83	635.5031
72.80	611.6102
72.87	611.6494
72.87	611.6494
74.67	598.4372
74.81	598.5135
74.81	598.5135
74.81	598.5135
74.81	598.5135
74.81	598.5135
74.81	598.5135
74.81	598.5135
74.97	598.6008
75.28	598.7700
75.70	598.9980
77.11	599.7617
77.11	599.7617

77.11	599.7617
77.11	599.7617
77.11	599.7617
77.11	599.7617
77.11	599.7617
78.38	550.8954
79.62	580.0860
79.80	580.1786
79.80	580.1786
80.11	635.8470
80.18	635.8862
80.30	635.9531
80.30	635.9531
80.57	658.4004
81.00	645.3214
81.07	645.3612
81.07	645.3612
81.07	645.3612
81.07	645.3612
82.60	623.7427
83.37	601.6617
83.78	628.5938
83.78	628.5938
83.78	628.5938
83.78	628.5938
84.21	609.4122
84.90	608.0823
85.43	603.2852
86.29	637.5451
86.50	762.3383
86.54	762.3657
86.59	762.3960
86.72	802.3574
86.79	802.4009
86.94	800.8936
87.30	967.5661
87.30	967.5661
87.30	967.5661
87.30	967.5661
87.30	967.5661
87.30	967.5661
87.57	935.3383
87.88	935.5811
88.03	876.4209
88.36	876.6641
88.47	936.0397
89.95	937.1862
91.11	938.0765
92.29	971.5507
92.38	971.6240
92.38	971.6240
93.35	636.6466
94.00	422.0602
94.67	444.4200
94.67	444.4216
94.90	483.6736
94.90	483.6736
94.90	483.6736
94.90	483.6736
95.87	494.2744
95.87	494.2744
96.73	458.7957
97.43	441.9820
98.44	423.5450
98.44	423.5450
98.88	414.2940
99.55	396.8064
99.55	396.8064
99.86	386.8262
100.00	398.6247
100.10	398.6560
103.18	429.5946
103.76	441.5739
105.00	446.2783
105.31	449.6006
108.00	413.9473
109.28	435.8635

111.00	407.3178
111.00	407.3178
111.76	458.2161
112.95	429.4756
115.19	394.4986
116.30	425.0974
117.00	438.2953
117.00	438.2953
117.66	414.6795
121.11	357.0714
121.62	359.3696
121.78	369.1812
122.06	364.9083
122.32	363.8875
122.32	363.8875
122.32	363.8875
122.32	363.8875
123.07	410.8074
127.23	348.7573
129.76	400.6587
131.20	401.0423
133.02	397.1476
133.54	385.2417
135.34	399.9400
136.00	392.4365
136.25	376.0538
136.48	388.1733
140.51	427.6531
140.51	0.0000
142.18	385.1837
142.65	370.9875
143.76	387.7715
144.24	385.6831
144.24	385.6831
144.24	385.6831
144.24	385.6831
145.22	361.6603
145.44	357.2993
147.16	401.8380
152.43	379.8771
152.70	379.9399
153.22	341.2763
154.21	340.3720
154.21	340.3720
154.21	340.3720
154.21	340.3720
155.03	370.4905
156.02	367.3799
158.56	410.1730
159.00	0.0000
159.00	385.8188
160.31	361.6354
161.27	371.8614
162.32	374.3163
162.64	376.6140
163.35	351.1330
163.89	343.4358
165.85	382.8970
167.43	336.3171
171.28	340.4113
171.86	351.7240
172.10	351.7719
176.55	306.6022
176.60	306.6105
181.06	342.2644
184.41	296.2675
185.71	297.9809
186.00	298.0272
190.27	312.2835
192.34	309.6042
193.63	302.6361
197.04	326.1129
198.01	319.0053
198.60	320.0119
200.40	319.3984
201.83	343.3084
202.84	337.1078
205.31	319.2874

208.36	324.3470
208.81	339.6517
209.75	310.8580
209.75	310.8580
210.97	283.6016
215.65	273.9441
216.55	288.0544
218.09	281.8445
222.10	300.7925
223.80	274.3404
226.40	276.5259
227.00	288.5908
227.08	288.6023
227.20	288.6176
228.16	287.8269
228.18	287.8307
228.18	287.8307
231.56	0.0000
235.69	270.0231
236.00	291.6672
236.00	291.6672
238.63	246.5971
238.63	246.5971
238.63	246.5971
238.63	246.5971
239.00	246.6393
240.98	246.8650
241.98	246.9787
241.98	246.9787
241.98	246.9787
244.69	226.2121
245.39	215.4356
247.94	251.3732
248.90	227.0324
249.79	217.1064
252.40	225.7554
252.85	246.3286
252.85	246.3286
254.15	0.0000
256.20	227.0717
256.20	227.0717
260.50	220.9475
260.90	219.1151
262.80	221.4036
264.65	248.5475
268.24	184.7423
268.79	181.6559
269.46	196.4324
269.46	196.4324
269.46	196.4324
269.46	196.4324
271.23	214.4514
273.65	178.8950
276.40	179.1038
277.35	212.1790
277.60	214.8235
277.60	214.8235
278.00	208.5710
278.60	190.2761
279.20	185.6066
279.53	174.6186
280.46	171.5388
281.68	174.7767
283.67	206.8325
284.30	197.5596
285.00	196.7773
285.90	196.8510
286.10	193.0803
286.10	193.0803
287.40	204.1279
288.45	0.0000
290.67	202.2943
290.80	202.3047
291.72	186.5692
293.26	0.0000
293.70	196.2148
295.21	209.0027
295.21	209.0027

295.21	209.0027
295.96	209.0645
296.50	114.0601
297.23	114.0938
298.57	114.1567
299.80	114.2124
299.80	114.2124
300.09	214.1730
300.09	214.1730
300.09	214.1730
300.09	214.1730
300.12	214.1757
301.29	211.1029
302.84	174.7038
303.76	171.5911
303.91	163.6554
304.40	185.9379
304.40	185.9379
304.84	187.5583
306.84	193.2748
308.46	177.6400
311.98	152.0651
316.51	168.6201
318.01	168.7189
319.02	172.6194
319.41	161.1360
320.08	167.8928
323.87	196.9622
323.87	196.9622
323.87	196.9622
323.87	196.9622
325.23	201.8712
328.77	194.1214
333.44	221.7849
334.20	202.5582
334.20	202.5582
334.30	202.5659
338.28	183.5453
338.28	183.5453
338.28	183.5453
338.28	183.5453
338.32	183.5499
338.32	183.5499
338.32	183.5499
340.50	177.2528
340.57	177.2573
344.27	164.5900
345.85	161.4563
350.59	0.0000
351.07	158.5302
351.92	172.8199
351.92	172.8199
351.92	172.8199
355.39	0.0000
356.01	153.9517
364.48	138.4899
366.43	162.0101
367.43	159.1379
367.94	0.0000
369.80	147.5457
374.96	155.6441
383.85	154.1597
387.95	156.3429
388.63	150.4786
391.69	172.2955
391.69	172.2955
392.90	183.2005
398.62	178.6204
400.65	182.6920
401.10	176.7931
401.81	152.1370
402.60	137.3558
404.84	184.9250
410.95	135.7541
411.60	154.6156
413.65	183.4802
414.70	157.7481
415.30	130.9865

415.76	130.0149
417.63	0.0000
418.52	151.9859
423.70	136.3210
427.08	141.4488
427.89	166.3966
432.53	137.7052
433.93	143.7557
439.47	129.0079
439.56	129.0126
439.89	124.0242
443.98	126.1877
444.90	132.2336
445.03	132.2401
445.03	132.2401
445.03	132.2401
445.03	132.2401
453.90	136.6226
463.38	129.2968
468.07	131.1632
473.00	136.4106
475.06	124.3633
475.35	118.3068
476.78	128.4728
477.59	128.5038
477.96	129.5313
482.03	136.7798
484.57	100.3813
487.03	107.5566
490.36	0.0000
492.35	93.4981
497.08	104.8219
507.63	0.0000
510.53	0.0000
510.84	103.1964
511.00	103.2014
511.85	103.2260
511.85	103.2260
513.99	103.2889
513.99	103.2889
520.41	96.5991
520.65	96.6060
527.90	84.1901
528.96	0.0000
529.64	86.2846
529.87	0.0000
531.02	106.8691
537.32	92.6455
543.00	103.1006
546.56	0.0000
549.76	81.6018
552.65	90.9691
555.20	116.8954
563.23	110.5833
563.90	103.6890
568.70	87.2115
569.32	87.2259
569.50	87.2300
569.67	87.2341
573.80	109.1631
574.00	109.1682
574.64	103.9868
578.91	97.8601
579.30	0.0000
583.14	108.3900
585.48	97.3324
591.81	102.3689
592.07	95.0635
593.00	97.1755
595.88	90.9740
600.56	87.2457
602.52	0.0000
602.71	99.5157
602.71	99.5157
603.60	104.7778
604.41	103.0531
604.70	101.3136
609.31	96.1873

609.31	96.1873
609.31	96.1873
609.31	96.1873
610.33	99.7106
612.46	75.2605
614.37	91.0571
618.01	100.9570
621.84	89.4762
621.84	89.4762
631.29	88.6327
633.02	72.8358
633.10	72.8375
634.78	74.9799
635.90	83.4515
636.97	77.1348
645.85	75.1862
646.12	78.3685
656.30	74.3169
657.75	102.6635
657.90	0.0000
661.65	92.4864
661.65	92.4864
664.57	0.0000
666.33	94.0094
666.33	94.0094
675.00	79.9841
677.61	73.6326
685.20	69.4894
692.80	87.8197
695.00	87.8657
696.49	101.8304
696.49	101.8304
697.00	96.4819
697.49	96.4929
698.33	92.2232
698.50	92.2274
699.00	93.3105
702.63	91.2422
706.10	85.9434
706.58	0.0000
706.67	80.5829
709.31	90.3082
711.68	69.9194
713.82	59.1921
717.42	89.7583
720.50	55.6892
721.93	0.0000
722.20	59.3063
722.78	73.6919
722.78	73.6919
722.89	73.6952
722.95	73.6952
723.30	79.0947
724.18	97.0906
727.18	76.6457
733.00	68.4591
735.90	65.9801
739.58	68.2003
742.81	63.9162
744.21	69.3547
747.13	72.6531
751.79	85.7543
752.31	81.4215
753.82	71.6751
755.35	64.0948
756.15	66.2794
756.87	65.2031
763.93	65.3057
765.79	61.7025
766.42	72.6009
766.84	83.4985
776.49	49.1133
778.00	54.5886
778.57	52.7749
778.89	65.5195
783.80	57.9364
785.46	60.1442
792.07	69.3559

795.84	63.5664
796.30	54.8047
798.80	82.2510
801.93	76.8188
805.60	60.4047
810.29	71.4587
810.76	70.3656
815.85	60.5349
817.79	62.3956
818.51	63.3230
819.60	60.5833
826.30	64.3447
828.27	0.0000
831.60	53.3732
831.96	58.8997
834.83	70.9045
836.80	0.0000
846.75	69.2337
848.13	60.0197
856.28	0.0000
856.80	71.3578
860.37	53.6894
867.32	46.0842
867.82	47.6786
871.10	63.7579
873.19	45.4759
874.81	52.9180
875.33	0.0000
876.40	57.5788
879.36	67.8345
880.27	67.8464
880.51	67.8494
881.50	65.0739
883.24	53.9372
884.67	67.9058
889.25	64.2439
896.60	52.2163
898.02	55.9607
899.00	59.7031
903.28	57.1397
911.07	59.3107
911.07	59.3107
911.07	59.3107
919.63	65.1905
920.93	59.9596
925.00	45.9435
925.24	45.9455
926.50	45.0186
935.52	63.8870
937.48	82.7095
944.10	64.9332
946.00	69.6641
949.00	74.4129
962.29	90.6543
964.01	84.2062
966.15	71.2790
968.20	103.7188
969.11	93.6061
969.11	93.6061
969.11	93.6061
977.42	45.4551
980.50	59.6944
983.50	56.8835
989.30	62.6390
996.32	71.2738
1001.03	54.2145
1001.68	53.2696
1004.76	64.7212
1021.30	0.0000
1024.50	0.0000
1034.80	52.6322
1036.00	52.6434
1037.82	54.5763
1038.57	46.9224
1038.76	0.0000
1045.16	59.4419
1046.59	53.7031
1048.07	51.7983



1050.47	51.8203
1050.47	51.8203
1062.04	54.8105
1063.62	58.6743
1076.63	70.3772
1077.35	71.3503
1078.86	48.2218
1085.78	55.0402
1099.22	65.8141
1112.02	49.8842
1112.84	48.2275
1115.52	63.2238
1120.29	45.6517
1120.29	45.6517
1120.29	45.6517
1120.29	45.6517
1120.51	45.6536
1121.28	45.6594
1124.00	0.0000
1129.67	49.6158
1131.51	0.0000
1147.95	0.0000
1167.94	64.6196
1173.22	67.6158
1175.09	62.7370
1177.93	75.5149
1189.05	67.7927
1204.90	58.1165
1205.75	0.0000
1213.00	64.1087
1221.42	72.0970
1230.97	79.5265
1235.34	74.6613
1236.41	0.0000
1238.25	67.9046
1246.25	53.5430
1260.41	0.0000
1271.85	42.8075
1274.45	56.7681
1274.54	56.7681
1291.56	50.9253
1298.22	0.0000
1312.09	34.0567
1325.50	41.1518
1325.50	41.1518
1332.49	35.1666
1333.61	44.2184
1360.21	24.2148
1362.66	0.0000
1365.15	33.3196
1368.21	25.2533
1368.53	0.0000
1376.25	29.4737
1384.27	29.5081
1394.10	30.4199
1395.20	32.4531
1407.95	35.5611
1434.06	20.3971
1436.60	21.4247
1457.56	0.0000
1460.81	23.5456
1489.15	16.0335
1509.49	20.6136
1596.49	22.9426
1620.62	13.6004
1678.03	0.0000
1691.02	8.4456
1691.02	8.4456
1706.46	0.0000
1750.46	0.0000
1764.49	7.4583
1764.49	7.4583
1764.49	7.4583
1764.49	7.4583
1770.23	7.3111
1771.40	63.9819
1791.20	0.0000
1808.65	13.9262

1836.01

10.7475

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229009

Total Uranium Activity	1.7728E+01	ug/g
Total Uranium Counting Unc.	5.8732E+00	ug/g
Total Uranium Tpu	2.9965E-06	ug/g
Total Uranium Mda	3.0534E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941239                          SAMPLE ID   : G244229009
*  ANALYST       : MXR1                             DETECTOR    : GAM14
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 14:04:02.11          SAMPLE ALQT  : 123.310 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.924E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.609E+00
GROSS GAMMA MDA (pCi/GRAM ) : 4.746E+00
GROSS GAMMA DLC (pCi/GRAM ) : 2.316E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 16:12:20.73

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229010.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:11:52
Sample ID          : G244229010      Sample quantity   : 1.22520E+02 GRAM
Detector name      : GAM06            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.30  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 941239           Detector SN#      :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.65*	195	524	1.22	125.29	120	10	2.71E-02	23.4	
2	1	74.87*	381	438	1.39	149.75	141	23	5.30E-02	11.5	8.90E+00
3	1	76.87*	675	391	1.39	153.75	141	23	9.37E-02	6.7	
4	3	83.80	208	325	1.70	167.60	164	29	2.89E-02	16.5	2.06E+00
5	3	86.98	305	361	1.56	173.96	164	29	4.24E-02	12.8	
6	3	89.71	216	355	1.42	179.42	164	29	3.00E-02	18.0	
7	3	92.63*	466	387	1.72	185.26	164	29	6.47E-02	9.7	
8	0	128.79	36	451	1.15	257.58	253	10	4.96E-03	112.5	
9	0	143.62*	74	358	0.98	287.25	283	10	1.03E-02	49.7	
10	0	185.62*	189	426	1.14	371.24	366	11	2.62E-02	23.0	
11	0	208.97	128	370	0.70	417.94	413	12	1.78E-02	31.3	
12	3	238.44*	1026	226	1.18	476.87	472	18	1.43E-01	4.0	1.83E+00
13	3	241.29	301	283	1.95	482.58	472	18	4.18E-02	16.1	
14	0	270.06	90	193	1.60	540.12	536	10	1.25E-02	30.6	
15	0	294.96	302	192	1.18	589.91	586	9	4.19E-02	10.0	
16	0	338.02*	201	267	1.59	676.05	668	16	2.80E-02	19.9	
17	0	351.69*	524	135	1.31	703.37	698	11	7.27E-02	6.2	
18	0	462.77	55	132	0.89	925.55	920	11	7.64E-03	42.7	
19	0	510.55*	101	170	1.78	1021.11	1012	18	1.40E-02	35.3	
20	0	582.85*	364	100	1.66	1165.71	1158	17	5.06E-02	8.2	
21	0	609.13*	365	137	1.59	1218.27	1212	15	5.07E-02	8.8	
22	0	661.49	425	102	1.52	1322.97	1317	15	5.90E-02	7.1	
23	0	726.87	70	81	1.71	1453.75	1447	16	9.67E-03	31.2	
24	0	861.46	54	81	1.02	1722.91	1715	19	7.46E-03	42.4	
25	0	911.21*	197	100	1.55	1822.43	1814	17	2.73E-02	13.9	
26	0	967.79	175	62	2.10	1935.58	1925	19	2.43E-02	13.2	
27	0	1120.47	90	60	1.99	2240.94	2232	18	1.25E-02	23.1	
28	0	1460.46*	1065	11	2.31	2920.93	2910	18	1.48E-01	3.2	
29	0	1764.72	44	7	2.40	3529.44	3522	14	6.18E-03	19.5	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 16:12:23

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229010.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 14:11:52
Sample ID        : G244229010             Sample quantity   : 122.52 GRAM
Sample type       : SOLID                  Sample geometry    :
Detector name     : GAMMA6                 Detector geometry  : CAN
Elapsed live time : 0 02:00:00.00          Elapsed real time : 0 02:00:01.30   0.0%
Peak Width (FWHM): 3.00                   Confidence level   : 5.00 %
Energy tolerance  : 1.50 keV               Half life ratio    : 8.00
Errors propagated : Yes                    Systematic Error   : 0.00 %
Efficiency type   : Empirical              Efficiencies at    : Peak Energy
Abundance limit   : 75.00                  WTM error limit    : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.179E+01	2.908E+00	5.952E-01	3.937E-02	53.407
CD-109	+	88.03	*	5.004E+00	1.373E+00	1.444E+00	1.425E-01	3.467
SN-126		64.28		9.582E-01	8.221E-01	1.247E+00	1.920E-01	0.768
	+	86.94		2.042E+00	9.980E-01	5.966E-01	2.483E-01	3.423
	+	87.57	*	4.912E-01	1.347E-01	1.424E-01	1.402E-02	3.448
BA-137M	+	661.65	*	7.471E-01	1.121E-01	7.299E-02	3.605E-03	10.236
CS-137	+	661.65	*	7.898E-01	1.186E-01	7.716E-02	3.833E-03	10.236
TL-208		277.35		5.105E-01	5.101E-01	8.374E-01	8.919E-02	0.610
	+	510.84		5.929E-01	4.230E-01	2.550E-01	2.559E-02	2.325
	+	583.14	*	6.137E-01	1.084E-01	6.722E-02	4.248E-03	9.130
	+	860.37		8.597E-01	7.315E-01	4.991E-01	3.816E-02	1.723
BI-211		72.87		1.749E+01	4.885E+00	7.737E+00	6.946E-01	2.261
	+	351.07	*	3.824E+00	5.373E-01	4.195E-01	2.708E-02	9.114
PB-212	+	74.81		2.646E+00	6.990E-01	6.755E-01	8.782E-02	3.917
	+	77.11		2.655E+00	4.301E-01	3.810E-01	3.478E-02	6.969
	+	87.30		2.272E+00	6.633E-01	6.608E-01	9.261E-02	3.438
	+	238.63	*	1.614E+00	1.748E-01	1.203E-01	8.866E-03	13.423
	+	300.09		8.319E-01	1.172E+00	1.769E+00	1.480E-01	0.470
PO-212	+	74.81		2.646E+00	6.990E-01	6.755E-01	8.782E-02	3.917
	+	77.11		2.655E+00	4.301E-01	3.810E-01	3.478E-02	6.969
	+	87.30		2.272E+00	6.633E-01	6.608E-01	9.261E-02	3.438
	+	115.19		2.973E-02	4.508E+00	7.429E+00	4.902E-01	0.004
	+	238.63	*	1.614E+00	1.748E-01	1.203E-01	8.866E-03	13.423
	+	300.09		8.319E-01	1.172E+00	1.769E+00	1.480E-01	0.470
BI-214	+	609.31	*	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
	+	1120.29		1.511E+00	7.113E-01	5.114E-01	4.672E-02	2.955
	+	1764.49		1.027E+00	4.055E-01	2.361E-01	1.383E-02	4.348
PB-214	+	74.81		4.559E+00	1.176E+00	1.164E+00	1.360E-01	3.917
	+	77.11		4.552E+00	8.148E-01	6.531E-01	7.766E-02	6.969
	+	87.30		3.892E+00	1.109E+00	1.132E+00	1.413E-01	3.438
	+	241.98		2.843E+00	9.414E-01	7.244E-01	5.878E-02	3.924
	+	295.21		1.296E+00	2.833E-01	2.862E-01	2.475E-02	4.527
	+	351.92	*	1.330E+00	1.994E-01	1.477E-01	1.226E-02	9.004
PO-214	+	74.81		4.559E+00	1.176E+00	1.164E+00	1.360E-01	3.917

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		4.552E+00	8.148E-01	6.531E-01	7.766E-02	6.969
	+	87.30		3.892E+00	1.109E+00	1.132E+00	1.413E-01	3.438
	+	241.98		2.843E+00	9.414E-01	7.244E-01	5.878E-02	3.924
	+	295.21		1.296E+00	2.833E-01	2.862E-01	2.475E-02	4.527
	+	351.92	*	1.330E+00	1.994E-01	1.477E-01	1.226E-02	9.004
PO-216	+	74.81		2.646E+00	6.990E-01	6.755E-01	8.782E-02	3.917
	+	77.11		2.655E+00	4.301E-01	3.810E-01	3.478E-02	6.969
	+	87.30		2.272E+00	6.633E-01	6.608E-01	9.261E-02	3.438
	+	238.63	*	1.614E+00	1.748E-01	1.203E-01	8.866E-03	13.423
	+	300.09		8.319E-01	1.172E+00	1.769E+00	1.480E-01	0.470
PO-218	+	74.81		4.559E+00	1.176E+00	1.164E+00	1.360E-01	3.917
	+	77.11		4.552E+00	8.148E-01	6.531E-01	7.766E-02	6.969
	+	87.30		3.892E+00	1.109E+00	1.132E+00	1.413E-01	3.438
	+	241.98		2.843E+00	9.414E-01	7.244E-01	5.878E-02	3.924
	+	295.21		1.296E+00	2.833E-01	2.862E-01	2.475E-02	4.527
	+	351.92	*	1.330E+00	1.994E-01	1.477E-01	1.226E-02	9.004
RA-224	+	240.98	*	5.390E+00	1.759E+00	1.369E+00	8.023E-02	3.938
RA-226	+	609.31	*	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
	+	1120.29		1.511E+00	7.113E-01	5.114E-01	4.672E-02	2.955
	+	1764.49		1.027E+00	4.055E-01	2.361E-01	1.383E-02	4.348
AC-228	+	338.32		1.617E+00	9.205E-01	4.813E-01	1.963E-01	3.360
	+	911.07	*	1.488E+00	4.418E-01	2.812E-01	2.873E-02	5.294
	+	969.11		2.330E+00	8.125E-01	4.078E-01	9.300E-02	5.715
RA-228	+	338.32		1.617E+00	9.205E-01	4.813E-01	1.963E-01	3.360
	+	911.07	*	1.488E+00	4.418E-01	2.812E-01	2.873E-02	5.294
	+	969.11		2.330E+00	8.125E-01	4.078E-01	9.300E-02	5.715
TH-228	+	74.81		2.689E+00	6.650E-01	6.864E-01	6.250E-02	3.917
	+	77.11		2.698E+00	4.371E-01	3.871E-01	3.534E-02	6.969
	+	87.30		2.308E+00	6.332E-01	6.715E-01	6.593E-02	3.438
	+	238.63	*	1.641E+00	1.777E-01	1.222E-01	9.009E-03	13.423
	+	300.09		8.453E-01	1.289E+00	1.797E+00	1.060E+00	0.470
TH-230	+	609.31	*	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
	+	1120.29		1.511E+00	7.113E-01	5.114E-01	4.671E-02	2.955
	+	1764.49		1.027E+00	4.055E-01	2.361E-01	1.383E-02	4.348
TH-232	+	338.32		1.617E+00	6.492E-01	4.813E-01	2.831E-02	3.360
	+	911.07	*	1.488E+00	4.418E-01	2.812E-01	2.873E-02	5.294
	+	969.11		2.330E+00	8.125E-01	4.078E-01	9.300E-02	5.715
TH-234	+	63.29	*	5.902E+00	2.964E+00	2.966E+00	5.392E-01	1.990
	+	92.38		4.829E+00	1.288E+00	9.283E-01	1.700E-01	5.202
U-234	+	609.31	*	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
	+	1120.29		1.511E+00	7.113E-01	5.114E-01	4.671E-02	2.955
	+	1764.49		1.027E+00	4.055E-01	2.361E-01	1.383E-02	4.348
U-235	+	89.95		4.618E+00	2.200E+00	1.902E+00	5.920E-01	2.428
	+	93.35		5.806E+00	1.986E+00	1.107E+00	3.114E-01	5.244
	+	105.00		2.625E-01	1.305E+00	2.169E+00	6.406E-01	0.121
	+	143.76	*	3.686E-01	3.711E-01	4.158E-01	6.763E-02	0.887
	+	163.35		4.983E-01	5.864E-01	9.774E-01	1.746E-01	0.510
	+	185.71		2.067E-01	9.572E-02	8.843E-02	4.893E-03	2.338
	+	205.31		5.858E-02	7.538E-01	1.068E+00	1.917E-01	0.055

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	1.442E+00	4.951E-01	4.237E-01	9.669E-02	3.404
		95.87		1.202E+00	1.319E+00	1.958E+00	4.819E-01	0.614
U-238	+	63.29	*	5.902E+00	2.964E+00	2.966E+00	5.392E-01	1.990
	+	92.38		4.829E+00	1.035E+00	9.283E-01	8.440E-02	5.202
AM-243	+	74.67	*	4.290E-01	1.060E-01	1.099E-01	9.925E-03	3.903
	+	86.72		5.409E+01	1.484E+01	1.584E+01	1.548E+00	3.414
		117.66		-8.153E-01	4.749E+00	7.767E+00	4.980E-01	-0.105
	+	142.18		3.097E+01	3.082E+01	3.459E+01	1.975E+00	0.895
ANH-511	+	511.00	*	1.281E-01	9.075E-02	5.510E-02	3.081E-03	2.324

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-2.190E-01	4.422E-01	7.042E-01	4.652E-02	-0.311
NA-22		1274.54	*	-1.440E-02	5.448E-02	8.617E-02	5.321E-03	-0.167
NA-24		1368.53	*	-7.388E-01	5.448E-02	Half-Life	too short	
AL-26		1129.67		1.668E+00	2.263E+00	3.730E+00	2.323E-01	0.447
		1808.65	*	3.241E-03	3.329E-02	5.622E-02	3.229E-03	0.058
TI-44		67.85		-3.768E-02	8.363E-02	1.011E-01	9.021E-03	-0.373
		78.38	*	3.325E-01	6.367E-02	9.871E-02	9.073E-03	3.368
SC-46		889.25	*	-1.875E-02	4.534E-02	7.239E-02	5.188E-03	-0.259
	+	1120.51		2.608E-01	1.215E-01	1.525E-01	9.591E-03	1.710
V-48		944.10		-8.222E-01	1.016E+00	1.532E+00	1.094E-01	-0.537
		983.50	*	-1.665E-02	8.681E-02	1.410E-01	9.870E-03	-0.118
		1312.09		3.399E-02	1.106E-01	1.860E-01	1.161E-02	0.183
CR-51		320.08	*	9.500E-02	5.063E-01	8.487E-01	5.592E-02	0.112
MN-52		744.21		5.613E-02	3.211E-01	5.250E-01	2.994E-02	0.107
		848.13		2.955E+00	9.843E+00	1.685E+01	1.135E+00	0.175
		935.52		4.030E-01	3.511E-01	6.399E-01	4.584E-02	0.630
		1246.25		7.243E+00	1.011E+01	1.761E+01	1.074E+00	0.411
		1333.61		-1.877E+00	6.486E+00	1.001E+01	6.286E-01	-0.188
		1434.06	*	1.802E-01	3.123E-01	5.488E-01	3.454E-02	0.328
MN-54		834.83	*	3.422E-03	4.641E-02	7.807E-02	5.152E-03	0.044
CO-56		846.75	*	1.641E-02	5.027E-02	8.625E-02	5.798E-03	0.190
		977.42		2.135E+00	3.404E+00	5.890E+00	4.138E-01	0.362
		1037.82		1.704E-01	3.615E-01	6.254E-01	4.591E-02	0.272
		1175.09		-6.746E-01	3.512E+00	4.947E+00	2.929E-01	-0.136
		1238.25		1.158E-01	1.116E-01	1.978E-01	1.271E-02	0.586
		1360.21		5.388E-01	1.090E+00	1.899E+00	1.195E-01	0.284
		1771.40		-8.352E-01	3.625E-01	3.356E-01	1.959E-02	-2.489
CO-57		122.06	*	-2.519E-02	3.166E-02	5.037E-02	3.077E-03	-0.500
		136.48		-1.054E-01	2.628E-01	4.237E-01	2.847E-02	-0.249
CO-58		810.76	*	1.714E-02	4.769E-02	8.230E-02	5.255E-03	0.208
FE-59	+	142.65		4.828E+00	4.805E+00	5.779E+00	3.296E-01	0.836
		192.34		-2.245E+00	1.333E+00	1.873E+00	2.192E-01	-1.199
		1099.22	*	-6.697E-02	1.228E-01	1.914E-01	1.404E-02	-0.350
		1291.56		-1.383E-01	1.602E-01	2.340E-01	1.810E-02	-0.591
CO-60		1173.22		-1.545E-02	6.120E-02	9.800E-02	5.798E-03	-0.158



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		-2.215E-02	4.520E-02	6.759E-02	4.246E-03	-0.328
ZN-65	1115.52	*		-1.027E-01	1.417E-01	1.805E-01	1.143E-02	-0.569
GE-68	1077.35	*		1.490E+00	1.487E+00	2.686E+00	1.760E-01	0.555
AS-73	53.44	*		3.888E-01	1.235E+00	2.097E+00	1.918E-01	0.185
AS-74	595.88	*		-2.614E-02	1.225E-01	1.962E-01	1.043E-02	-0.133
	634.78			-4.619E-01	4.397E-01	6.421E-01	3.282E-02	-0.719
SE-75	66.05			-4.524E-01	7.325E+00	1.073E+01	1.149E+00	-0.042
	96.73			6.442E-01	1.058E+00	1.581E+00	2.138E-01	0.407
	121.11			-4.495E-02	1.699E-01	2.765E-01	2.617E-02	-0.163
	136.00			1.814E-04	4.967E-02	8.141E-02	4.798E-03	0.002
	198.60			-3.207E+00	2.478E+00	3.633E+00	2.536E-01	-0.883
	264.65	*		3.852E-02	6.564E-02	9.536E-02	5.720E-03	0.404
	279.53			9.240E-02	1.418E-01	2.409E-01	1.547E-02	0.384
	303.91			-3.056E+00	2.882E+00	4.463E+00	4.304E-01	-0.685
	400.65			1.552E-02	3.388E-01	5.640E-01	5.052E-02	0.028
BR-77	87.88	+		1.435E+03	3.936E+02	5.699E+02	5.624E+01	2.517
	200.40			-1.713E+00	2.756E+02	4.454E+02	2.509E+01	-0.004
	239.00	+		3.445E+02	3.396E+01	5.897E+01	3.451E+00	5.842
	249.79			-9.207E+01	1.126E+02	1.722E+02	1.015E+01	-0.535
	281.68			-1.721E+02	1.521E+02	2.423E+02	1.446E+01	-0.710
	297.23			2.853E+02	1.226E+02	1.996E+02	1.192E+01	1.430
	303.76			-3.392E+02	3.236E+02	5.031E+02	3.003E+01	-0.674
	439.47			7.178E+01	2.429E+02	4.092E+02	2.302E+01	0.175
	484.57			-1.805E+02	4.029E+02	6.428E+02	3.615E+01	-0.281
	520.65	*		4.817E+00	1.771E+01	2.960E+01	1.649E+00	0.163
	574.64			-2.545E+02	3.732E+02	5.366E+02	2.903E+01	-0.474
	578.91			4.221E+00	1.499E+02	2.120E+02	1.143E+01	0.020
	585.48			1.877E+03	3.991E+02	7.441E+02	3.991E+01	2.523
	755.35			3.643E+02	2.750E+02	4.923E+02	2.860E+01	0.740
	817.79			-8.652E+01	2.169E+02	3.503E+02	2.251E+01	-0.247
SR-82	698.33			-6.830E+00	4.415E+01	7.031E+01	3.706E+00	-0.097
	776.49	*		-5.140E-01	4.518E-01	6.788E-01	4.083E-02	-0.757
	1395.20			-9.635E+00	1.254E+01	1.763E+01	1.110E+00	-0.546
RB-83	520.41	*		3.490E-02	8.956E-02	1.509E-01	8.408E-03	0.231
	529.64			2.911E-02	1.343E-01	2.235E-01	1.241E-02	0.130
	552.65			1.568E-01	2.547E-01	4.351E-01	2.387E-02	0.360
RB-84	881.50	*		1.294E-01	8.745E-02	1.636E-01	1.159E-02	0.791
KR-85	513.99	*		7.940E+00	1.020E+01	1.553E+01	8.676E-01	0.511
SR-85	513.99	*		4.113E-02	5.284E-02	8.047E-02	4.494E-03	0.511
RB-86	1076.63	*		6.262E-01	9.895E-01	1.730E+00	1.135E-01	0.362
Y-88	898.02			-1.120E-02	5.210E-02	8.506E-02	6.218E-03	-0.132
	1836.01	*		1.114E-02	3.918E-02	6.846E-02	3.891E-03	0.163
ZR-88	392.90	*		-1.903E-02	3.891E-02	6.273E-02	3.481E-03	-0.303
Y-91	1204.90	*		5.694E+00	2.703E+01	4.497E+01	2.697E+00	0.127
NB-94	702.63	*		1.483E-02	4.425E-02	7.329E-02	3.893E-03	0.202
	871.10			-1.631E-02	3.847E-02	5.608E-02	3.912E-03	-0.291
NB-95	765.79	*		4.421E-02	5.854E-02	9.942E-02	5.877E-03	0.445
NB-95M	235.69	*		6.235E-01	2.035E-01	3.247E-01	2.454E-02	1.920
ZR-95	724.18			1.511E-01	1.198E-01	1.930E-01	1.277E-02	0.783

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	756.15	*		9.754E-02	9.076E-02	1.592E-01	1.122E-02	0.613
	657.90	*		4.841E-01	9.076E-02	Half-Life	too short	
ZR-97	1024.50			5.550E+00	9.076E-02	Half-Life	too short	
	254.15			1.193E+01	9.076E-02	Half-Life	too short	
	355.39			-3.808E+00	9.076E-02	Half-Life	too short	
	507.63	*		1.877E+01	9.076E-02	Half-Life	too short	
	602.52			1.695E+01	9.076E-02	Half-Life	too short	
	1021.30			-2.879E+01	9.076E-02	Half-Life	too short	
	1147.95			3.406E+00	9.076E-02	Half-Life	too short	
	1362.66			8.158E-01	9.076E-02	Half-Life	too short	
MO-99	1750.46			3.151E+00	9.076E-02	Half-Life	too short	
	140.51			2.013E+01	4.598E+01	6.712E+01	1.808E+01	0.300
	181.06			-1.063E+01	3.067E+01	4.253E+01	7.248E+00	-0.250
	366.43			1.362E+02	1.352E+02	2.379E+02	1.364E+01	0.573
	739.58	*		-7.826E+00	1.803E+01	2.771E+01	3.803E+00	-0.282
TC-99M	778.00			-3.908E+01	5.187E+01	8.131E+01	4.904E+00	-0.481
	140.51	*		3.383E+11	5.187E+01	Half-Life	too short	
RH-101	127.23			3.939E-02	4.567E-02	6.863E-02	4.098E-03	0.574
	198.01	*		-1.571E-02	4.459E-02	6.855E-02	3.851E-03	-0.229
RH-102	325.23			-7.934E-02	3.010E-01	4.981E-01	2.952E-02	-0.159
	418.52			2.176E-01	3.725E-01	6.385E-01	3.576E-02	0.341
	475.06	*		2.931E-02	3.864E-02	6.669E-02	3.755E-03	0.439
	631.29			-5.747E-03	6.239E-02	1.004E-01	5.152E-03	-0.057
	697.49			-7.265E-02	9.733E-02	1.468E-01	7.726E-03	-0.495
	766.84			1.972E-01	1.491E-01	2.624E-01	1.553E-02	0.751
	1046.59			8.167E-02	1.370E-01	2.392E-01	1.607E-02	0.341
	1112.84			3.178E-01	3.012E-01	4.877E-01	3.092E-02	0.652
RU-103	497.08	*		-5.204E-02	5.408E-02	8.207E-02	1.031E-02	-0.634
	610.33	+		1.276E+01	2.965E+00	3.517E+00	5.353E-01	3.628
RH-106	511.85	+		6.409E-01	4.541E-01	5.264E-01	2.942E-02	1.218
	621.84	*		5.294E-02	3.744E-01	6.155E-01	7.045E-02	0.086
RU-106	1050.47			5.983E-01	2.902E+00	4.881E+00	3.271E-01	0.123
	511.85	+		6.409E-01	4.541E-01	5.264E-01	2.942E-02	1.218
	621.84	*		5.294E-02	3.743E-01	6.155E-01	3.192E-02	0.086
AG-108M	1050.47			5.983E-01	2.902E+00	4.881E+00	3.271E-01	0.123
	433.93	*		-3.765E-02	4.266E-02	6.646E-02	4.076E-03	-0.566
	614.37			2.299E-02	5.692E-02	8.338E-02	4.809E-03	0.276
AG-110M	722.95			-9.911E-03	5.134E-02	6.920E-02	4.164E-03	-0.143
	657.75	*		3.636E-02	5.631E-02	8.401E-02	4.535E-03	0.433
	677.61			1.317E-01	3.631E-01	6.064E-01	3.325E-02	0.217
	706.67			3.738E-02	2.801E-01	4.566E-01	2.614E-02	0.082
	763.93			-2.043E-01	2.319E-01	3.446E-01	2.152E-02	-0.593
	884.67			-3.021E-02	6.104E-02	9.696E-02	7.226E-03	-0.312
	937.48			-1.851E-02	1.307E-01	2.141E-01	1.613E-02	-0.086
	1384.27			2.666E-02	2.291E-01	3.764E-01	2.494E-02	0.071
IN-111	171.28			9.129E-01	1.588E+00	2.643E+00	1.437E-01	0.345
	245.39	*		9.080E-01	1.917E+00	2.770E+00	1.629E-01	0.328
IN-113M	391.69	*		1.002E-03	5.619E-02	9.351E-02	5.565E-03	0.011
SN-113	391.69	*		1.002E-03	5.619E-02	9.351E-02	5.565E-03	0.011

---- Non-Identified Nuclides ----

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IN-114M	190.27	*		1.629E-01	2.592E-01	3.808E-01	2.119E-02	0.428
CD-115	260.90			-3.510E+01	2.272E+02	3.604E+02	2.137E+01	-0.097
	492.35			7.974E+00	6.341E+01	1.052E+02	5.908E+00	0.076
	527.90	*		-1.455E+00	1.865E+01	3.038E+01	1.688E+00	-0.048
SN-117M	156.02			-5.834E-01	2.983E+00	4.828E+00	2.667E-01	-0.121
	158.56	*		-3.723E-02	6.999E-02	1.115E-01	6.123E-03	-0.334
SB-122	563.90	*		1.502E+00	3.442E+00	5.797E+00	3.159E-01	0.259
	692.80			1.224E+01	6.673E+01	1.095E+02	5.716E+00	0.112
I-123	159.00	*		-1.768E+01	6.673E+01	Half-Life	too short	
	528.96			3.418E+02	6.673E+01	Half-Life	too short	
TE-123M	159.00	*		-2.555E-02	3.428E-02	5.403E-02	3.009E-03	-0.473
I-124	602.71	*		7.355E-01	1.176E+00	1.758E+00	9.291E-02	0.418
	722.78			-1.043E+00	6.317E+00	8.553E+00	4.703E-01	-0.122
	1325.50			9.955E+00	4.413E+01	7.402E+01	4.639E+00	0.134
	1376.25			5.961E+01	4.336E+01	8.188E+01	5.155E+00	0.728
	1509.49			5.769E+00	2.110E+01	3.550E+01	2.222E+00	0.162
	1691.02			-1.252E+00	3.872E+00	5.886E+00	3.539E-01	-0.213
SB-124	602.71			3.678E-02	5.880E-02	8.791E-02	4.648E-03	0.418
	645.85			1.556E-01	6.462E-01	1.068E+00	6.286E-02	0.146
	709.31			3.310E+00	3.631E+00	6.284E+00	3.376E-01	0.527
	713.82			6.346E-01	2.086E+00	3.450E+00	3.449E-01	0.184
	722.78			-7.564E-02	4.579E-01	6.200E-01	3.588E-02	-0.122
	+ 968.20			2.426E+01	6.623E+00	8.613E+00	6.080E-01	2.817
	1045.16			7.066E-02	2.987E+00	4.941E+00	3.324E-01	0.014
	1325.50			7.707E-01	3.416E+00	5.730E+00	3.592E-01	0.134
	1368.21			-1.092E+00	1.684E+00	2.379E+00	2.884E-01	-0.459
	1436.60			5.671E-01	5.008E+00	8.225E+00	5.176E-01	0.069
	1691.02	*		-2.140E-02	6.620E-02	1.006E-01	6.534E-03	-0.213
SB-125	427.89	*		2.811E-02	1.129E-01	1.900E-01	1.115E-02	0.148
	+ 463.38			6.312E-01	5.401E-01	7.267E-01	4.812E-02	0.869
	600.56			1.992E-01	2.369E-01	4.080E-01	2.561E-02	0.488
	635.90			1.197E-02	3.068E-01	4.996E-01	3.102E-02	0.024
TE-125M	109.28	*		4.769E-01	1.182E+01	1.953E+01	1.776E+00	0.024
I-126	388.63			1.036E-01	2.742E-01	4.658E-01	2.595E-02	0.222
	666.33	*		2.899E-01	2.745E-01	4.290E-01	2.137E-02	0.676
	753.82			1.690E+00	1.982E+00	3.419E+00	1.981E-01	0.494
SB-126	223.80			1.513E+00	5.493E+00	8.954E+00	5.172E-01	0.169
	278.60			5.412E+00	3.353E+00	5.908E+00	3.525E-01	0.916
	296.50			1.116E+01	2.746E+00	4.672E+00	2.791E-01	2.388
	414.70			-4.428E-02	1.045E-01	1.689E-01	9.449E-03	-0.262
	415.30			-5.250E+00	8.750E+00	1.398E+01	7.822E-01	-0.376
	555.20			-8.932E-01	5.456E+00	8.805E+00	4.825E-01	-0.101
	573.80			7.320E-02	1.396E+00	2.225E+00	1.204E-01	0.033
	593.00			2.620E-01	1.221E+00	2.022E+00	1.078E-01	0.130
	656.30			-3.245E-01	4.857E+00	6.728E+00	3.347E-01	-0.048
	666.33			1.214E-01	1.150E-01	1.797E-01	8.948E-03	0.676
	675.00			2.897E-01	2.489E+00	4.068E+00	2.058E-01	0.071
	695.00			5.481E-02	9.826E-02	1.662E-01	8.713E-03	0.330
	697.00			-4.424E-01	3.662E-01	5.275E-01	2.774E-02	-0.839

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SB-127		720.50	*	-2.205E-01	2.148E-01	2.544E-01	1.394E-02	-0.867
		856.80		5.999E-02	6.590E-01	9.601E-01	6.554E-02	0.062
		989.30		-7.746E-03	1.634E+00	2.704E+00	1.887E-01	-0.003
		1034.80		-8.380E+00	1.142E+01	1.739E+01	1.179E+00	-0.482
		1213.00		-5.371E-01	6.399E+00	1.038E+01	6.248E-01	-0.052
		61.10		2.213E+02	1.056E+02	1.654E+02	1.956E+01	1.338
		252.40		-3.240E+00	6.742E+00	1.030E+01	4.288E+00	-0.315
		290.80		-8.895E+00	3.522E+01	5.073E+01	4.882E+00	-0.175
		411.60		2.072E+01	1.888E+01	3.288E+01	4.775E+00	0.630
		444.90		4.104E+00	1.564E+01	2.626E+01	2.889E+00	0.156
		473.00		1.459E+00	2.620E+00	4.464E+00	5.082E-01	0.327
		543.00		9.581E+00	2.481E+01	4.172E+01	5.440E+00	0.230
		603.60		9.952E+00	2.058E+01	3.033E+01	3.277E+00	0.328
		685.20	*	-2.425E-01	1.901E+00	3.034E+00	2.853E-01	-0.080
		698.50		2.459E+00	2.250E+01	3.664E+01	5.314E+00	0.067
		722.20		9.124E+00	4.239E+01	6.071E+01	5.666E+00	0.150
XE-127		783.80		4.960E+00	5.347E+00	9.556E+00	1.062E+00	0.519
		57.60		-3.902E-01	9.736E+00	1.437E+01	1.322E+00	-0.027
		145.22		7.144E-01	9.864E-01	1.468E+00	8.317E-02	0.487
		172.10		3.381E-02	1.552E-01	2.546E-01	1.386E-02	0.133
I-131		202.84	*	1.005E-02	6.636E-02	9.983E-02	5.640E-03	0.101
		374.96		4.923E-02	2.538E-01	4.274E-01	2.426E-02	0.115
		80.18		1.368E+01	8.307E+00	9.978E+00	9.330E-01	1.371
		284.30		-1.762E+00	2.038E+00	3.286E+00	2.173E-01	-0.536
TE-132		364.48	*	-9.081E-02	1.600E-01	2.580E-01	1.661E-02	-0.352
		636.97		1.075E+00	1.945E+00	3.310E+00	1.949E-01	0.325
		722.89		-1.724E+00	9.412E+00	1.271E+01	7.112E-01	-0.136
		49.72		-2.185E+01	3.699E+01	6.084E+01	6.789E+00	-0.359
BA-133		111.76		-3.032E+01	4.649E+01	7.467E+01	7.339E+00	-0.406
		116.30		-1.702E+00	4.277E+01	7.035E+01	6.738E+00	-0.024
		228.16	*	9.646E-01	1.121E+00	1.859E+00	2.708E-01	0.519
		53.15		1.058E+00	5.342E+00	9.036E+00	8.249E-01	0.117
I-133		79.62		1.159E+00	1.795E+00	2.690E+00	4.196E-01	0.431
		81.00		2.542E-01	1.653E-01	1.934E-01	3.149E-02	1.314
		276.40		4.384E-02	5.419E-01	8.011E-01	1.044E-01	0.055
		302.84		-5.090E-02	1.871E-01	3.103E-01	3.644E-02	-0.164
CS-134		356.01	*	-8.812E-03	6.253E-02	8.972E-02	1.037E-02	-0.098
		383.85		-8.625E-02	3.965E-01	6.514E-01	7.017E-02	-0.132
	+	510.53		2.841E+00	3.965E-01	Half-Life	too short	
		529.87	*	-6.996E-04	3.965E-01	Half-Life	too short	
		706.58		2.012E-01	3.965E-01	Half-Life	too short	
		856.28		-5.689E-01	3.965E-01	Half-Life	too short	
		875.33		-1.450E-01	3.965E-01	Half-Life	too short	
		1236.41		3.046E+00	3.965E-01	Half-Life	too short	
		1298.22		1.095E-01	3.965E-01	Half-Life	too short	
		475.35		7.488E-01	2.578E+00	4.324E+00	2.435E-01	0.173
		563.23		1.111E-01	4.730E-01	7.854E-01	4.383E-02	0.141
		569.32		1.391E-01	2.563E-01	4.278E-01	2.402E-02	0.325
		604.70		-1.128E-02	5.078E-02	6.967E-02	3.700E-03	-0.162

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	795.84	*		6.349E-02	5.504E-02	1.004E-01	6.320E-03	0.632
	801.93			3.625E-01	4.723E-01	8.347E-01	5.287E-02	0.434
	1038.57			3.254E-01	4.426E+00	7.364E+00	4.978E-01	0.044
	1167.94			-1.436E+00	3.520E+00	5.563E+00	3.313E-01	-0.258
	1365.15			1.135E-01	1.238E+00	2.040E+00	1.392E-01	0.056
	268.24	*		1.769E-01	2.419E-01	3.532E-01	2.745E-02	0.501
	288.45			2.647E+11	2.419E-01	Half-Life	too short	
	417.63			-8.366E+10	2.419E-01	Half-Life	too short	
	546.56			-3.872E+10	2.419E-01	Half-Life	too short	
	836.80			4.321E+11	2.419E-01	Half-Life	too short	
	1038.76			-3.231E+10	2.419E-01	Half-Life	too short	
	1124.00			-2.111E+11	2.419E-01	Half-Life	too short	
	1131.51			3.113E+10	2.419E-01	Half-Life	too short	
	1260.41	*		5.275E+10	2.419E-01	Half-Life	too short	
	1457.56			1.033E+13	2.419E-01	Half-Life	too short	
	1678.03			-2.809E+10	2.419E-01	Half-Life	too short	
	1706.46			-2.484E+10	2.419E-01	Half-Life	too short	
	1791.20			9.865E+10	2.419E-01	Half-Life	too short	
CS-136 +	66.91			4.725E-01	1.434E+00	1.822E+00	2.845E-01	0.259
	86.29			6.747E+00	1.960E+00	2.634E+00	3.587E-01	2.562
	153.22			1.201E+00	8.713E-01	1.492E+00	1.049E-01	0.805
	163.89			1.567E+00	1.368E+00	2.328E+00	1.620E-01	0.673
	176.55			-2.593E-01	4.905E-01	7.782E-01	4.846E-02	-0.333
	273.65			-1.193E+00	7.715E-01	9.270E-01	6.262E-02	-1.287
	340.57			3.331E-01	1.909E-01	3.093E-01	1.929E-02	1.077
	818.51			-3.541E-02	9.613E-02	1.557E-01	1.003E-02	-0.227
	1048.07	*		4.007E-02	1.398E-01	2.370E-01	1.701E-02	0.169
	1235.34			8.077E-01	7.546E-01	1.338E+00	1.358E-01	0.604
CE-139 BA-140	165.85	*		-1.334E-02	3.779E-02	6.060E-02	3.277E-03	-0.220
	162.64			-1.270E-01	9.769E-01	1.583E+00	9.826E-02	-0.080
	304.84			-2.078E+00	1.869E+00	2.746E+00	7.504E-01	-0.757
	423.70			-1.026E+00	2.542E+00	4.067E+00	1.291E+00	-0.252
	537.32	*		-9.351E-02	3.480E-01	5.559E-01	1.805E-01	-0.168
LA-140	328.77			5.301E-01	4.124E-01	7.292E-01	4.813E-02	0.727
	432.53			1.617E+00	2.728E+00	4.682E+00	2.923E-01	0.345
	487.03			8.613E-02	1.847E-01	3.134E-01	2.009E-02	0.275
	751.79			8.137E-01	2.212E+00	3.675E+00	2.601E-01	0.221
	815.85			-1.441E-01	4.238E-01	6.886E-01	5.296E-02	-0.209
	867.82			1.682E+00	1.639E+00	2.727E+00	2.046E-01	0.617
	919.63			2.373E+00	3.730E+00	6.166E+00	5.883E-01	0.385
	925.24			7.971E-02	1.357E+00	2.268E+00	1.777E-01	0.035
	1596.49	*		-1.255E-01	1.205E-01	1.702E-01	1.050E-02	-0.737
	145.44	*		4.656E-02	8.906E-02	1.312E-01	7.742E-03	0.355
CE-141 CE-143 +	57.37			-6.108E-04	8.906E-02	Half-Life	too short	
	231.56			-3.455E-03	8.906E-02	Half-Life	too short	
	293.26	*		1.630E-03	8.906E-02	Half-Life	too short	
	350.59			4.954E-02	8.906E-02	Half-Life	too short	
	490.36			-1.605E-03	8.906E-02	Half-Life	too short	
	664.57			9.794E-03	8.906E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		721.93		-3.861E-04	8.906E-02	Half-Life too short		
CE-144		80.11		5.981E+00	3.532E+00	4.254E+00	3.951E-01	1.406
		133.54	*	7.367E-02	2.930E-01	4.266E-01	6.067E-02	0.173
PM-144		476.78		2.996E-02	9.003E-02	1.514E-01	1.030E-02	0.198
		618.01		-4.822E-03	4.309E-02	6.746E-02	3.773E-03	-0.071
		696.49	*	-4.516E-02	4.381E-02	6.419E-02	3.376E-03	-0.704
		778.57		-1.083E+00	2.644E+00	4.276E+00	2.583E-01	-0.253
PR-144		696.49	*	-3.062E+00	2.971E+00	4.352E+00	2.287E-01	-0.704
		1489.15		2.791E+00	1.348E+01	2.252E+01	1.412E+00	0.124
PM-146		453.90	*	6.529E-02	5.845E-02	1.026E-01	8.732E-03	0.636
		633.02		-3.478E-01	1.559E+00	2.467E+00	9.059E-01	-0.141
		735.90		-6.040E-02	2.027E-01	2.957E-01	8.235E-02	-0.204
		747.13		1.898E-02	1.063E-01	1.739E-01	2.170E-02	0.109
ND-147	+	91.11		1.233E+00	4.620E-01	7.642E-01	7.617E-02	1.614
		319.41		6.385E-01	4.754E+00	7.951E+00	4.727E-01	0.080
		439.89		2.247E+00	7.947E+00	1.337E+01	7.528E-01	0.168
		531.02	*	4.922E-02	7.573E-01	1.246E+00	1.672E-01	0.039
PM-149		285.90	*	2.968E+01	1.540E+02	2.617E+02	3.729E+01	0.113
EU-152		121.78		-6.990E-02	9.183E-02	1.462E-01	1.148E-02	-0.478
		244.69		4.380E-01	4.623E-01	6.889E-01	4.048E-02	0.636
		344.27	*	7.265E-02	1.408E-01	2.023E-01	1.333E-02	0.359
		443.98		-3.507E-01	1.285E+00	2.087E+00	1.175E-01	-0.168
		778.89		-8.810E-02	3.080E-01	5.041E-01	3.045E-02	-0.175
		867.32		1.128E+00	9.245E-01	1.575E+00	1.093E-01	0.716
		964.01		3.100E-01	4.160E-01	6.445E-01	4.559E-02	0.481
		1085.78		9.521E-02	4.757E-01	7.991E-01	5.198E-02	0.119
		1112.02		1.313E-01	4.659E-01	6.826E-01	4.331E-02	0.192
		1407.95		-5.128E-02	2.523E-01	3.978E-01	2.505E-02	-0.129
GD-153		69.67		-5.392E-01	2.454E+00	3.556E+00	3.174E-01	-0.152
	+	83.37		6.158E+01	2.119E+01	3.178E+01	3.021E+00	1.937
		97.43	*	1.192E-01	1.065E-01	1.632E-01	1.364E-02	0.731
		103.18		-8.891E-02	1.276E-01	2.050E-01	1.575E-02	-0.434
EU-154		123.07		-4.186E-02	6.961E-02	1.027E-01	9.830E-03	-0.408
		247.94		1.427E-01	5.224E-01	7.445E-01	7.144E-02	0.192
		591.81		-4.488E-01	8.324E-01	1.209E+00	1.150E-01	-0.371
		723.30		6.226E-03	2.185E-01	3.045E-01	2.083E-02	0.020
		756.87		3.130E-01	1.001E+00	1.651E+00	1.676E-01	0.190
		873.19		-1.090E-01	3.078E-01	4.929E-01	5.502E-02	-0.221
		996.32		-4.322E-01	4.483E-01	6.585E-01	1.121E-01	-0.656
		1004.76		-1.837E-01	2.666E-01	4.102E-01	4.283E-02	-0.448
		1274.45	*	-4.309E-02	1.518E-01	2.395E-01	2.293E-02	-0.180
EU-155		48.70		-2.173E+00	3.835E+00	6.324E+00	5.296E-01	-0.344
		60.01		9.341E+00	7.385E+00	1.148E+01	1.051E+00	0.814
	+	86.54		5.918E-01	1.625E-01	2.289E-01	2.250E-02	2.586
		105.31	*	5.596E-02	1.324E-01	2.220E-01	1.684E-02	0.252
TB-160	+	86.79		1.595E+00	4.375E-01	6.130E-01	5.991E-02	2.602
		197.04		4.488E-01	7.587E-01	1.214E+00	6.813E-02	0.370
		215.65		4.889E-01	1.062E+00	1.620E+00	9.279E-02	0.302
		298.57		8.566E-02	1.759E-01	2.622E-01	1.566E-02	0.327

----- Non-Identified Nuclides -----

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HO-166M		879.36	*	5.570E-02	1.771E-01	3.032E-01	2.142E-02	0.184
		962.29		7.489E-01	7.400E-01	1.182E+00	8.369E-02	0.633
		966.15		1.318E+00	3.275E-01	6.484E-01	4.582E-02	2.033
		1177.93		-3.496E-03	4.710E-01	7.710E-01	4.571E-02	-0.005
		1271.85		9.825E-02	8.111E-01	1.341E+00	8.256E-02	0.073
		80.57		6.803E-01	4.471E-01	5.331E-01	4.967E-02	1.276
	+	184.41		1.551E-01	7.179E-02	9.036E-02	4.992E-03	1.716
		280.46		-5.419E-02	1.071E-01	1.763E-01	1.052E-02	-0.307
		410.95		5.060E-01	3.220E-01	5.781E-01	3.231E-02	0.875
		711.68	*	-6.451E-02	8.285E-02	1.247E-01	6.728E-03	-0.517
TM-171		752.31		2.179E-01	3.383E-01	5.753E-01	3.325E-02	0.379
		810.29		9.680E-05	7.256E-02	1.215E-01	7.719E-03	0.001
		51.35		-4.440E+00	4.634E+01	7.767E+01	6.965E+00	-0.057
		52.39		-1.674E+00	2.378E+01	3.989E+01	3.620E+00	-0.042
		59.40		2.347E+01	3.974E+01	6.028E+01	5.540E+00	0.389
LU-176	+	66.72	*	6.289E+00	4.564E+01	6.308E+01	5.635E+00	0.100
		88.36		7.993E-01	2.981E-01	4.660E-01	4.570E-02	1.715
		201.83		-1.207E-03	3.645E-02	5.882E-02	3.319E-03	-0.021
LU-177		306.84	*	-2.455E-02	3.173E-02	5.118E-02	3.053E-03	-0.480
		401.10		9.188E-01	8.805E+00	1.471E+01	8.190E-01	0.062
		112.95		7.030E-01	2.258E+00	3.764E+00	2.551E-01	0.187
LU-177M	+	208.36	*	3.939E+00	2.474E+00	2.797E+00	1.590E-01	1.408
		52.97		8.174E-01	2.423E+00	4.117E+00	3.753E-01	0.199
		54.07		6.664E-01	1.266E+00	2.163E+00	1.983E-01	0.308
HF-181	+	61.30		6.329E+00	3.017E+00	3.699E+00	3.364E-01	1.711
		121.62		-2.502E-01	4.694E-01	7.553E-01	4.626E-02	-0.331
		147.16		1.140E-01	8.831E-01	1.274E+00	7.184E-02	0.090
		171.86		6.904E-02	6.139E-01	1.003E+00	5.455E-02	0.069
		218.09		7.051E-01	1.114E+00	1.844E+00	1.059E-01	0.382
	+	268.79		2.191E+00	1.349E+00	1.818E+00	1.082E-01	1.205
		319.02		3.662E-02	3.469E-01	5.794E-01	3.443E-02	0.063
		367.43		5.877E-01	1.131E+00	1.941E+00	1.112E-01	0.303
		413.65	*	-1.452E-01	2.413E-01	3.860E-01	2.159E-02	-0.376
		56.28		-7.233E-01	1.420E+00	2.260E+00	2.080E-01	-0.320
W-181		57.53		-2.002E-01	8.267E-01	1.208E+00	1.112E-01	-0.166
		65.20		1.414E-01	1.489E+00	2.198E+00	1.969E-01	0.064
		133.02		-4.274E-02	9.865E-02	1.385E-01	8.115E-03	-0.309
		136.25		-2.343E-01	5.896E-01	9.511E-01	5.518E-02	-0.246
		345.85		-9.637E-02	3.233E-01	3.988E-01	2.333E-02	-0.242
		482.03	*	2.750E-03	5.663E-02	9.351E-02	5.262E-03	0.029
		56.28		-2.802E-01	5.503E-01	8.753E-01	8.058E-02	-0.320
TA-182		57.53		-7.750E-02	3.205E-01	4.683E-01	4.310E-02	-0.166
		65.20	*	5.437E-02	5.728E-01	8.453E-01	7.572E-02	0.064
		67.75		-8.858E-02	2.010E-01	2.431E-01	2.169E-02	-0.364
		100.10		-1.210E-02	2.209E-01	3.524E-01	2.829E-02	-0.034
		152.43		3.051E-01	4.274E-01	7.167E-01	3.992E-02	0.426
		222.10		-5.390E-01	4.650E-01	7.067E-01	4.076E-02	-0.763
		1001.68		8.362E-01	2.591E+00	4.360E+00	3.021E-01	0.192
	+	1121.28		7.187E-01	3.349E-01	4.109E-01	2.582E-02	1.749

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183		1189.05		-1.139E-01	3.937E-01	6.268E-01	3.734E-02	-0.182
		1221.42	*	-1.455E-01	2.497E-01	3.854E-01	2.327E-02	-0.377
		1230.97		-5.264E-01	5.924E-01	8.839E-01	5.358E-02	-0.595
		57.98		-2.767E-02	3.131E-01	4.608E-01	4.240E-02	-0.060
		59.32		9.487E-02	1.649E-01	2.500E-01	2.298E-02	0.379
		67.20		5.944E-02	3.554E-01	4.477E-01	3.997E-02	0.133
		162.32	*	-3.247E-02	1.359E-01	2.192E-01	1.194E-02	-0.148
	+	208.81		3.233E+00	2.031E+00	2.291E+00	1.303E-01	1.411
		291.72		-6.680E-01	1.325E+00	1.873E+00	1.119E-01	-0.357
		57.98		-1.014E-01	1.147E+00	1.688E+00	1.554E-01	-0.060
RE-184		59.32		3.473E-01	6.039E-01	9.154E-01	8.414E-02	0.379
		67.20		2.177E-01	1.302E+00	1.640E+00	1.464E-01	0.133
		161.27		-3.114E-02	4.239E-01	6.886E-01	3.760E-02	-0.045
		216.55		6.307E-02	3.497E-01	5.682E-01	3.258E-02	0.111
		252.85	*	-1.726E-01	3.017E-01	4.681E-01	2.765E-02	-0.369
		318.01		-3.233E-01	5.993E-01	9.682E-01	5.757E-02	-0.334
		792.07		5.965E-01	1.138E+00	1.990E+00	1.228E-01	0.300
		903.28		6.868E-01	1.461E+00	2.218E+00	1.608E-01	0.310
		920.93		4.264E-01	5.363E-01	9.419E-01	6.786E-02	0.453
		59.72		4.772E-01	4.408E-01	6.811E-01	6.250E-02	0.701
OS-185		61.14		4.179E-01	2.556E-01	3.998E-01	3.638E-02	1.045
		69.30		-1.321E-01	4.476E-01	6.466E-01	5.771E-02	-0.204
		592.07		-1.787E+00	3.311E+00	4.996E+00	2.665E-01	-0.358
		646.12	*	2.088E-02	5.463E-02	9.134E-02	4.605E-03	0.229
		717.42		1.216E+00	1.068E+00	1.894E+00	1.032E-01	0.642
		874.81		-6.498E-02	6.465E-01	1.067E+00	7.485E-02	-0.061
		880.27		6.035E-01	9.895E-01	1.735E+00	1.227E-01	0.348
		155.03	*	2.109E-01	2.168E-01	3.668E-01	2.031E-02	0.575
		477.96		-2.054E+00	4.227E+00	6.738E+00	3.793E-01	-0.305
		633.10		-7.095E-01	3.169E+00	5.033E+00	2.577E-01	-0.141
W-188	+	63.58		2.395E+02	1.142E+02	1.338E+02	1.205E+01	1.790
		227.08		1.854E+01	1.685E+01	2.841E+01	1.646E+00	0.652
IR-192		290.67	*	-2.233E+00	1.035E+01	1.495E+01	8.930E-01	-0.149
	+	295.96		9.971E-01	2.092E-01	3.449E-01	2.091E-02	2.891
		308.46		6.689E-04	1.228E-01	2.063E-01	1.243E-02	0.003
		316.51	*	8.216E-04	4.632E-02	7.778E-02	4.649E-03	0.011
		468.07		6.488E-03	9.850E-02	1.416E-01	9.264E-03	0.046
AU-195		604.41		-6.419E-02	6.976E-01	9.708E-01	1.077E-01	-0.066
		612.46		1.509E+00	1.148E+00	1.801E+00	1.288E-01	0.838
		65.12		4.555E-02	2.656E-01	3.933E-01	3.523E-02	0.116
		66.83		2.036E-02	1.511E-01	2.089E-01	1.865E-02	0.097
	+	75.70		1.393E+00	3.443E-01	5.984E-01	5.428E-02	2.328
		98.88	*	3.833E-01	3.004E-01	4.636E-01	3.790E-02	0.827
	+	129.76		2.383E+00	5.364E+00	6.404E+00	3.791E-01	0.372
TL-200		367.94	*	3.699E-04	5.364E+00	Half-Life too short		
		579.30		5.683E-03	5.364E+00	Half-Life too short		
		828.27		2.489E-03	5.364E+00	Half-Life too short		
		1205.75		1.812E-04	5.364E+00	Half-Life too short		
TL-201		68.90		-9.309E-01	8.835E+00	1.293E+01	1.154E+00	-0.072



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82		-1.971E-01	5.005E+00	7.311E+00	6.535E-01	-0.027
		80.30		1.631E+01	1.035E+01	1.239E+01	1.152E+00	1.317
		135.34		-3.474E+00	4.020E+01	6.568E+01	3.820E+00	-0.053
		167.43	*	-4.449E+00	1.107E+01	1.771E+01	9.585E-01	-0.251
		68.90		-7.087E-02	6.726E-01	9.847E-01	8.786E-02	-0.072
HG-203		70.82		-1.497E-02	3.800E-01	5.551E-01	4.961E-02	-0.027
		80.30		1.239E+00	7.863E-01	9.406E-01	8.748E-02	1.317
		439.56	*	2.819E-02	9.357E-02	1.576E-01	8.869E-03	0.179
		70.83		-5.332E-02	1.581E+00	2.310E+00	3.190E-01	-0.023
BI-207		72.87		3.530E+00	1.047E+00	1.561E+00	2.098E-01	2.261
	+	82.60		4.632E+00	1.669E+00	2.400E+00	3.427E-01	1.930
		279.20	*	7.172E-02	5.356E-02	9.342E-02	5.900E-03	0.768
		72.80		9.999E-01	2.813E-01	4.473E-01	4.015E-02	2.235
	+	74.97		7.700E-01	1.903E-01	3.079E-01	2.784E-02	2.501
TL-207	+	84.90		7.942E-01	2.733E-01	4.307E-01	4.143E-02	1.844
		569.67		1.527E-02	4.010E-02	6.619E-02	3.593E-03	0.231
		1063.62	*	2.286E-02	6.627E-02	1.128E-01	7.478E-03	0.203
		1770.23		-1.816E-01	5.721E-01	7.238E-01	4.228E-02	-0.251
		81.07		5.724E-01	3.574E-01	4.280E-01	4.000E-02	1.338
PO-209	+	83.78		5.236E-01	1.802E-01	2.705E-01	2.579E-02	1.936
		94.90		5.962E-01	3.308E-01	5.145E-01	4.479E-02	1.159
		122.32		-1.130E+00	2.238E+00	3.474E+00	2.415E-01	-0.325
	+	144.24		1.195E+00	1.190E+00	1.440E+00	1.028E-01	0.829
		154.21		7.311E-01	4.913E-01	8.447E-01	5.749E-02	0.866
BI-210	+	269.46		5.107E-01	3.147E-01	4.200E-01	2.607E-02	1.216
		323.87	*	-1.068E+00	9.135E-01	1.415E+00	2.344E-01	-0.755
	+	338.28		6.753E+00	2.775E+00	3.029E+00	3.204E-01	2.229
		445.03		8.525E-01	3.061E+00	5.142E+00	5.232E-01	0.166
		260.50		-1.590E+00	1.243E+01	1.975E+01	1.171E+00	-0.081
PB-210		262.80		-1.546E+01	3.561E+01	5.560E+01	3.300E+00	-0.278
		896.60	*	-8.878E-01	8.865E+00	1.462E+01	1.060E+00	-0.061
		46.50	*	2.817E+00	5.754E+00	9.689E+00	7.978E-01	0.291
		46.50	*	2.817E+00	5.754E+00	9.689E+00	7.978E-01	0.291
		46.50	*	2.817E+00	5.753E+00	9.689E+00	6.999E-01	0.291
PB-211		404.84	*	-1.354E+00	1.502E+00	1.932E+00	1.204E+00	-0.701
		427.08		-2.579E+00	3.053E+00	4.033E+00	2.492E+00	-0.639
		831.96		-2.044E+00	1.917E+00	2.075E+00	1.295E+00	-0.985
	+	727.18	*	1.012E+00	6.351E-01	7.308E-01	5.496E-02	1.384
		785.46		1.797E+00	2.089E+00	3.739E+00	2.282E-01	0.481
BI-212		1620.62		2.343E+00	1.642E+00	3.244E+00	1.990E-01	0.722
		81.07		5.724E-01	3.574E-01	4.280E-01	4.000E-02	1.338
	+	83.78		5.236E-01	1.802E-01	2.705E-01	2.579E-02	1.936
		94.90		5.962E-01	3.308E-01	5.145E-01	4.479E-02	1.159
		122.32		-1.130E+00	2.238E+00	3.474E+00	2.415E-01	-0.325
PO-215	+	144.24		1.195E+00	1.190E+00	1.440E+00	1.028E-01	0.829
		154.21		7.311E-01	4.913E-01	8.447E-01	5.749E-02	0.866
	+	269.46		5.107E-01	3.147E-01	4.200E-01	2.607E-02	1.216
		323.87	*	-1.068E+00	9.135E-01	1.415E+00	2.344E-01	-0.755
	+	338.28		6.753E+00	2.775E+00	3.029E+00	3.204E-01	2.229

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		8.525E-01	3.061E+00	5.142E+00	5.232E-01	0.166
		271.23		6.553E-01	4.053E-01	5.569E-01	4.575E-02	1.177
		401.81	*	-2.289E-01	5.447E-01	8.810E-01	1.190E-01	-0.260
RN-220		549.76	*	-1.337E+01	3.330E+01	5.276E+01	2.900E+00	-0.253
RA-223	+	81.07		5.724E-01	3.574E-01	4.280E-01	4.000E-02	1.338
		83.78		5.236E-01	1.802E-01	2.705E-01	2.579E-02	1.936
		94.90		5.962E-01	3.308E-01	5.145E-01	4.479E-02	1.159
	+	122.32		-1.130E+00	2.238E+00	3.474E+00	2.415E-01	-0.325
		144.24		1.195E+00	1.190E+00	1.440E+00	1.028E-01	0.829
		154.21		7.311E-01	4.913E-01	8.447E-01	5.749E-02	0.866
		269.46		5.107E-01	3.147E-01	4.200E-01	2.607E-02	1.216
		323.87	*	-1.068E+00	9.135E-01	1.415E+00	2.344E-01	-0.755
		338.28		6.753E+00	2.775E+00	3.029E+00	3.204E-01	2.229
		445.03		8.525E-01	3.061E+00	5.142E+00	5.232E-01	0.166
		79.80		9.869E-01	2.259E+00	3.358E+00	7.311E-01	0.294
		236.00		2.312E+00	4.623E-01	7.052E-01	7.386E-02	3.278
		256.20	*	1.328E-01	4.918E-01	7.978E-01	1.118E-01	0.166
AC-227		286.10		9.363E-01	1.883E+00	3.243E+00	3.778E-01	0.289
		299.80		2.133E+00	2.154E+00	3.271E+00	5.347E-01	0.652
		304.40		-2.768E+00	2.536E+00	3.855E+00	6.689E-01	-0.718
		334.20		-1.133E+00	3.404E+00	4.829E+00	8.867E-01	-0.235
		79.80		9.869E-01	2.260E+00	3.358E+00	7.402E-01	0.294
		94.00		1.866E+01	5.470E+00	4.983E+00	1.090E+00	3.745
		236.00		2.312E+00	4.463E-01	7.052E-01	6.404E-02	3.278
		256.20	*	1.328E-01	4.920E-01	7.978E-01	1.352E-01	0.166
		286.10		9.363E-01	2.101E+00	3.243E+00	3.249E+00	0.289
		299.80		2.133E+00	2.154E+00	3.271E+00	5.347E-01	0.652
TH-227		304.40		-2.768E+00	2.536E+00	3.855E+00	6.689E-01	-0.718
		334.20		-1.133E+00	3.404E+00	4.829E+00	8.867E-01	-0.235
		85.43		1.077E+00	2.777E-01	4.398E-01	4.249E-02	2.449
		88.47		4.601E-01	1.716E-01	2.663E-01	2.607E-02	1.728
		100.00		0.000E+00	2.285E-01	3.653E-01	2.937E-02	0.000
		193.63	*	2.870E-02	6.465E-01	1.048E+00	5.858E-02	0.027
		210.97		1.569E+00	1.133E+00	1.719E+00	9.798E-02	0.913
		283.67	*	-1.645E+00	1.916E+00	3.072E+00	4.256E-01	-0.536
		301.29		1.410E+00	7.771E-01	1.329E+00	1.401E-01	1.061
		81.07		5.724E-01	3.574E-01	4.280E-01	4.000E-02	1.338
TH-231	+	83.78		5.236E-01	1.802E-01	2.705E-01	2.579E-02	1.936
		94.90		5.962E-01	3.308E-01	5.145E-01	4.479E-02	1.159
		122.32		-1.130E+00	2.238E+00	3.474E+00	2.415E-01	-0.325
		144.24		1.195E+00	1.190E+00	1.440E+00	1.028E-01	0.829
		154.21		7.311E-01	4.913E-01	8.447E-01	5.749E-02	0.866
		269.46		5.107E-01	3.147E-01	4.200E-01	2.607E-02	1.216
		323.87	*	-1.068E+00	9.135E-01	1.415E+00	2.344E-01	-0.755
		338.28		6.753E+00	2.775E+00	3.029E+00	3.204E-01	2.229
		445.03		8.525E-01	3.061E+00	5.142E+00	5.232E-01	0.166
		84.21		2.648E+01	9.112E+00	1.387E+01	1.327E+00	1.909
U-231	+	92.29		2.164E+01	4.638E+00	6.251E+00	5.692E-01	3.462
		95.87	*	1.600E+00	1.717E+00	2.606E+00	2.233E-01	0.614

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233	+	108.00		4.617E-01	3.054E+00	5.068E+00	3.652E-01	0.091
		75.28		2.247E+01	6.242E+00	9.460E+00	1.475E+00	2.375
	+	86.59		9.616E+00	3.595E+00	3.712E+00	1.010E+00	2.591
		300.12		4.260E-01	6.071E-01	9.133E-01	1.234E-01	0.466
	*	311.98		-7.374E-04	8.236E-02	1.382E-01	8.717E-03	-0.005
		340.50		1.715E+00	9.666E-01	1.453E+00	3.339E-01	1.180
		398.62		1.763E+00	2.745E+00	4.663E+00	1.203E+00	0.378
		415.76		-1.124E+00	2.209E+00	3.531E+00	7.250E-01	-0.318
	+	63.00		6.880E+00	3.397E+00	3.978E+00	6.257E-01	1.729
		94.67		7.068E-01	2.520E-01	3.882E-01	4.847E-02	1.821
PA-234	+	98.44		1.489E-01	1.474E-01	1.885E-01	1.050E-01	0.790
		99.86		4.258E-02	5.801E-01	9.304E-01	7.495E-02	0.046
		111.00		-9.417E-03	2.325E-01	3.829E-01	4.194E-02	-0.025
		131.20		7.435E-02	1.531E-01	2.256E-01	1.329E-02	0.330
		152.70		3.828E-01	4.155E-01	6.953E-01	1.093E-01	0.551
	+	186.00		5.582E+00	3.080E+00	3.291E+00	1.004E+00	1.696
		226.40		1.569E-01	5.353E-01	8.722E-01	1.008E-01	0.180
		227.20		6.259E-01	5.639E-01	9.512E-01	5.512E-02	0.658
		248.90		-7.795E-01	1.107E+00	1.621E+00	3.487E-01	-0.481
		293.70		6.220E+00	1.603E+00	2.075E+00	3.351E-01	2.997
	+	369.80		-2.412E-01	1.050E+00	1.723E+00	3.585E-01	-0.140
		568.70		6.778E-01	1.309E+00	2.182E+00	1.185E-01	0.311
		569.50		1.441E-01	3.564E-01	5.893E-01	3.199E-02	0.245
		574.00		-3.416E-01	1.916E+00	2.995E+00	1.621E-01	-0.114
		699.00		-5.177E-02	8.962E-01	1.439E+00	2.565E-01	-0.036
		706.10		-6.925E-02	1.394E+00	2.238E+00	9.866E-01	-0.031
		733.00		4.978E-01	5.345E-01	8.148E-01	1.728E-01	0.611
		742.81		1.267E+00	1.806E+00	2.760E+00	1.847E+00	0.459
		796.30		9.585E-01	1.094E+00	1.913E+00	5.047E-01	0.501
		805.60		-2.572E-01	1.204E+00	1.975E+00	5.942E-01	-0.130
		819.60		-2.870E-01	1.537E+00	2.524E+00	9.490E-01	-0.114
		826.30		1.168E-01	1.009E+00	1.703E+00	7.558E-01	0.069
		831.60		-1.206E+00	8.238E-01	1.056E+00	3.095E-01	-1.143
		876.40		-3.909E-01	1.042E+00	1.539E+00	1.580E+00	-0.254
		880.51		2.480E-01	3.525E-01	6.227E-01	4.406E-02	0.398
		883.24		4.036E-01	4.478E-01	6.524E-01	4.374E-01	0.619
		899.00		-4.856E-01	1.075E+00	1.682E+00	7.311E-01	-0.289
		925.00		-1.590E-01	1.340E+00	2.200E+00	1.583E-01	-0.072
		926.50		3.437E-02	1.931E-01	3.265E-01	8.106E-02	0.105
		946.00	*	-1.063E-01	3.512E-01	5.644E-01	1.023E-01	-0.188
		949.00		2.161E-01	5.198E-01	8.971E-01	6.390E-02	0.241
		980.50		-8.788E-01	8.846E-01	1.311E+00	9.193E-02	-0.670
		1394.10		-1.135E+00	1.434E+00	1.651E+00	1.070E+00	-0.687
PA-234M		766.42		1.636E+01	1.771E+01	2.715E+01	1.367E+01	0.603
NP-236		1001.03	*	3.851E+00	5.642E+00	9.788E+00	8.365E-01	0.393
		94.67		5.396E-01	1.852E-01	2.948E-01	2.576E-02	1.830
		98.44		1.126E-01	9.256E-02	1.425E-01	1.172E-02	0.790
		111.00		-7.123E-03	1.758E-01	2.896E-01	2.010E-02	-0.025
		160.31	*	-7.106E-02	9.748E-02	1.538E-01	8.416E-03	-0.462

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.653E-01	1.988E-01	3.160E-01	2.557E-02	0.523
		117.00	*	-4.000E-02	2.419E-01	3.958E-01	2.557E-02	-0.101
	+	209.75		2.526E+00	1.587E+00	1.804E+00	1.027E-01	1.400
		228.18		2.521E-01	2.958E-01	4.937E-01	2.864E-02	0.511
		277.60		3.007E-01	2.449E-01	4.076E-01	2.431E-02	0.738
		334.30		-6.508E-01	1.925E+00	2.735E+00	1.613E-01	-0.238
AM-241		59.54	*	1.713E-01	2.317E-01	3.533E-01	3.454E-02	0.485
CM-243		99.55		1.701E-01	2.046E-01	3.252E-01	2.631E-02	0.523
		103.76	*	-1.258E-02	1.175E-01	1.933E-01	1.473E-02	-0.065
		117.00		-4.115E-02	2.489E-01	4.072E-01	2.631E-02	-0.101
	+	209.75		2.490E+00	1.564E+00	1.779E+00	1.013E-01	1.400
		228.18		2.548E-01	2.989E-01	4.989E-01	2.894E-02	0.511
		277.60		3.031E-01	2.469E-01	4.109E-01	2.451E-02	0.738
AM-246		798.80		-2.771E-01	1.746E-01	2.514E-01	1.568E-02	-1.102
		1036.00		-6.686E-02	3.520E-01	5.695E-01	3.857E-02	-0.117
		1062.04		8.467E-02	2.907E-01	4.924E-01	3.269E-02	0.172
		1078.86	*	1.811E-02	1.660E-01	2.766E-01	1.810E-02	0.065
CM-247		278.00		1.501E+00	9.790E-01	1.719E+00	1.026E-01	0.873
		287.40		1.317E+00	1.516E+00	2.656E+00	1.586E-01	0.496
		402.60	*	2.337E-02	4.615E-02	7.889E-02	4.396E-03	0.296
CF-249		252.85		-6.452E-01	1.128E+00	1.749E+00	1.033E-01	-0.369
		333.44		-1.123E-01	2.525E-01	3.557E-01	2.099E-02	-0.316
		387.95	*	-2.854E-03	5.124E-02	8.494E-02	4.738E-03	-0.034
CF-251		176.60	*	-8.041E-02	1.608E-01	2.556E-01	1.398E-02	-0.315
		227.00		4.395E-01	5.060E-01	8.451E-01	4.896E-02	0.520
		285.00		-1.196E+00	2.180E+00	3.574E+00	2.134E-01	-0.335

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229010      *
* Acquisition date   : 22-JAN-2010 14:11:52 Detector SN#                   *
* Detector ID        : GAM06                                           Sensitivity      : 5.000      *
* Geometry           : CAN                                           Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.30                               Half life ratio  : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229010 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.2252E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                           *
* CALIB. DATE/TIME   : 4-FEB-2009 13:05:54 MS Isotope                   :      *
* MSD DPM             : 0.000 MSD Isotope                               :      *
* LCS DPM             : 0.000 LCS Isotope                               :      *
* LCSD DPM           : 0.000 LCSD Isotope                              :      *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.179E+01	2.850E+00	5.942E-01	0.000E+00
CD-109	5.004E+00	1.345E+00	1.494E+00	0.000E+00
SN-126	4.912E-01	1.320E-01	1.474E-01	0.000E+00
BA-137M	7.471E-01	1.099E-01	7.363E-02	0.000E+00
CS-137	7.898E-01	1.162E-01	7.784E-02	0.000E+00
TL-208	6.137E-01	1.062E-01	6.792E-02	0.000E+00
BI-211	3.824E+00	5.266E-01	4.267E-01	0.000E+00
PB-212	1.614E+00	1.713E-01	1.229E-01	0.000E+00
PO-212	1.614E+00	1.713E-01	1.229E-01	0.000E+00
BI-214	1.162E+00	2.167E-01	1.441E-01	0.000E+00
PB-214	1.330E+00	1.954E-01	1.502E-01	0.000E+00
PO-214	1.330E+00	1.954E-01	1.502E-01	0.000E+00
PO-216	1.614E+00	1.713E-01	1.229E-01	0.000E+00
PO-218	1.330E+00	1.954E-01	1.502E-01	0.000E+00
RA-224	5.390E+00	1.724E+00	1.399E+00	0.000E+00
RA-226	1.162E+00	2.167E-01	1.441E-01	0.000E+00
AC-228	1.488E+00	4.329E-01	2.825E-01	0.000E+00
RA-228	1.488E+00	4.329E-01	2.825E-01	0.000E+00
TH-228	1.641E+00	1.741E-01	1.249E-01	0.000E+00
TH-230	1.162E+00	2.167E-01	1.441E-01	0.000E+00
TH-232	1.488E+00	4.329E-01	2.825E-01	0.000E+00
TH-234	5.902E+00	2.905E+00	3.082E+00	0.000E+00
U-234	1.162E+00	2.167E-01	1.441E-01	0.000E+00
U-235	3.686E-01	3.637E-01	4.277E-01	0.000E+00
NP-237	1.442E+00	4.852E-01	4.385E-01	0.000E+00
U-238	5.902E+00	2.905E+00	3.082E+00	0.000E+00
AM-243	4.290E-01	1.039E-01	1.140E-01	0.000E+00
ANH-511	1.281E-01	8.893E-02	5.577E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	-2.190E-01	4.333E-01	7.134E-01	0.000E+00	NOT IDENT.
NA-22	-1.440E-02	5.339E-02	8.619E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.995E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	3.241E-03	3.262E-02	5.597E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.240E-02	1.023E-01	0.000E+00	NOT IDENT.
SC-46	-1.875E-02	4.444E-02	7.274E-02	0.000E+00	FAIL ABUN
V-48	-1.665E-02	8.508E-02	1.415E-01	0.000E+00	NOT IDENT.
CR-51	9.500E-02	4.962E-01	8.642E-01	0.000E+00	NOT IDENT.
MN-52	1.802E-01	3.060E-01	5.481E-01	0.000E+00	NOT IDENT.
MN-54	3.422E-03	4.548E-02	7.851E-02	0.000E+00	NOT IDENT.
CO-56	1.641E-02	4.926E-02	8.672E-02	0.000E+00	NOT IDENT.
CO-57	-2.519E-02	3.103E-02	5.191E-02	0.000E+00	NOT IDENT.
CO-58	1.714E-02	4.674E-02	8.280E-02	0.000E+00	NOT IDENT.
FE-59	-6.697E-02	1.203E-01	1.918E-01	0.000E+00	FAIL ABUN
CO-60	-2.215E-02	4.429E-02	6.756E-02	0.000E+00	NOT IDENT.
ZN-65	-1.027E-01	1.389E-01	1.808E-01	0.000E+00	NOT IDENT.
GE-68	1.490E+00	1.457E+00	2.692E+00	0.000E+00	NOT IDENT.
AS-73	3.888E-01	1.211E+00	2.184E+00	0.000E+00	NOT IDENT.
AS-74	-2.614E-02	1.201E-01	1.982E-01	0.000E+00	NOT IDENT.
SE-75	3.852E-02	6.432E-02	9.733E-02	0.000E+00	NOT IDENT.
BR-77	4.817E+00	1.735E+01	2.995E+01	0.000E+00	FAIL ABUN
SR-82	-5.140E-01	4.428E-01	6.833E-01	0.000E+00	NOT IDENT.
RB-83	3.490E-02	8.777E-02	1.527E-01	0.000E+00	NOT IDENT.
RB-84	1.294E-01	8.570E-02	1.644E-01	0.000E+00	NOT IDENT.
KR-85	7.940E+00	9.997E+00	1.572E+01	0.000E+00	NOT IDENT.
SR-85	4.113E-02	5.179E-02	8.144E-02	0.000E+00	NOT IDENT.
RB-86	6.262E-01	9.697E-01	1.734E+00	0.000E+00	NOT IDENT.
Y-88	1.114E-02	3.839E-02	6.814E-02	0.000E+00	NOT IDENT.
ZR-88	-1.903E-02	3.813E-02	6.371E-02	0.000E+00	NOT IDENT.
Y-91	5.694E+00	2.649E+01	4.501E+01	0.000E+00	NOT IDENT.
NB-94	1.483E-02	4.337E-02	7.388E-02	0.000E+00	NOT IDENT.
NB-95	4.421E-02	5.737E-02	1.001E-01	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.995E-01	3.319E-01	0.000E+00	NOT IDENT.
ZR-95	9.754E-02	8.895E-02	1.603E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	4.141E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	6.726E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-7.826E+00	1.767E+01	2.792E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.587E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.571E-02	4.370E-02	7.023E-02	0.000E+00	NOT IDENT.
RH-102	2.931E-02	3.787E-02	6.756E-02	0.000E+00	NOT IDENT.
RU-103	-5.204E-02	5.299E-02	8.310E-02	0.000E+00	FAIL ABUN
RH-106	5.294E-02	3.669E-01	6.214E-01	0.000E+00	FAIL ABUN
RU-106	5.294E-02	3.668E-01	6.214E-01	0.000E+00	FAIL ABUN
AG-108M	-3.765E-02	4.181E-02	6.741E-02	0.000E+00	NOT IDENT.
AG-110M	3.636E-02	5.519E-02	8.475E-02	0.000E+00	NOT IDENT.
IN-111	9.080E-01	1.878E+00	2.831E+00	0.000E+00	NOT IDENT.
IN-113M	1.002E-03	5.507E-02	9.497E-02	0.000E+00	NOT IDENT.
SN-113	1.002E-03	5.507E-02	9.497E-02	0.000E+00	NOT IDENT.
IN-114M	1.629E-01	2.540E-01	3.903E-01	0.000E+00	NOT IDENT.
CD-115	-1.455E+00	1.828E+01	3.074E+01	0.000E+00	NOT IDENT.
SN-117M	-3.723E-02	6.859E-02	1.145E-01	0.000E+00	NOT IDENT.
SB-122	1.502E+00	3.374E+00	5.860E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.325E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-2.555E-02	3.360E-02	5.551E-02	0.000E+00	NOT IDENT.
I-124	7.355E-01	1.152E+00	1.776E+00	0.000E+00	NOT IDENT.
SB-124	-2.140E-02	6.488E-02	1.003E-01	0.000E+00	FAIL ABUN
SB-125	2.811E-02	1.107E-01	1.927E-01	0.000E+00	FAIL ABUN
TE-125M	4.769E-01	1.158E+01	2.016E+01	0.000E+00	NOT IDENT.
I-126	2.899E-01	2.690E-01	4.328E-01	0.000E+00	NOT IDENT.
SB-126	-2.205E-01	2.105E-01	2.564E-01	0.000E+00	NOT IDENT.
SB-127	-2.425E-01	1.863E+00	3.059E+00	0.000E+00	NOT IDENT.
XE-127	1.005E-02	6.503E-02	1.022E-01	0.000E+00	NOT IDENT.
I-131	-9.081E-02	1.568E-01	2.622E-01	0.000E+00	NOT IDENT.
TE-132	9.646E-01	1.098E+00	1.902E+00	0.000E+00	NOT IDENT.
BA-133	-8.812E-03	6.128E-02	9.123E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.644E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.349E-02	5.394E-02	1.011E-01	0.000E+00	NOT IDENT.
CS-135	1.769E-01	2.371E-01	3.605E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.609E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	4.007E-02	1.370E-01	2.376E-01	0.000E+00	FAIL ABUN
CE-139	-1.334E-02	3.703E-02	6.222E-02	0.000E+00	NOT IDENT.
BA-140	-9.351E-02	3.410E-01	5.623E-01	0.000E+00	NOT IDENT.
LA-140	-1.255E-01	1.181E-01	1.698E-01	0.000E+00	NOT IDENT.
CE-141	4.656E-02	8.728E-02	1.349E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.976E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	7.367E-02	2.871E-01	4.392E-01	0.000E+00	NOT IDENT.
PM-144	-4.516E-02	4.294E-02	6.471E-02	0.000E+00	NOT IDENT.

PR-144	-3.062E+00	2.911E+00	4.387E+00	0.000E+00	NOT IDENT.
PM-146	6.529E-02	5.728E-02	1.040E-01	0.000E+00	NOT IDENT.
ND-147	4.922E-02	7.421E-01	1.261E+00	0.000E+00	FAIL ABUN
PM-149	2.968E+01	1.509E+02	2.669E+02	0.000E+00	NOT IDENT.
EU-152	7.265E-02	1.380E-01	2.058E-01	0.000E+00	NOT IDENT.
GD-153	1.192E-01	1.044E-01	1.687E-01	0.000E+00	FAIL ABUN
EU-154	-4.309E-02	1.488E-01	2.396E-01	0.000E+00	NOT IDENT.
EU-155	5.596E-02	1.297E-01	2.292E-01	0.000E+00	FAIL ABUN
TB-160	5.570E-02	1.735E-01	3.048E-01	0.000E+00	FAIL ABUN
HO-166M	-6.451E-02	8.119E-02	1.257E-01	0.000E+00	FAIL ABUN
TM-171	6.289E+00	4.473E+01	6.550E+01	0.000E+00	NOT IDENT.
LU-176	-2.455E-02	3.109E-02	5.214E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.424E+00	2.864E+00	0.000E+00	FAIL ABUN
LU-177M	-1.452E-01	2.364E-01	3.918E-01	0.000E+00	FAIL ABUN
HF-181	2.750E-03	5.549E-02	9.472E-02	0.000E+00	NOT IDENT.
W-181	5.437E-02	5.613E-01	8.780E-01	0.000E+00	NOT IDENT.
TA-182	-1.455E-01	2.447E-01	3.857E-01	0.000E+00	FAIL ABUN
RE-183	-3.247E-02	1.332E-01	2.251E-01	0.000E+00	FAIL ABUN
RE-184	-1.726E-01	2.957E-01	4.781E-01	0.000E+00	NOT IDENT.
OS-185	2.088E-02	5.354E-02	9.217E-02	0.000E+00	NOT IDENT.
RE-188	2.109E-01	2.125E-01	3.769E-01	0.000E+00	NOT IDENT.
W-188	-2.233E+00	1.014E+01	1.524E+01	0.000E+00	FAIL ABUN
IR-192	8.216E-04	4.539E-02	7.921E-02	0.000E+00	FAIL ABUN
AU-195	3.833E-01	2.944E-01	4.791E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.032E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-4.449E+00	1.085E+01	1.818E+01	0.000E+00	NOT IDENT.
TL-202	2.819E-02	9.170E-02	1.599E-01	0.000E+00	NOT IDENT.
HG-203	7.172E-02	5.248E-02	9.529E-02	0.000E+00	FAIL ABUN
BI-207	2.286E-02	6.494E-02	1.131E-01	0.000E+00	FAIL ABUN
TL-207	-1.068E+00	8.952E-01	1.441E+00	0.000E+00	FAIL ABUN
PO-209	-8.878E-01	8.688E+00	1.469E+01	0.000E+00	NOT IDENT.
BI-210	2.817E+00	5.639E+00	1.011E+01	0.000E+00	NOT IDENT.
PB-210	2.817E+00	5.639E+00	1.011E+01	0.000E+00	NOT IDENT.
PO-210	2.817E+00	5.638E+00	1.011E+01	0.000E+00	NOT IDENT.
PB-211	-1.354E+00	1.472E+00	1.962E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.224E-01	7.364E-01	0.000E+00	FAIL ABUN
PO-215	-1.068E+00	8.952E-01	1.441E+00	0.000E+00	FAIL ABUN
RN-219	-2.289E-01	5.338E-01	8.945E-01	0.000E+00	FAIL ABUN
RN-220	-1.337E+01	3.264E+01	5.335E+01	0.000E+00	NOT IDENT.
RA-223	-1.068E+00	8.952E-01	1.441E+00	0.000E+00	FAIL ABUN
AC-227	1.328E-01	4.820E-01	8.147E-01	0.000E+00	NOT IDENT.
TH-227	1.328E-01	4.822E-01	8.147E-01	0.000E+00	FAIL ABUN
TH-229	2.870E-02	6.335E-01	1.074E+00	0.000E+00	FAIL ABUN
PA-231	-1.645E+00	1.878E+00	3.133E+00	0.000E+00	NOT IDENT.
TH-231	-1.068E+00	8.952E-01	1.441E+00	0.000E+00	FAIL ABUN
U-231	1.600E+00	1.682E+00	2.694E+00	0.000E+00	FAIL ABUN
PA-233	-7.374E-04	8.071E-02	1.408E-01	0.000E+00	FAIL ABUN
PA-234	-1.063E-01	3.442E-01	5.667E-01	0.000E+00	FAIL ABUN
PA-234M	3.851E+00	5.529E+00	9.820E+00	0.000E+00	NOT IDENT.
NP-236	-7.106E-02	9.553E-02	1.580E-01	0.000E+00	NOT IDENT.
NP-239	-4.000E-02	2.370E-01	4.082E-01	0.000E+00	FAIL ABUN
AM-241	1.713E-01	2.270E-01	3.674E-01	0.000E+00	NOT IDENT.
CM-243	-1.258E-02	1.151E-01	1.997E-01	0.000E+00	FAIL ABUN
AM-246	1.811E-02	1.627E-01	2.772E-01	0.000E+00	NOT IDENT.
CM-247	2.337E-02	4.522E-02	8.009E-02	0.000E+00	NOT IDENT.
CF-249	-2.854E-03	5.022E-02	8.628E-02	0.000E+00	NOT IDENT.
CF-251	-8.041E-02	1.576E-01	2.622E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229010.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:11:52
Sample ID          : G244229010          Sample quantity   : 1.22520E+02 GRAM
Detector name      : GAM06              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.30  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941239              Detector SN#       :
Matrix Spike ID    :                     LCS ID            : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1065	10.67*	9.625E-01	3.179E+01	3.179E+01	9.15
CD-109	88.03	305	3.72*	5.143E+00	4.885E+00	5.004E+00	27.43
SN-126	64.28	-----	9.60	2.881E+00	-----	Line Not Found	-----
	86.94	305	8.90	5.143E+00	2.042E+00	2.042E+00	48.87
	87.57	305	37.00*	5.143E+00	4.912E-01	4.912E-01	27.43
BA-137M	661.65	425	89.98*	1.939E+00	7.464E-01	7.471E-01	15.00
CS-137	661.65	425	85.12*	1.939E+00	7.890E-01	7.898E-01	15.01
TL-208	277.35	-----	6.80	3.899E+00	-----	Line Not Found	-----
	510.84	101	21.60	2.408E+00	5.929E-01	5.929E-01	71.34
	583.14	364	84.20*	2.158E+00	6.137E-01	6.137E-01	17.67
	860.37	54	12.46	1.537E+00	8.597E-01	8.597E-01	85.09
BI-211	72.87	-----	1.27	3.913E+00	-----	Line Not Found	-----
	351.07	524	12.94*	3.242E+00	3.824E+00	3.824E+00	14.05
PB-212	74.81	381	10.70	4.126E+00	2.646E+00	2.646E+00	26.42
	77.11	675	18.00	4.326E+00	2.655E+00	2.655E+00	16.20
	87.30	305	8.00	5.143E+00	2.272E+00	2.272E+00	29.20
	238.63	1026	44.60*	4.367E+00	1.614E+00	1.614E+00	10.83
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
PO-212	74.81	381	10.70	4.126E+00	2.646E+00	2.646E+00	26.42
	77.11	675	18.00	4.326E+00	2.655E+00	2.655E+00	16.20
	87.30	305	8.00	5.143E+00	2.272E+00	2.272E+00	29.20
	115.19	-----	0.60	6.030E+00	-----	Line Not Found	-----
	238.63	1026	44.60*	4.367E+00	1.614E+00	1.614E+00	10.83
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
BI-214	609.31	365	46.30*	2.080E+00	1.162E+00	1.162E+00	19.04
	1120.29	90	15.10	1.211E+00	1.511E+00	1.511E+00	47.07
	1764.49	44	15.80	8.403E-01	1.027E+00	1.027E+00	39.50
PB-214	74.81	381	6.21	4.126E+00	4.559E+00	4.559E+00	25.79
	77.11	675	10.50	4.326E+00	4.551E+00	4.552E+00	17.90
	87.30	305	4.67	5.143E+00	3.892E+00	3.892E+00	28.49
	241.98	301	7.49	4.329E+00	2.843E+00	2.843E+00	33.12
	295.21	302	19.20	3.719E+00	1.296E+00	1.296E+00	21.86



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	524	37.20*	3.242E+00	1.330E+00	1.330E+00	14.99
	74.81	381	6.21	4.126E+00	4.559E+00	4.559E+00	25.79
	77.11	675	10.50	4.326E+00	4.551E+00	4.552E+00	17.90
	87.30	305	4.67	5.143E+00	3.892E+00	3.892E+00	28.49
	241.98	301	7.49	4.329E+00	2.843E+00	2.843E+00	33.12
PO-216	295.21	302	19.20	3.719E+00	1.296E+00	1.296E+00	21.86
	351.92	524	37.20*	3.242E+00	1.330E+00	1.330E+00	14.99
	74.81	381	10.70	4.126E+00	2.646E+00	2.646E+00	26.42
	77.11	675	18.00	4.326E+00	2.655E+00	2.655E+00	16.20
	87.30	305	8.00	5.143E+00	2.272E+00	2.272E+00	29.20
PO-218	238.63	1026	44.60*	4.367E+00	1.614E+00	1.614E+00	10.83
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
	74.81	381	6.21	4.126E+00	4.559E+00	4.559E+00	25.79
	77.11	675	10.50	4.326E+00	4.551E+00	4.552E+00	17.90
	87.30	305	4.67	5.143E+00	3.892E+00	3.892E+00	28.49
RA-224	241.98	301	7.49	4.329E+00	2.843E+00	2.843E+00	33.12
	295.21	302	19.20	3.719E+00	1.296E+00	1.296E+00	21.86
	351.92	524	37.20*	3.242E+00	1.330E+00	1.330E+00	14.99
	240.98	301	3.95*	4.329E+00	5.390E+00	5.390E+00	32.64
	609.31	365	46.30*	2.080E+00	1.162E+00	1.162E+00	19.04
AC-228	1120.29	90	15.10	1.211E+00	1.511E+00	1.511E+00	47.07
	1764.49	44	15.80	8.403E-01	1.027E+00	1.027E+00	39.50
	338.32	201	11.40	3.345E+00	1.617E+00	1.617E+00	56.92
	911.07	197	27.70*	1.461E+00	1.488E+00	1.488E+00	29.68
	969.11	175	16.60	1.383E+00	2.330E+00	2.330E+00	34.86
RA-228	338.32	201	11.40	3.345E+00	1.617E+00	1.617E+00	56.92
	911.07	197	27.70*	1.461E+00	1.488E+00	1.488E+00	29.68
	969.11	175	16.60	1.383E+00	2.330E+00	2.330E+00	34.86
	74.81	381	10.70	4.126E+00	2.646E+00	2.689E+00	24.73
	77.11	675	18.00	4.326E+00	2.655E+00	2.698E+00	16.20
TH-228	87.30	305	8.00	5.143E+00	2.272E+00	2.308E+00	27.43
	238.63	1026	44.60*	4.367E+00	1.614E+00	1.641E+00	10.83
	300.09	-----	3.41	3.669E+00	-----	Line Not Found	-----
	609.31	365	46.30*	2.080E+00	1.162E+00	1.162E+00	19.04
	1120.29	90	15.10	1.211E+00	1.511E+00	1.511E+00	47.07
TH-230	1764.49	44	15.80	8.403E-01	1.027E+00	1.027E+00	39.50
	338.32	201	11.40	3.345E+00	1.617E+00	1.617E+00	40.15
	911.07	197	27.70*	1.461E+00	1.488E+00	1.488E+00	29.68
	969.11	175	16.60	1.383E+00	2.330E+00	2.330E+00	34.86
	63.29	195	3.80*	2.668E+00	5.902E+00	5.902E+00	50.21
TH-234	92.38	466	5.41	5.465E+00	4.829E+00	4.829E+00	26.68
	609.31	365	46.30*	2.080E+00	1.162E+00	1.162E+00	19.04
	1120.29	90	15.10	1.211E+00	1.511E+00	1.511E+00	47.07
	1764.49	44	15.80	8.403E-01	1.027E+00	1.027E+00	39.50
	89.95	216	2.70	5.310E+00	4.618E+00	4.618E+00	47.63
U-235	93.35	466	4.50	5.465E+00	5.806E+00	5.806E+00	34.21
	105.00	-----	2.10	5.892E+00	-----	Line Not Found	-----
	143.76	74	10.50*	5.868E+00	3.686E-01	3.686E-01	100.67
	163.35	-----	4.70	5.561E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	185.71	189	54.00	5.179E+00	2.067E-01	2.067E-01	46.30
	205.31	-----	4.70	4.853E+00	-----	Line Not Found	-----
NP-237	86.50	305	12.60*	5.143E+00	1.442E+00	1.442E+00	34.33
	95.87	-----	2.60	5.611E+00	-----	Line Not Found	-----
U-238	63.29	195	3.80*	2.668E+00	5.902E+00	5.902E+00	50.21
	92.38	466	5.41	5.465E+00	4.829E+00	4.829E+00	21.43
AM-243	74.67	381	66.00*	4.126E+00	4.290E-01	4.290E-01	24.71
	86.72	305	0.34	5.143E+00	5.409E+01	5.409E+01	27.43
	117.66	-----	0.55	6.042E+00	-----	Line Not Found	-----
	142.18	74	0.13	5.868E+00	3.097E+01	3.097E+01	99.51
ANH-511	511.00	101	100.00*	2.408E+00	1.281E-01	1.281E-01	70.85

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 29 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.179E+01	3.179E+01	0.291E+01	9.15	
CD-109	464.00D	1.02	4.885E+00	5.004E+00	1.373E+00	27.43	
SN-126	1.00E+05Y	1.00	4.912E-01	4.912E-01	1.347E-01	27.43	
BA-137M	30.17Y	1.00	7.464E-01	7.471E-01	1.121E-01	15.00	
CS-137	30.17Y	1.00	7.890E-01	7.898E-01	1.186E-01	15.01	
TL-208	1.41E+10Y	1.00	6.137E-01	6.137E-01	1.084E-01	17.67	
BI-211	7.04E+08Y	1.00	3.824E+00	3.824E+00	0.537E+00	14.05	
PB-212	1.41E+10Y	1.00	1.614E+00	1.614E+00	0.175E+00	10.83	
PO-212	1.41E+10Y	1.00	1.614E+00	1.614E+00	0.175E+00	10.83	
BI-214	1600.00Y	1.00	1.162E+00	1.162E+00	0.221E+00	19.04	
PB-214	1600.00Y	1.00	1.330E+00	1.330E+00	0.199E+00	14.99	
PO-214	1600.00Y	1.00	1.330E+00	1.330E+00	0.199E+00	14.99	
PO-216	1.41E+10Y	1.00	1.614E+00	1.614E+00	0.175E+00	10.83	
PO-218	1600.00Y	1.00	1.330E+00	1.330E+00	0.199E+00	14.99	
RA-224	1.41E+10Y	1.00	5.390E+00	5.390E+00	1.759E+00	32.64	
RA-226	1600.00Y	1.00	1.162E+00	1.162E+00	0.221E+00	19.04	
AC-228	1.41E+10Y	1.00	1.488E+00	1.488E+00	0.442E+00	29.68	
RA-228	1.41E+10Y	1.00	1.488E+00	1.488E+00	0.442E+00	29.68	
TH-228	1.91Y	1.02	1.614E+00	1.641E+00	0.178E+00	10.83	
TH-230	4.47E+09Y	1.00	1.162E+00	1.162E+00	0.221E+00	19.04	
TH-232	1.41E+10Y	1.00	1.488E+00	1.488E+00	0.442E+00	29.68	
TH-234	4.47E+09Y	1.00	5.902E+00	5.902E+00	2.964E+00	50.21	
U-234	4.47E+09Y	1.00	1.162E+00	1.162E+00	0.221E+00	19.04	
U-235	7.04E+08Y	1.00	3.686E-01	3.686E-01	3.711E-01	100.67	
NP-237	2.14E+06Y	1.00	1.442E+00	1.442E+00	0.495E+00	34.33	
U-238	4.47E+09Y	1.00	5.902E+00	5.902E+00	2.964E+00	50.21	
AM-243	7380.00Y	1.00	4.290E-01	4.290E-01	1.060E-01	24.71	
ANH-511	1.00E+09Y	1.00	1.281E-01	1.281E-01	0.907E-01	70.85	

Total Activity : 8.226E+01 8.241E+01

Grand Total Activity : 8.226E+01 8.241E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229010

Page : 5  
Acquisition date : 22-JAN-2010 14:11:52

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	83.80	208	325	1.70	167.60	164	29	2.89E-02	33.1	4.92E+00	T
0	128.79	36	451	1.15	257.58	253	10	4.96E-03	****	6.02E+00	T
0	208.97	128	370	0.70	417.94	413	12	1.78E-02	62.6	4.80E+00	T
0	270.06	90	193	1.60	540.12	536	10	1.25E-02	61.3	3.98E+00	T
0	462.77	55	132	0.89	925.55	920	11	7.64E-03	85.3	2.61E+00	T
0	726.87	70	81	1.71	1453.75	1447	16	9.67E-03	62.3	1.79E+00	T

Flags: "T" = Tentatively associated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229010.CNF;1
* Acquisition date   : 22-JAN-2010 14:11:52   Detector SN#      :
* Detector ID        : GAM06                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit      : 75.00000
* Elapsed real time  : 0 02:00:01.30          Half life ratio     : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library   : SOLID
* Sample ID          : G244229010             Analyst initials  : MXR1
* Batch Number       : 941239                 Sample Quantity   : 1.22520E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 4-FEB-2009 13:05:54.47MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                   LCS Isotope       :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.179E+01	2.908E+00	5.952E-01	3.937E-02	53.407
CD-109	5.004E+00	1.373E+00	1.444E+00	1.425E-01	3.467
SN-126	4.912E-01	1.347E-01	1.424E-01	1.402E-02	3.448
BA-137M	7.471E-01	1.121E-01	7.299E-02	3.605E-03	10.236
CS-137	7.898E-01	1.186E-01	7.716E-02	3.833E-03	10.236
TL-208	6.137E-01	1.084E-01	6.722E-02	4.248E-03	9.130
BI-211	3.824E+00	5.373E-01	4.195E-01	2.708E-02	9.114
PB-212	1.614E+00	1.748E-01	1.203E-01	8.866E-03	13.423
PO-212	1.614E+00	1.748E-01	1.203E-01	8.866E-03	13.423
BI-214	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
PB-214	1.330E+00	1.994E-01	1.477E-01	1.226E-02	9.004
PO-214	1.330E+00	1.994E-01	1.477E-01	1.226E-02	9.004
PO-216	1.614E+00	1.748E-01	1.203E-01	8.866E-03	13.423
PO-218	1.330E+00	1.994E-01	1.477E-01	1.226E-02	9.004
RA-224	5.390E+00	1.759E+00	1.369E+00	8.023E-02	3.938
RA-226	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
AC-228	1.488E+00	4.418E-01	2.812E-01	2.873E-02	5.294
RA-228	1.488E+00	4.418E-01	2.812E-01	2.873E-02	5.294

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.641E+00	1.777E-01	1.222E-01	9.009E-03	13.423
TH-230	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
TH-232	1.488E+00	4.418E-01	2.812E-01	2.873E-02	5.294
TH-234	5.902E+00	2.964E+00	2.966E+00	5.392E-01	1.990
U-234	1.162E+00	2.212E-01	1.427E-01	1.053E-02	8.142
U-235	3.686E-01	3.711E-01	4.158E-01	6.763E-02	0.887
NP-237	1.442E+00	4.951E-01	4.237E-01	9.669E-02	3.404
U-238	5.902E+00	2.964E+00	2.966E+00	5.392E-01	1.990
AM-243	4.290E-01	1.060E-01	1.099E-01	9.925E-03	3.903
ANH-511	1.281E-01	9.075E-02	5.510E-02	3.081E-03	2.324

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.190E-01		4.422E-01	7.042E-01	4.652E-02	-0.311
NA-22	-1.440E-02		5.448E-02	8.617E-02	5.321E-03	-0.167
NA-24	-7.388E-01		1.018E+00	Half-Life too short		
AL-26	3.241E-03		3.329E-02	5.622E-02	3.229E-03	0.058
TI-44	3.325E-01		6.367E-02	9.871E-02	9.073E-03	3.368
SC-46	-1.875E-02		4.534E-02	7.239E-02	5.188E-03	-0.259
V-48	-1.665E-02		8.681E-02	1.410E-01	9.870E-03	-0.118
CR-51	9.500E-02		5.063E-01	8.487E-01	5.592E-02	0.112
MN-52	1.802E-01		3.123E-01	5.488E-01	3.454E-02	0.328
MN-54	3.422E-03		4.641E-02	7.807E-02	5.152E-03	0.044
CO-56	1.641E-02		5.027E-02	8.625E-02	5.798E-03	0.190
CO-57	-2.519E-02		3.166E-02	5.037E-02	3.077E-03	-0.500
CO-58	1.714E-02		4.769E-02	8.230E-02	5.255E-03	0.208
FE-59	-6.697E-02		1.228E-01	1.914E-01	1.404E-02	-0.350
CO-60	-2.215E-02		4.520E-02	6.759E-02	4.246E-03	-0.328
ZN-65	-1.027E-01		1.417E-01	1.805E-01	1.143E-02	-0.569
GE-68	1.490E+00		1.487E+00	2.686E+00	1.760E-01	0.555
AS-73	3.888E-01		1.235E+00	2.097E+00	1.918E-01	0.185
AS-74	-2.614E-02		1.225E-01	1.962E-01	1.043E-02	-0.133
SE-75	3.852E-02		6.564E-02	9.536E-02	5.720E-03	0.404
BR-77	4.817E+00		1.771E+01	2.960E+01	1.649E+00	0.163
SR-82	-5.140E-01		4.518E-01	6.788E-01	4.083E-02	-0.757
RB-83	3.490E-02		8.956E-02	1.509E-01	8.408E-03	0.231
RB-84	1.294E-01		8.745E-02	1.636E-01	1.159E-02	0.791
KR-85	7.940E+00		1.020E+01	1.553E+01	8.676E-01	0.511
SR-85	4.113E-02		5.284E-02	8.047E-02	4.494E-03	0.511
RB-86	6.262E-01		9.895E-01	1.730E+00	1.135E-01	0.362
Y-88	1.114E-02		3.918E-02	6.846E-02	3.891E-03	0.163
ZR-88	-1.903E-02		3.891E-02	6.273E-02	3.481E-03	-0.303
Y-91	5.694E+00		2.703E+01	4.497E+01	2.697E+00	0.127
NB-94	1.483E-02		4.425E-02	7.329E-02	3.893E-03	0.202
NB-95	4.421E-02		5.854E-02	9.942E-02	5.877E-03	0.445
NB-95M	6.235E-01		2.035E-01	3.247E-01	2.454E-02	1.920

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	9.754E-02		9.076E-02	1.592E-01	1.122E-02	0.613
NB-97	4.841E-01		2.113E-01	Half-Life too short		
ZR-97	1.877E+01		3.432E+00	Half-Life too short		
MO-99	-7.826E+00		1.803E+01	2.771E+01	3.803E+00	-0.282
TC-99M	3.383E+11		3.871E+11	Half-Life too short		
RH-101	-1.571E-02		4.459E-02	6.855E-02	3.851E-03	-0.229
RH-102	2.931E-02		3.864E-02	6.669E-02	3.755E-03	0.439
RU-103	-5.204E-02		5.408E-02	8.207E-02	1.031E-02	-0.634
RH-106	5.294E-02		3.744E-01	6.155E-01	7.045E-02	0.086
RU-106	5.294E-02		3.743E-01	6.155E-01	3.192E-02	0.086
AG-108M	-3.765E-02		4.266E-02	6.646E-02	4.076E-03	-0.566
AG-110M	3.636E-02		5.631E-02	8.401E-02	4.535E-03	0.433
IN-111	9.080E-01		1.917E+00	2.770E+00	1.629E-01	0.328
IN-113M	1.002E-03		5.619E-02	9.351E-02	5.565E-03	0.011
SN-113	1.002E-03		5.619E-02	9.351E-02	5.565E-03	0.011
IN-114M	1.629E-01		2.592E-01	3.808E-01	2.119E-02	0.428
CD-115	-1.455E+00		1.865E+01	3.038E+01	1.688E+00	-0.048
SN-117M	-3.723E-02		6.999E-02	1.115E-01	6.123E-03	-0.334
SB-122	1.502E+00		3.442E+00	5.797E+00	3.159E-01	0.259
I-123	-1.768E+01		1.186E+01	Half-Life too short		
TE-123M	-2.555E-02		3.428E-02	5.403E-02	3.009E-03	-0.473
I-124	7.355E-01		1.176E+00	1.758E+00	9.291E-02	0.418
SB-124	-2.140E-02		6.620E-02	1.006E-01	6.534E-03	-0.213
SB-125	2.811E-02		1.129E-01	1.900E-01	1.115E-02	0.148
TE-125M	4.769E-01		1.182E+01	1.953E+01	1.776E+00	0.024
I-126	2.899E-01		2.745E-01	4.290E-01	2.137E-02	0.676
SB-126	-2.205E-01		2.148E-01	2.544E-01	1.394E-02	-0.867
SB-127	-2.425E-01		1.901E+00	3.034E+00	2.853E-01	-0.080
XE-127	1.005E-02		6.636E-02	9.983E-02	5.640E-03	0.101
I-131	-9.081E-02		1.600E-01	2.580E-01	1.661E-02	-0.352
TE-132	9.646E-01		1.121E+00	1.859E+00	2.708E-01	0.519
BA-133	-8.812E-03		6.253E-02	8.972E-02	1.037E-02	-0.098
I-133	-6.996E-04		8.388E-03	Half-Life too short		
CS-134	6.349E-02		5.504E-02	1.004E-01	6.320E-03	0.632
CS-135	1.769E-01		2.419E-01	3.532E-01	2.745E-02	0.501
I-135	5.275E+10		3.882E+10	Half-Life too short		
CS-136	4.007E-02		1.398E-01	2.370E-01	1.701E-02	0.169
CE-139	-1.334E-02		3.779E-02	6.060E-02	3.277E-03	-0.220
BA-140	-9.351E-02		3.480E-01	5.559E-01	1.805E-01	-0.168
LA-140	-1.255E-01		1.205E-01	1.702E-01	1.050E-02	-0.737
CE-141	4.656E-02		8.906E-02	1.312E-01	7.742E-03	0.355
CE-143	1.630E-03		2.539E-04	Half-Life too short		
CE-144	7.367E-02		2.930E-01	4.266E-01	6.067E-02	0.173
PM-144	-4.516E-02		4.381E-02	6.419E-02	3.376E-03	-0.704
PR-144	-3.062E+00		2.971E+00	4.352E+00	2.287E-01	-0.704
PM-146	6.529E-02		5.845E-02	1.026E-01	8.732E-03	0.636
ND-147	4.922E-02		7.573E-01	1.246E+00	1.672E-01	0.039
PM-149	2.968E+01		1.540E+02	2.617E+02	3.729E+01	0.113

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	7.265E-02		1.408E-01	2.023E-01	1.333E-02	0.359
GD-153	1.192E-01		1.065E-01	1.632E-01	1.364E-02	0.731
EU-154	-4.309E-02		1.518E-01	2.395E-01	2.293E-02	-0.180
EU-155	5.596E-02		1.324E-01	2.220E-01	1.684E-02	0.252
TB-160	5.570E-02		1.771E-01	3.032E-01	2.142E-02	0.184
HO-166M	-6.451E-02		8.285E-02	1.247E-01	6.728E-03	-0.517
TM-171	6.289E+00		4.564E+01	6.308E+01	5.635E+00	0.100
LU-176	-2.455E-02		3.173E-02	5.118E-02	3.053E-03	-0.480
LU-177	3.939E+00	+	2.474E+00	2.797E+00	1.590E-01	1.408
LU-177M	-1.452E-01		2.413E-01	3.860E-01	2.159E-02	-0.376
HF-181	2.750E-03		5.663E-02	9.351E-02	5.262E-03	0.029
W-181	5.437E-02		5.728E-01	8.453E-01	7.572E-02	0.064
TA-182	-1.455E-01		2.497E-01	3.854E-01	2.327E-02	-0.377
RE-183	-3.247E-02		1.359E-01	2.192E-01	1.194E-02	-0.148
RE-184	-1.726E-01		3.017E-01	4.681E-01	2.765E-02	-0.369
OS-185	2.088E-02		5.463E-02	9.134E-02	4.605E-03	0.229
RE-188	2.109E-01		2.168E-01	3.668E-01	2.031E-02	0.575
W-188	-2.233E+00		1.035E+01	1.495E+01	8.930E-01	-0.149
IR-192	8.216E-04		4.632E-02	7.778E-02	4.649E-03	0.011
AU-195	3.833E-01		3.004E-01	4.636E-01	3.790E-02	0.827
TL-200	3.699E-04		5.263E-04	Half-Life too short		
TL-201	-4.449E+00		1.107E+01	1.771E+01	9.585E-01	-0.251
TL-202	2.819E-02		9.357E-02	1.576E-01	8.869E-03	0.179
HG-203	7.172E-02		5.356E-02	9.342E-02	5.900E-03	0.768
BI-207	2.286E-02		6.627E-02	1.128E-01	7.478E-03	0.203
TL-207	-1.068E+00		9.135E-01	1.415E+00	2.344E-01	-0.755
PO-209	-8.878E-01		8.865E+00	1.462E+01	1.060E+00	-0.061
BI-210	2.817E+00		5.754E+00	9.689E+00	7.978E-01	0.291
PB-210	2.817E+00		5.754E+00	9.689E+00	7.978E-01	0.291
PO-210	2.817E+00		5.753E+00	9.689E+00	6.999E-01	0.291
PB-211	-1.354E+00		1.502E+00	1.932E+00	1.204E+00	-0.701
BI-212	1.012E+00	+	6.351E-01	7.308E-01	5.496E-02	1.384
PO-215	-1.068E+00		9.135E-01	1.415E+00	2.344E-01	-0.755
RN-219	-2.289E-01		5.447E-01	8.810E-01	1.190E-01	-0.260
RN-220	-1.337E+01		3.330E+01	5.276E+01	2.900E+00	-0.253
RA-223	-1.068E+00		9.135E-01	1.415E+00	2.344E-01	-0.755
AC-227	1.328E-01		4.918E-01	7.978E-01	1.118E-01	0.166
TH-227	1.328E-01		4.920E-01	7.978E-01	1.352E-01	0.166
TH-229	2.870E-02		6.465E-01	1.048E+00	5.858E-02	0.027
PA-231	-1.645E+00		1.916E+00	3.072E+00	4.256E-01	-0.536
TH-231	-1.068E+00		9.135E-01	1.415E+00	2.344E-01	-0.755
U-231	1.600E+00		1.717E+00	2.606E+00	2.233E-01	0.614
PA-233	-7.374E-04		8.236E-02	1.382E-01	8.717E-03	-0.005
PA-234	-1.063E-01		3.512E-01	5.644E-01	1.023E-01	-0.188
PA-234M	3.851E+00		5.642E+00	9.788E+00	8.365E-01	0.393
NP-236	-7.106E-02		9.748E-02	1.538E-01	8.416E-03	-0.462
NP-239	-4.000E-02		2.419E-01	3.958E-01	2.557E-02	-0.101
AM-241	1.713E-01		2.317E-01	3.533E-01	3.454E-02	0.485



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.258E-02		1.175E-01	1.933E-01	1.473E-02	-0.065
AM-246	1.811E-02		1.660E-01	2.766E-01	1.810E-02	0.065
CM-247	2.337E-02		4.615E-02	7.889E-02	4.396E-03	0.296
CF-249	-2.854E-03		5.124E-02	8.494E-02	4.738E-03	-0.034
CF-251	-8.041E-02		1.608E-01	2.556E-01	1.398E-02	-0.315

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229010          *
* Acquisition date   : 22-JAN-2010 14:11:52 Detector SN# :                  *
* Detector ID        : GAM06 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                       *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.30 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229010 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.2252E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 4-FEB-2009 13:05:54 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                            *
* LCS DPM             : 0.000 LCS Isotope :                            *
* LCSD DPM            : 0.000 LCSD Isotope :                            *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.179E+01	2.850E+00	2.973E-01	1.454E+00
CD-109	5.004E+00	1.345E+00	7.474E-01	6.864E-01
SN-126	4.912E-01	1.320E-01	7.375E-02	6.737E-02
BA-137M	7.471E-01	1.099E-01	3.684E-02	5.605E-02
CS-137	7.898E-01	1.162E-01	3.894E-02	5.929E-02
TL-208	6.137E-01	1.062E-01	3.398E-02	5.421E-02
BI-211	3.824E+00	5.266E-01	2.135E-01	2.687E-01
PB-212	1.614E+00	1.713E-01	6.150E-02	8.741E-02
PO-212	1.614E+00	1.713E-01	6.150E-02	8.741E-02
BI-214	1.162E+00	2.167E-01	7.208E-02	1.106E-01
PB-214	1.330E+00	1.954E-01	7.517E-02	9.969E-02
PO-214	1.330E+00	1.954E-01	7.517E-02	9.969E-02
PO-216	1.614E+00	1.713E-01	6.150E-02	8.741E-02
PO-218	1.330E+00	1.954E-01	7.517E-02	9.969E-02
RA-224	5.390E+00	1.724E+00	6.999E-01	8.796E-01
RA-226	1.162E+00	2.167E-01	7.208E-02	1.106E-01
AC-228	1.488E+00	4.329E-01	1.413E-01	2.209E-01
RA-228	1.488E+00	4.329E-01	1.413E-01	2.209E-01
TH-228	1.641E+00	1.741E-01	6.249E-02	8.883E-02
TH-230	1.162E+00	2.167E-01	7.208E-02	1.106E-01
TH-232	1.488E+00	4.329E-01	1.413E-01	2.209E-01
TH-234	5.902E+00	2.905E+00	1.542E+00	1.482E+00
U-234	1.162E+00	2.167E-01	7.208E-02	1.106E-01
U-235	3.686E-01	3.637E-01	2.140E-01	1.856E-01
NP-237	1.442E+00	4.852E-01	2.194E-01	2.476E-01
U-238	5.902E+00	2.905E+00	1.542E+00	1.482E+00
AM-243	4.290E-01	1.039E-01	5.701E-02	5.299E-02
ANH-511	1.281E-01	8.893E-02	2.790E-02	4.537E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-2.190E-01	4.333E-01	3.569E-01	2.211E-01	NOT IDENT.
NA-22	-1.440E-02	5.339E-02	4.312E-02	2.724E-02	NOT IDENT.
NA-24	-7.388E+05	1.995E+06	0.000E+00	1.018E+06	SHORT HLIF
AL-26	3.241E-03	3.262E-02	2.800E-02	1.664E-02	NOT IDENT.
TI-44	3.325E-01	6.240E-02	5.118E-02	3.184E-02	NOT IDENT.
SC-46	-1.875E-02	4.444E-02	3.639E-02	2.267E-02	FAIL ABUN
V-48	-1.665E-02	8.508E-02	7.077E-02	4.341E-02	NOT IDENT.
CR-51	9.500E-02	4.962E-01	4.324E-01	2.531E-01	NOT IDENT.
MN-52	1.802E-01	3.060E-01	2.742E-01	1.561E-01	NOT IDENT.
MN-54	3.422E-03	4.548E-02	3.928E-02	2.321E-02	NOT IDENT.
CO-56	1.641E-02	4.926E-02	4.339E-02	2.513E-02	NOT IDENT.
CO-57	-2.519E-02	3.103E-02	2.597E-02	1.583E-02	NOT IDENT.
CO-58	1.714E-02	4.674E-02	4.143E-02	2.385E-02	NOT IDENT.
FE-59	-6.697E-02	1.203E-01	9.596E-02	6.138E-02	FAIL ABUN
CO-60	-2.215E-02	4.429E-02	3.380E-02	2.260E-02	NOT IDENT.
ZN-65	-1.027E-01	1.389E-01	9.047E-02	7.084E-02	NOT IDENT.
GE-68	1.490E+00	1.457E+00	1.347E+00	7.436E-01	NOT IDENT.
AS-73	3.888E-01	1.211E+00	1.092E+00	6.177E-01	NOT IDENT.
AS-74	-2.614E-02	1.201E-01	9.913E-02	6.126E-02	NOT IDENT.
SE-75	3.852E-02	6.432E-02	4.869E-02	3.282E-02	NOT IDENT.
BR-77	4.817E+00	1.735E+01	1.498E+01	8.853E+00	FAIL ABUN
SR-82	-5.140E-01	4.428E-01	3.419E-01	2.259E-01	NOT IDENT.
RB-83	3.490E-02	8.777E-02	7.639E-02	4.478E-02	NOT IDENT.
RB-84	1.294E-01	8.570E-02	8.225E-02	4.372E-02	NOT IDENT.
KR-85	7.940E+00	9.997E+00	7.866E+00	5.101E+00	NOT IDENT.
SR-85	4.113E-02	5.179E-02	4.074E-02	2.642E-02	NOT IDENT.
RB-86	6.262E-01	9.697E-01	8.676E-01	4.947E-01	NOT IDENT.
Y-88	1.114E-02	3.839E-02	3.409E-02	1.959E-02	NOT IDENT.
ZR-88	-1.903E-02	3.813E-02	3.188E-02	1.946E-02	NOT IDENT.
Y-91	5.694E+00	2.649E+01	2.252E+01	1.352E+01	NOT IDENT.
NB-94	1.483E-02	4.337E-02	3.696E-02	2.213E-02	NOT IDENT.
NB-95	4.421E-02	5.737E-02	5.008E-02	2.927E-02	NOT IDENT.
NB-95M	6.235E-01	1.995E-01	1.661E-01	1.018E-01	NOT IDENT.
ZR-95	9.754E-02	8.895E-02	8.021E-02	4.538E-02	NOT IDENT.
NB-97	4.841E+05	4.141E+05	0.000E+00	2.113E+05	SHORT HLIF
ZR-97	1.877E+07	6.726E+06	0.000E+00	3.432E+06	SHORT HLIF
MO-99	-7.826E+00	1.767E+01	1.397E+01	9.015E+00	NOT IDENT.
TC-99M	3.383E+17	7.587E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.571E-02	4.370E-02	3.514E-02	2.230E-02	NOT IDENT.
RH-102	2.931E-02	3.787E-02	3.380E-02	1.932E-02	NOT IDENT.
RU-103	-5.204E-02	5.299E-02	4.158E-02	2.704E-02	FAIL ABUN
RH-106	5.294E-02	3.669E-01	3.109E-01	1.872E-01	FAIL ABUN
RU-106	5.294E-02	3.668E-01	3.109E-01	1.872E-01	FAIL ABUN
AG-108M	-3.765E-02	4.181E-02	3.372E-02	2.133E-02	NOT IDENT.
AG-110M	3.636E-02	5.519E-02	4.240E-02	2.816E-02	NOT IDENT.
IN-111	9.080E-01	1.878E+00	1.416E+00	9.583E-01	NOT IDENT.
IN-113M	1.002E-03	5.507E-02	4.751E-02	2.810E-02	NOT IDENT.
SN-113	1.002E-03	5.507E-02	4.751E-02	2.810E-02	NOT IDENT.
IN-114M	1.629E-01	2.540E-01	1.953E-01	1.296E-01	NOT IDENT.
CD-115	-1.455E+00	1.828E+01	1.538E+01	9.325E+00	NOT IDENT.
SN-117M	-3.723E-02	6.859E-02	5.729E-02	3.499E-02	NOT IDENT.
SB-122	1.502E+00	3.374E+00	2.932E+00	1.721E+00	NOT IDENT.
I-123	-1.768E+07	2.325E+07	0.000E+00	1.186E+07	SHORT HLIF
TE-123M	-2.555E-02	3.360E-02	2.777E-02	1.714E-02	NOT IDENT.
I-124	7.355E-01	1.152E+00	8.883E-01	5.879E-01	NOT IDENT.
SB-124	-2.140E-02	6.488E-02	5.016E-02	3.310E-02	FAIL ABUN
SB-125	2.811E-02	1.107E-01	9.642E-02	5.647E-02	FAIL ABUN
TE-125M	4.769E-01	1.158E+01	1.008E+01	5.909E+00	NOT IDENT.
I-126	2.899E-01	2.690E-01	2.165E-01	1.373E-01	NOT IDENT.
SB-126	-2.205E-01	2.105E-01	1.283E-01	1.074E-01	NOT IDENT.
SB-127	-2.425E-01	1.863E+00	1.530E+00	9.504E-01	NOT IDENT.
XE-127	1.005E-02	6.503E-02	5.115E-02	3.318E-02	NOT IDENT.
I-131	-9.081E-02	1.568E-01	1.312E-01	8.001E-02	NOT IDENT.
TE-132	9.646E-01	1.098E+00	9.513E-01	5.604E-01	NOT IDENT.
BA-133	-8.812E-03	6.128E-02	4.564E-02	3.126E-02	NOT IDENT.
I-133	-6.996E+02	1.644E+04	0.000E+00	8.388E+03	SHORT HLIF
CS-134	6.349E-02	5.394E-02	5.056E-02	2.752E-02	NOT IDENT.
CS-135	1.769E-01	2.371E-01	1.804E-01	1.210E-01	NOT IDENT.
I-135	5.275E+16	7.609E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	4.007E-02	1.370E-01	1.189E-01	6.988E-02	FAIL ABUN
CE-139	-1.334E-02	3.703E-02	3.113E-02	1.889E-02	NOT IDENT.
BA-140	-9.351E-02	3.410E-01	2.813E-01	1.740E-01	NOT IDENT.
LA-140	-1.255E-01	1.181E-01	8.493E-02	6.025E-02	NOT IDENT.
CE-141	4.656E-02	8.728E-02	6.751E-02	4.453E-02	NOT IDENT.
CE-143	1.630E+03	4.976E+02	0.000E+00	2.539E+02	SHORT HLIF
CE-144	7.367E-02	2.871E-01	2.197E-01	1.465E-01	NOT IDENT.
PM-144	-4.516E-02	4.294E-02	3.237E-02	2.191E-02	NOT IDENT.

PR-144	-3.062E+00	2.911E+00	2.195E+00	1.485E+00	NOT IDENT.
PM-146	6.529E-02	5.728E-02	5.203E-02	2.923E-02	NOT IDENT.
ND-147	4.922E-02	7.421E-01	6.308E-01	3.786E-01	FAIL ABUN
PM-149	2.968E+01	1.509E+02	1.335E+02	7.699E+01	NOT IDENT.
EU-152	7.265E-02	1.380E-01	1.030E-01	7.042E-02	NOT IDENT.
GD-153	1.192E-01	1.044E-01	8.439E-02	5.327E-02	FAIL ABUN
EU-154	-4.309E-02	1.488E-01	1.199E-01	7.592E-02	NOT IDENT.
EU-155	5.596E-02	1.297E-01	1.147E-01	6.619E-02	FAIL ABUN
TB-160	5.570E-02	1.735E-01	1.525E-01	8.853E-02	FAIL ABUN
HO-166M	-6.451E-02	8.119E-02	6.288E-02	4.142E-02	FAIL ABUN
TM-171	6.289E+00	4.473E+01	3.277E+01	2.282E+01	NOT IDENT.
LU-176	-2.455E-02	3.109E-02	2.609E-02	1.586E-02	FAIL ABUN
LU-177	3.939E+00	2.424E+00	1.433E+00	1.237E+00	FAIL ABUN
LU-177M	-1.452E-01	2.364E-01	1.960E-01	1.206E-01	FAIL ABUN
HF-181	2.750E-03	5.549E-02	4.739E-02	2.831E-02	NOT IDENT.
W-181	5.437E-02	5.613E-01	4.393E-01	2.864E-01	NOT IDENT.
TA-182	-1.455E-01	2.447E-01	1.930E-01	1.248E-01	FAIL ABUN
RE-183	-3.247E-02	1.332E-01	1.126E-01	6.795E-02	FAIL ABUN
RE-184	-1.726E-01	2.957E-01	2.392E-01	1.509E-01	NOT IDENT.
OS-185	2.088E-02	5.354E-02	4.611E-02	2.732E-02	NOT IDENT.
RE-188	2.109E-01	2.125E-01	1.886E-01	1.084E-01	NOT IDENT.
W-188	-2.233E+00	1.014E+01	7.625E+00	5.174E+00	FAIL ABUN
IR-192	8.216E-04	4.539E-02	3.963E-02	2.316E-02	FAIL ABUN
AU-195	3.833E-01	2.944E-01	2.397E-01	1.502E-01	FAIL ABUN
TL-200	3.699E+02	1.032E+03	0.000E+00	5.263E+02	SHORT HLIF
TL-201	-4.449E+00	1.085E+01	9.096E+00	5.535E+00	NOT IDENT.
TL-202	2.819E-02	9.170E-02	7.998E-02	4.678E-02	NOT IDENT.
HG-203	7.172E-02	5.248E-02	4.767E-02	2.678E-02	FAIL ABUN
BI-207	2.286E-02	6.494E-02	5.657E-02	3.313E-02	FAIL ABUN
TL-207	-1.068E+00	8.952E-01	7.209E-01	4.568E-01	FAIL ABUN
PO-209	-8.878E-01	8.688E+00	7.351E+00	4.433E+00	NOT IDENT.
BI-210	2.817E+00	5.639E+00	5.056E+00	2.877E+00	NOT IDENT.
PB-210	2.817E+00	5.639E+00	5.056E+00	2.877E+00	NOT IDENT.
PO-210	2.817E+00	5.638E+00	5.056E+00	2.876E+00	NOT IDENT.
PB-211	-1.354E+00	1.472E+00	9.814E-01	7.512E-01	NOT IDENT.
BI-212	1.012E+00	6.224E-01	3.684E-01	3.176E-01	FAIL ABUN
PO-215	-1.068E+00	8.952E-01	7.209E-01	4.568E-01	FAIL ABUN
RN-219	-2.289E-01	5.338E-01	4.475E-01	2.724E-01	FAIL ABUN
RN-220	-1.337E+01	3.264E+01	2.669E+01	1.665E+01	NOT IDENT.
RA-223	-1.068E+00	8.952E-01	7.209E-01	4.568E-01	FAIL ABUN
AC-227	1.328E-01	4.820E-01	4.076E-01	2.459E-01	NOT IDENT.
TH-227	1.328E-01	4.822E-01	4.076E-01	2.460E-01	FAIL ABUN
TH-229	2.870E-02	6.335E-01	5.375E-01	3.232E-01	FAIL ABUN
PA-231	-1.645E+00	1.878E+00	1.567E+00	9.581E-01	NOT IDENT.
TH-231	-1.068E+00	8.952E-01	7.209E-01	4.568E-01	FAIL ABUN
U-231	1.600E+00	1.682E+00	1.348E+00	8.583E-01	FAIL ABUN
PA-233	-7.374E-04	8.071E-02	7.043E-02	4.118E-02	FAIL ABUN
PA-234	-1.063E-01	3.442E-01	2.835E-01	1.756E-01	FAIL ABUN
PA-234M	3.851E+00	5.529E+00	4.913E+00	2.821E+00	NOT IDENT.
NP-236	-7.106E-02	9.553E-02	7.905E-02	4.874E-02	NOT IDENT.
NP-239	-4.000E-02	2.370E-01	2.042E-01	1.209E-01	FAIL ABUN
AM-241	1.713E-01	2.270E-01	1.838E-01	1.158E-01	NOT IDENT.
CM-243	-1.258E-02	1.151E-01	9.989E-02	5.873E-02	FAIL ABUN
AM-246	1.811E-02	1.627E-01	1.387E-01	8.302E-02	NOT IDENT.
CM-247	2.337E-02	4.522E-02	4.007E-02	2.307E-02	NOT IDENT.
CF-249	-2.854E-03	5.022E-02	4.316E-02	2.562E-02	NOT IDENT.
CF-251	-8.041E-02	1.576E-01	1.312E-01	8.042E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
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ENERGY	MDA COUNTS
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46.50	345.1099
46.50	345.1099
46.50	345.1099
48.70	389.1102
49.72	386.1776
51.35	368.1377
52.39	376.0971
52.97	360.9334
53.15	368.3557
53.44	361.2197
54.07	362.5171
56.28	396.9176
56.28	396.9193
57.37	0.0000
57.53	394.7790
57.53	394.7798
57.60	381.5642
57.98	380.3232
57.98	380.3232
59.32	358.9767
59.32	358.9767
59.40	359.0220
59.54	359.1013
59.72	347.3780
60.01	347.5365
61.10	357.0173
61.14	392.5952
61.30	392.6930
63.00	473.9518
63.29	474.1606
63.29	474.1606
63.58	462.4739
64.28	474.8727
65.12	481.4344
65.20	481.4916
65.20	481.4916
66.05	464.1918
66.72	459.4201
66.83	459.4970
66.91	443.3613
67.20	458.5007
67.20	458.5007
67.75	508.7466
67.85	508.8213
68.90	484.1195
68.90	484.1195
69.30	490.3982
69.67	478.6577
70.82	491.4660
70.82	491.4660
70.83	491.4740
72.80	435.5708
72.87	435.6132
72.87	435.6132
74.67	436.7033
74.81	436.7879
74.81	436.7879
74.81	436.7879
74.81	436.7879
74.81	436.7879
74.81	436.7879
74.97	436.8832
75.28	437.0702
75.70	437.3206
77.11	438.1602
77.11	438.1602

77.11	438.1602
77.11	438.1602
77.11	438.1602
77.11	438.1602
77.11	438.1602
78.38	438.9099
79.62	439.6349
79.80	439.7390
79.80	439.7390
80.11	312.0544
80.18	312.0832
80.30	312.1320
80.30	312.1320
80.57	312.2434
81.00	312.4198
81.07	312.4486
81.07	312.4486
81.07	312.4486
81.07	312.4486
82.60	313.0729
83.37	313.3832
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83.78	365.5530
83.78	365.5530
83.78	365.5530
84.21	365.7558
84.90	366.0782
85.43	366.3247
86.29	366.7244
86.50	366.8221
86.54	366.8396
86.59	366.8629
86.72	366.9242
86.79	366.9549
86.94	367.0249
87.30	367.1912
87.30	367.1912
87.30	367.1912
87.30	367.1912
87.30	367.1912
87.30	367.1912
87.30	367.1912
87.57	367.3152
87.88	367.4581
88.03	367.5267
88.36	367.6769
88.47	367.7280
89.95	368.4019
91.11	368.9271
92.29	369.4566
92.38	369.4974
92.38	369.4974
93.35	369.9307
94.00	370.2195
94.67	364.3124
94.67	364.3145
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94.90	386.1248
94.90	386.1248
94.90	386.1248
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95.87	344.6528
96.73	341.8956
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98.44	297.4210
98.44	297.4221
98.88	291.3418
99.55	305.3418
99.55	305.3418
99.86	335.3457
100.00	335.3995
100.10	335.4402
103.18	354.2351
103.76	339.7792
105.00	344.1753
105.31	335.4664
108.00	365.9832
109.28	362.5560

111.00	363.2355
111.00	363.2355
111.76	389.2175
112.95	352.1283
115.19	357.9263
116.30	351.3964
117.00	355.6278
117.00	355.6278
117.66	341.9568
121.11	332.2048
121.62	338.3676
121.78	348.4049
122.06	348.5048
122.32	334.4701
122.32	334.4701
122.32	334.4701
122.32	334.4701
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127.23	330.8492
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136.48	345.3837
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144.24	298.7220
144.24	298.7220
144.24	298.7220
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145.44	310.4895
147.16	297.8828
152.43	315.5327
152.70	313.5516
153.22	294.1542
154.21	281.0272
154.21	281.0272
154.21	281.0272
154.21	281.0272
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156.02	328.9030
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162.64	305.8978
163.35	279.1056
163.89	263.6632
165.85	320.2474
167.43	320.6704
171.28	276.7830
171.86	297.8158
172.10	297.8745
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176.60	311.5541
181.06	298.1409
184.41	273.5965
185.71	301.1360
186.00	301.2056
190.27	264.6668
192.34	349.5636
193.63	288.0967
197.04	273.9193
198.01	303.9845
198.60	333.9953
200.40	285.2947
201.83	286.6659
202.84	286.8806
205.31	288.2599

208.36	297.5000
208.81	282.7603
209.75	282.9509
209.75	282.9509
210.97	272.2163
215.65	263.6210
216.55	272.4373
218.09	254.3347
222.10	302.8041
223.80	249.9183
226.40	263.4283
227.00	245.0243
227.08	234.1475
227.20	234.1671
228.16	239.7690
228.18	239.7723
228.18	239.7723
231.56	0.0000
235.69	255.8903
236.00	245.4255
236.00	245.4255
238.63	270.0028
238.63	270.0028
238.63	270.0028
238.63	270.0028
239.00	270.0685
240.98	270.4232
241.98	270.6015
241.98	270.6015
241.98	270.6015
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247.94	199.6550
248.90	226.0459
249.79	223.3324
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252.85	220.4483
252.85	220.4483
254.15	0.0000
256.20	202.0451
256.20	202.0451
260.50	205.9316
260.90	203.7584
262.80	221.8345
264.65	189.2783
268.24	214.7520
268.79	225.5665
269.46	218.4950
269.46	218.4950
269.46	218.4950
269.46	218.4950
271.23	175.7038
273.65	271.1254
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277.60	185.6049
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278.60	171.9839
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279.53	191.9002
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283.67	207.7272
284.30	209.6128
285.00	200.6591
285.90	183.5847
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286.10	173.6555
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290.80	188.9471
291.72	199.6355
293.26	0.0000
293.70	172.6119
295.21	205.4939
295.21	205.4939



295.21	205.4939
295.96	268.3521
296.50	245.6862
297.23	250.3400
298.57	220.1639
299.80	189.9312
299.80	189.9312
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300.09	203.6390
300.09	203.6390
300.09	203.6390
300.12	203.6417
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303.91	227.5347
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304.40	216.6299
304.84	214.8535
306.84	196.7911
308.46	175.8984
311.98	178.0788
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318.01	186.9622
319.02	176.0058
319.41	178.8082
320.08	172.4203
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323.87	224.5169
323.87	224.5169
323.87	224.5169
325.23	208.9617
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333.44	190.3807
334.20	187.3614
334.20	187.3614
334.30	187.3713
338.28	165.7299
338.28	165.7299
338.28	165.7299
338.28	165.7299
338.32	165.7321
338.32	165.7321
338.32	165.7321
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340.57	149.1484
344.27	132.6258
345.85	161.2429
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351.07	153.0871
351.92	156.2785
351.92	156.2785
351.92	156.2785
355.39	0.0000
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364.48	151.9261
366.43	119.0156
367.43	125.6892
367.94	0.0000
369.80	135.2984
374.96	133.7452
383.85	151.4731
387.95	141.2721
388.63	131.7688
391.69	131.9608
391.69	131.9608
392.90	139.6909
398.62	127.5969
400.65	143.0833
401.10	142.1537
401.81	151.8088
402.60	121.1074
404.84	167.4176
410.95	116.7520
411.60	117.7526
413.65	160.3708
414.70	144.0164
415.30	147.9237

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427.89	107.9296
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433.93	136.4932
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439.56	112.3987
439.89	113.3931
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444.90	122.4579
445.03	122.4655
445.03	122.4655
445.03	122.4655
445.03	122.4655
453.90	106.2163
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468.07	110.4862
473.00	104.1053
475.06	103.2015
475.35	115.1235
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477.96	128.1638
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497.08	118.1556
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510.53	0.0000
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511.00	86.5926
511.85	86.6225
511.85	86.6225
513.99	100.8081
513.99	100.8081
520.41	91.9664
520.65	91.9753
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529.64	89.2547
529.87	0.0000
531.02	91.3315
537.32	95.6202
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546.56	0.0000
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552.65	81.8516
555.20	95.2433
563.23	95.5271
563.90	90.4148
568.70	85.4276
569.32	83.3889
569.50	86.4835
569.67	86.4876
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574.00	89.3750
574.64	97.9919
578.91	74.0375
579.30	0.0000
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591.81	90.8154
592.07	91.1123
593.00	78.9131
595.88	92.5048
600.56	88.4946
602.52	0.0000
602.71	90.2975
602.71	90.2975
603.60	92.0642
604.41	104.2529
604.70	104.2627
609.31	92.9437

609.31	92.9437
609.31	92.9437
609.31	92.9437
610.33	92.9763
612.46	97.5762
614.37	85.4370
618.01	89.6182
621.84	67.1266
621.84	67.1266
631.29	64.1885
633.02	63.1729
633.10	63.1743
634.78	80.0672
635.90	61.1266
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646.12	71.9130
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657.75	86.7010
657.90	0.0000
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661.65	79.7260
664.57	0.0000
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666.33	65.6533
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677.61	59.8391
685.20	64.2700
692.80	66.5743
695.00	63.3976
696.49	91.3792
696.49	91.3792
697.00	96.7698
697.49	88.1820
698.33	80.6744
698.50	75.3013
699.00	78.5409
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706.58	0.0000
706.67	84.1223
709.31	66.9225
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713.82	68.0972
717.42	49.7779
720.50	77.6261
721.93	0.0000
722.20	48.7678
722.78	56.0021
722.78	56.0021
722.89	56.0046
722.95	56.0059
723.30	56.0122
724.18	46.9906
727.18	58.6116
733.00	54.3665
735.90	72.1003
739.58	66.4596
742.81	49.0759
744.21	57.8251
747.13	54.6008
751.79	59.0506
752.31	56.8725
753.82	59.0876
755.35	50.3563
756.15	54.7485
756.87	66.8081
763.93	102.0684
765.79	79.0646
766.42	79.0787
766.84	74.6954
776.49	72.5211
778.00	71.6349
778.57	63.3792
778.89	63.3848
783.80	59.7962
785.46	55.2234
792.07	55.3296

795.84	51.6968
796.30	54.4734
798.80	88.6992
801.93	45.3144
805.60	63.8761
810.29	62.1078
810.76	55.6262
815.85	65.9197
817.79	64.0979
818.51	64.1105
819.60	63.2008
826.30	58.6639
828.27	0.0000
831.60	78.3347
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836.80	0.0000
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848.13	61.8320
856.28	0.0000
856.80	53.1243
860.37	45.1191
867.32	25.8309
867.82	27.4489
871.10	43.9931
873.19	42.4457
874.81	45.2959
875.33	0.0000
876.40	52.8669
879.36	54.7986
880.27	51.9776
880.51	50.0908
881.50	38.7595
883.24	44.4517
884.67	60.5534
889.25	52.1018
896.60	53.1528
898.02	59.8187
899.00	63.6331
903.28	55.4196
911.07	63.8348
911.07	63.8348
911.07	63.8348
919.63	43.2877
920.93	39.5974
925.00	46.8537
925.24	44.9441
926.50	41.1331
935.52	43.1461
937.48	51.8005
944.10	49.0057
946.00	50.9523
949.00	44.2565
962.29	52.9542
964.01	61.2542
966.15	47.3461
968.20	47.3701
969.11	43.0988
969.11	43.0988
969.11	43.0988
977.42	36.9964
980.50	59.1508
983.50	48.5209
989.30	50.5337
996.32	60.3551
1001.03	41.9073
1001.68	49.7113
1004.76	61.4542
1021.30	0.0000
1024.50	0.0000
1034.80	56.0050
1036.00	47.1738
1037.82	39.3294
1038.57	42.2861
1038.76	0.0000
1045.16	47.2773
1046.59	41.3813
1048.07	47.3086

1050.47	50.2944
1050.47	50.2944
1062.04	50.4314
1063.62	49.4609
1076.63	41.6719
1077.35	36.7170
1078.86	43.6777
1085.78	44.7418
1099.22	64.8254
1112.02	53.1537
1112.84	37.7296
1115.52	75.5022
1120.29	43.0892
1120.29	43.0892
1120.29	43.0892
1120.29	43.0892
1120.51	43.0910
1121.28	43.0980
1124.00	0.0000
1129.67	45.5215
1131.51	0.0000
1147.95	0.0000
1167.94	74.9334
1173.22	68.9380
1175.09	56.7952
1177.93	59.8739
1189.05	62.0524
1204.90	73.4883
1205.75	0.0000
1213.00	65.4349
1221.42	68.6248
1230.97	71.8400
1235.34	52.3883
1236.41	0.0000
1238.25	55.5029
1246.25	45.2998
1260.41	0.0000
1271.85	35.1884
1274.45	46.5967
1274.54	46.5985
1291.56	50.9141
1298.22	0.0000
1312.09	38.6034
1325.50	24.0603
1325.50	24.0603
1332.49	29.3319
1333.61	27.2420
1360.21	18.9580
1362.66	0.0000
1365.15	17.9214
1368.21	20.0422
1368.53	0.0000
1376.25	20.0731
1384.27	35.9756
1394.10	24.3813
1395.20	26.5076
1407.95	36.1361
1434.06	18.1566
1436.60	26.7131
1457.56	0.0000
1460.81	18.3998
1489.15	16.1829
1509.49	18.4070
1596.49	32.9797
1620.62	12.2999
1678.03	0.0000
1691.02	8.6155
1691.02	8.6155
1706.46	0.0000
1750.46	0.0000
1764.49	4.8432
1764.49	4.8432
1764.49	4.8432
1764.49	4.8432
1770.23	11.8766
1771.40	37.8180
1791.20	0.0000
1808.65	9.7538

1836.01

9.7949

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229010

Total Uranium Activity	1.7730E+01	ug/g
Total Uranium Counting Unc.	8.6426E+00	ug/g
Total Uranium Tpu	4.4095E-06	ug/g
Total Uranium Mda	4.5883E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GROSS GAMMA REPORT                            *
*
*****
*
*  BATCH ID      : 941239                SAMPLE ID   : G244229010                *
*  ANALYST       : MXR1                  DETECTOR    : GAM06                  *
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE: 22-JAN-2010 14:11:52.74  SAMPLE ALQT: 122.520 GRAM          *
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.059E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.716E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.326E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.615E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 16:16:26.64

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229011.CNF;1
Sample date   : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:16:00
Sample ID    : G244229011      Sample quantity   : 1.45700E+02 GRAM
Detector name : GAM19          Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.61 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity          : 5.00000
Batch ID        : 941239      Detector SN#     :
Matrix Spike ID :              LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.27*	124	587	1.19	126.41	121	10	1.73E-02	38.2	
2	2	74.86*	470	606	1.62	149.56	143	15	6.53E-02	11.6	4.21E+00
3	2	77.20	566	400	1.18	154.24	143	15	7.86E-02	7.5	
4	3	87.54*	278	591	1.80	174.89	161	34	3.86E-02	18.4	4.01E+00
5	3	92.80*	357	547	1.81	185.41	161	34	4.96E-02	14.7	
6	0	143.89	60	305	1.34	287.52	284	8	8.29E-03	52.3	
7	0	185.84*	196	357	1.43	371.35	366	11	2.72E-02	20.6	
8	4	238.59*	1147	188	1.34	476.79	471	18	1.59E-01	3.7	1.07E+00
9	4	241.51*	296	275	2.18	482.62	471	18	4.11E-02	17.1	
10	0	270.39	122	235	1.34	540.35	534	14	1.69E-02	28.3	
11	0	295.13	369	219	1.26	589.79	583	11	5.12E-02	9.4	
12	0	328.60	24	207	0.96	656.69	651	9	3.38E-03	108.4	
13	0	337.98*	243	174	1.23	675.45	669	12	3.38E-02	12.7	
14	0	351.86*	515	263	1.31	703.19	696	15	7.15E-02	8.2	
15	0	463.28	42	118	1.19	925.90	922	9	5.78E-03	49.7	
16	0	510.79*	166	110	1.73	1020.89	1012	19	2.31E-02	19.4	
17	0	568.69*	173	101	1.79	1136.63	1130	16	2.40E-02	15.6	
18	0	583.25*	324	118	1.45	1165.74	1159	14	4.50E-02	9.2	
19	0	609.53*	379	144	1.43	1218.29	1210	16	5.26E-02	8.9	
20	0	661.84*	390	77	1.36	1322.88	1317	12	5.42E-02	6.9	
21	0	727.47	114	56	1.90	1454.11	1447	12	1.58E-02	16.2	
22	0	771.12	88	134	5.06	1541.39	1529	22	1.22E-02	36.0	
23	0	860.68	51	47	1.01	1720.48	1714	11	7.10E-03	29.4	
24	0	911.70*	220	74	1.54	1822.53	1816	15	3.06E-02	11.0	
25	0	970.32	98	120	1.75	1939.76	1932	12	1.36E-02	24.7	
26	0	1121.08*	90	68	1.36	2241.30	2238	11	1.25E-02	21.2	
27	0	1378.07	33	21	1.73	2755.42	2749	14	4.58E-03	34.2	
28	0	1461.51*	1536	20	1.78	2922.37	2915	17	2.13E-01	2.7	
29	0	1765.20*	81	16	1.57	3530.13	3523	16	1.12E-02	16.2	

Flag: "\*" = Peak area was modified by background subtraction

VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 16:16:29

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229011.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 14:16:00  
 Sample ID : G244229011 Sample quantity : 145.70 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA19 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.61 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.174E+01	2.903E+00	4.776E-01	3.556E-02	66.465
CD-109	+	88.03	*	3.228E+00	1.222E+00	1.162E+00	1.041E-01	2.778
SN-126	+	64.28		9.204E-01	7.165E-01	7.409E-01	1.082E-01	1.242
	+	86.94		1.317E+00	7.297E-01	4.791E-01	1.984E-01	2.750
	+	87.57	*	3.169E-01	1.199E-01	1.145E-01	1.022E-02	2.766
BA-137M	+	661.65	*	4.864E-01	7.245E-02	5.649E-02	3.290E-03	8.610
CS-137	+	661.65	*	5.141E-01	7.663E-02	5.972E-02	3.492E-03	8.610
TL-208		277.35		3.778E-01	3.637E-01	5.888E-01	6.213E-02	0.642
	+	510.84		6.981E-01	2.806E-01	1.804E-01	1.842E-02	3.869
	+	583.14	*	3.880E-01	7.596E-02	5.320E-02	3.618E-03	7.294
	+	860.37		5.760E-01	3.429E-01	4.477E-01	4.009E-02	1.287
BI-211		72.87		7.769E+00	3.483E+00	5.341E+00	4.185E-01	1.455
	+	351.07	*	2.707E+00	4.780E-01	3.223E-01	2.058E-02	8.401
PB-212	+	74.81		2.231E+00	5.858E-01	5.048E-01	6.190E-02	4.419
	+	77.11		1.526E+00	2.600E-01	2.780E-01	2.245E-02	5.491
	+	87.30		1.465E+00	5.737E-01	5.311E-01	7.108E-02	2.759
	+	238.63	*	1.320E+00	1.357E-01	8.546E-02	6.168E-03	15.450
		300.09		1.053E+00	7.989E-01	1.263E+00	1.043E-01	0.834
PO-212	+	74.81		2.231E+00	5.858E-01	5.048E-01	6.190E-02	4.419
	+	77.11		1.526E+00	2.600E-01	2.780E-01	2.245E-02	5.491
	+	87.30		1.465E+00	5.737E-01	5.311E-01	7.108E-02	2.759
		115.19		2.998E+00	3.481E+00	5.842E+00	3.720E-01	0.513
	+	238.63	*	1.320E+00	1.357E-01	8.546E-02	6.168E-03	15.450
		300.09		1.053E+00	7.989E-01	1.263E+00	1.043E-01	0.834
BI-214	+	609.31	*	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
	+	1120.29		1.054E+00	4.569E-01	4.785E-01	4.378E-02	2.203
	+	1764.49		1.277E+00	4.219E-01	2.588E-01	1.568E-02	4.933
PB-214	+	74.81		3.844E+00	9.853E-01	8.697E-01	9.443E-02	4.419
	+	77.11		2.616E+00	4.882E-01	4.765E-01	5.291E-02	5.491
	+	87.30		2.510E+00	9.696E-01	9.098E-01	1.071E-01	2.759
	+	241.98		2.048E+00	7.207E-01	5.142E-01	4.101E-02	3.983
	+	295.21		1.147E+00	2.362E-01	2.271E-01	1.938E-02	5.051
	+	351.92	*	9.417E-01	1.734E-01	1.123E-01	9.261E-03	8.384
PO-214	+	74.81		3.844E+00	9.853E-01	8.697E-01	9.443E-02	4.419

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		2.616E+00	4.882E-01	4.765E-01	5.291E-02	5.491
	+	87.30		2.510E+00	9.696E-01	9.098E-01	1.071E-01	2.759
	+	241.98		2.048E+00	7.207E-01	5.142E-01	4.101E-02	3.983
	+	295.21		1.147E+00	2.362E-01	2.271E-01	1.938E-02	5.051
	+	351.92	*	9.417E-01	1.734E-01	1.123E-01	9.261E-03	8.384
	+	74.81		2.231E+00	5.858E-01	5.048E-01	6.190E-02	4.419
	+	77.11		1.526E+00	2.600E-01	2.780E-01	2.245E-02	5.491
	+	87.30		1.465E+00	5.737E-01	5.311E-01	7.108E-02	2.759
	+	238.63	*	1.320E+00	1.357E-01	8.546E-02	6.168E-03	15.450
	+	300.09		1.053E+00	7.989E-01	1.263E+00	1.043E-01	0.834
PO-218	+	74.81		3.844E+00	9.853E-01	8.697E-01	9.443E-02	4.419
	+	77.11		2.616E+00	4.882E-01	4.765E-01	5.291E-02	5.491
	+	87.30		2.510E+00	9.696E-01	9.098E-01	1.071E-01	2.759
	+	241.98		2.048E+00	7.207E-01	5.142E-01	4.101E-02	3.983
	+	295.21		1.147E+00	2.362E-01	2.271E-01	1.938E-02	5.051
RA-224	+	351.92	*	9.417E-01	1.734E-01	1.123E-01	9.261E-03	8.384
RA-226	+	240.98	*	3.883E+00	1.349E+00	9.720E-01	5.508E-02	3.995
	+	609.31	*	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
AC-228	+	1120.29		1.054E+00	4.569E-01	4.785E-01	4.378E-02	2.203
	+	1764.49		1.277E+00	4.219E-01	2.588E-01	1.568E-02	4.933
	+	338.32		1.408E+00	6.765E-01	3.266E-01	1.331E-01	4.309
	+	911.07	*	1.172E+00	2.903E-01	1.995E-01	2.256E-02	5.877
RA-228	+	969.11		9.214E-01	5.029E-01	3.926E-01	9.101E-02	2.347
	+	338.32		1.408E+00	6.765E-01	3.266E-01	1.331E-01	4.309
	+	911.07	*	1.172E+00	2.903E-01	1.995E-01	2.256E-02	5.877
	+	969.11		9.214E-01	5.029E-01	3.926E-01	9.101E-02	2.347
TH-228	+	74.81		2.267E+00	5.569E-01	5.129E-01	4.112E-02	4.419
	+	77.11		1.551E+00	2.642E-01	2.824E-01	2.282E-02	5.491
	+	87.30		1.489E+00	5.636E-01	5.397E-01	4.800E-02	2.759
	+	238.63	*	1.342E+00	1.379E-01	8.684E-02	6.268E-03	15.450
TH-230	+	300.09		1.070E+00	1.024E+00	1.283E+00	7.563E-01	0.834
	+	609.31	*	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
	+	1120.29		1.054E+00	4.569E-01	4.785E-01	4.378E-02	2.203
	+	1764.49		1.277E+00	4.219E-01	2.588E-01	1.568E-02	4.933
TH-232	+	338.32		1.408E+00	3.674E-01	3.266E-01	1.888E-02	4.309
	+	911.07	*	1.172E+00	2.903E-01	1.995E-01	2.256E-02	5.877
	+	969.11		9.214E-01	5.029E-01	3.926E-01	9.101E-02	2.347
TH-234	+	63.29	*	2.325E+00	1.824E+00	1.901E+00	3.325E-01	1.223
	+	92.38		2.660E+00	9.152E-01	7.535E-01	1.353E-01	3.530
U-234	+	609.31	*	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
	+	1120.29		1.054E+00	4.569E-01	4.785E-01	4.378E-02	2.203
	+	1764.49		1.277E+00	4.219E-01	2.588E-01	1.568E-02	4.933
U-235	+	89.95		3.228E+00	1.461E+00	1.852E+00	5.717E-01	1.743
	+	93.35		3.197E+00	1.296E+00	9.000E-01	2.512E-01	3.553
	+	105.00		1.529E+00	1.113E+00	1.750E+00	5.153E-01	0.874
	+	143.76	*	2.206E-01	2.335E-01	3.224E-01	5.228E-02	0.684
	+	163.35		-7.011E-02	4.449E-01	7.141E-01	1.272E-01	-0.098
	+	185.71		1.586E-01	6.585E-02	6.261E-02	3.346E-03	2.534
	+	205.31		-6.122E-01	5.293E-01	7.898E-01	1.412E-01	-0.775

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-237	+	86.50	*	9.305E-01	4.011E-01	3.399E-01	7.627E-02	2.738
		95.87		-1.016E-01	1.069E+00	1.525E+00	3.722E-01	-0.067
U-238	+	63.29	*	2.325E+00	1.824E+00	1.901E+00	3.325E-01	1.223
	+	92.38		2.660E+00	8.117E-01	7.535E-01	6.293E-02	3.530
AM-243	+	74.67	*	3.616E-01	8.875E-02	8.207E-02	6.508E-03	4.407
	+	86.72		3.489E+01	1.321E+01	1.272E+01	1.124E+00	2.744
		117.66		-2.493E+00	3.766E+00	5.975E+00	3.712E-01	-0.417
		142.18		2.382E+01	1.892E+01	2.858E+01	1.591E+00	0.834
ANH-511	+	511.00	*	1.508E-01	5.929E-02	3.899E-02	2.300E-03	3.868

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	2.399E-01	3.221E-01	5.564E-01	3.777E-02	0.431
NA-22		1274.54	*	-1.381E-02	4.269E-02	6.876E-02	4.587E-03	-0.201
NA-24		1368.53	*	-3.888E-01	4.269E-02	Half-Life too short		
AL-26		1129.67		-4.099E-01	1.660E+00	2.583E+00	1.594E-01	-0.159
		1808.65	*	1.705E-03	2.370E-02	3.924E-02	2.291E-03	0.043
TI-44		67.85		-8.867E-03	5.837E-02	7.034E-02	5.370E-03	-0.126
	+	78.38	*	2.817E-01	4.797E-02	7.202E-02	5.879E-03	3.911
SC-46		889.25	*	-1.573E-02	3.687E-02	5.695E-02	4.949E-03	-0.276
	+	1120.51		1.819E-01	7.792E-02	1.185E-01	7.472E-03	1.536
V-48		944.10		7.188E-02	8.577E-01	1.391E+00	1.172E-01	0.052
		983.50	*	-3.071E-02	7.142E-02	1.097E-01	8.819E-03	-0.280
		1312.09		-3.551E-02	7.615E-02	1.198E-01	8.523E-03	-0.296
CR-51		320.08	*	-2.170E-01	3.502E-01	5.680E-01	3.676E-02	-0.382
MN-52		744.21		1.195E-01	2.545E-01	4.297E-01	2.921E-02	0.278
		848.13		1.618E+00	6.821E+00	1.128E+01	9.171E-01	0.143
		935.52		2.854E-01	2.689E-01	4.730E-01	4.021E-02	0.603
		1246.25		3.079E+00	8.064E+00	1.381E+01	8.728E-01	0.223
		1333.61		1.637E+00	5.415E+00	9.286E+00	6.842E-01	0.176
		1434.06	*	1.733E-01	2.088E-01	3.849E-01	2.777E-02	0.450
MN-54		834.83	*	-1.852E-02	3.784E-02	5.874E-02	4.673E-03	-0.315
CO-56		846.75	*	1.073E-03	3.524E-02	5.715E-02	4.637E-03	0.019
		977.42		1.260E+00	2.922E+00	4.764E+00	3.860E-01	0.265
		1037.82		-7.834E-02	2.961E-01	4.851E-01	3.859E-02	-0.162
		1175.09		2.031E+00	2.162E+00	3.865E+00	2.126E-01	0.525
		1238.25		5.870E-02	9.325E-02	1.614E-01	1.060E-02	0.364
		1360.21		5.402E-03	8.514E-01	1.410E+00	1.035E-01	0.004
		1771.40		1.546E-03	1.651E-01	2.316E-01	1.396E-02	0.007
CO-57		122.06	*	-2.614E-03	2.456E-02	3.980E-02	2.376E-03	-0.066
		136.48		-1.002E-01	1.987E-01	3.158E-01	2.085E-02	-0.317
CO-58		810.76	*	-4.850E-02	3.778E-02	5.353E-02	4.102E-03	-0.906
FE-59	+	142.65		2.890E+00	3.027E+00	4.405E+00	2.450E-01	0.656
		192.34		3.696E-01	9.251E-01	1.463E+00	1.699E-01	0.253
		1099.22	*	-3.347E-02	9.233E-02	1.498E-01	1.124E-02	-0.223
		1291.56		7.036E-03	1.140E-01	1.904E-01	1.576E-02	0.037
CO-60		1173.22		3.393E-02	4.469E-02	7.875E-02	4.316E-03	0.431

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1332.49	*		1.379E-02	3.803E-02	6.556E-02	4.831E-03	0.210
ZN-65	1115.52	*		2.003E-02	9.560E-02	1.412E-01	9.027E-03	0.142
GE-68	1077.35	*		-2.725E-02	1.137E+00	1.900E+00	1.314E-01	-0.014
AS-73	53.44	*		-2.288E-01	7.190E-01	1.174E+00	8.682E-02	-0.195
AS-74	595.88	*		-3.730E-02	9.013E-02	1.434E-01	8.498E-03	-0.260
	634.78			-1.291E-01	3.337E-01	5.291E-01	3.109E-02	-0.244
SE-75	66.05			-3.523E+00	5.051E+00	7.056E+00	6.773E-01	-0.499
	96.73			-3.648E-01	8.702E-01	1.220E+00	1.605E-01	-0.299
	121.11			1.041E-02	1.325E-01	2.163E-01	2.026E-02	0.048
	136.00			-3.066E-03	3.726E-02	6.029E-02	3.472E-03	-0.051
	198.60			-4.530E-01	1.732E+00	2.728E+00	1.862E-01	-0.166
	264.65	*		3.389E-02	4.498E-02	6.937E-02	4.034E-03	0.489
	279.53			1.465E-02	9.874E-02	1.674E-01	1.048E-02	0.088
	303.91			-2.016E+00	1.973E+00	3.134E+00	2.994E-01	-0.643
	400.65			-3.597E-02	2.458E-01	4.060E-01	3.645E-02	-0.089
BR-77	87.88	+		9.263E+02	3.506E+02	4.342E+02	3.886E+01	2.133
	200.40			-7.773E+00	2.029E+02	3.256E+02	1.771E+01	-0.024
	239.00	+		2.820E+02	2.608E+01	4.377E+01	2.476E+00	6.442
	249.79			-8.067E+01	8.353E+01	1.263E+02	7.202E+00	-0.639
	281.68			-4.253E+01	1.096E+02	1.812E+02	1.050E+01	-0.235
	297.23			3.422E+02	9.170E+01	1.559E+02	9.064E+00	2.195
	303.76			-2.554E+02	2.239E+02	3.546E+02	2.062E+01	-0.720
	439.47			1.078E+02	1.811E+02	3.111E+02	1.786E+01	0.347
	484.57			-2.129E+02	2.981E+02	4.700E+02	2.753E+01	-0.453
	520.65	*		5.356E+00	1.193E+01	2.034E+01	1.202E+00	0.263
	574.64			-1.933E+02	2.962E+02	3.633E+02	2.156E+01	-0.532
	578.91			5.981E+01	1.147E+02	1.722E+02	1.022E+01	0.347
	585.48			1.494E+03	3.154E+02	5.740E+02	3.404E+01	2.603
	755.35			1.003E+02	2.013E+02	3.407E+02	2.363E+01	0.294
	817.79			5.484E+01	1.655E+02	2.760E+02	2.134E+01	0.199
SR-82	698.33			8.237E+00	3.209E+01	5.338E+01	3.335E+00	0.154
	776.49	*		-1.801E-02	3.735E-01	5.200E-01	3.744E-02	-0.035
	1395.20			-3.860E+00	9.076E+00	1.407E+01	1.025E+00	-0.274
RB-83	520.41	*		4.622E-02	5.934E-02	1.013E-01	5.987E-03	0.456
	529.64			-6.538E-03	9.631E-02	1.580E-01	9.357E-03	-0.041
	552.65			5.116E-02	1.687E-01	2.843E-01	1.687E-02	0.180
RB-84	881.50	*		5.991E-02	6.727E-02	1.171E-01	1.005E-02	0.512
KR-85	513.99	*		1.432E+01	7.309E+00	1.218E+01	7.194E-01	1.176
SR-85	513.99	*		7.420E-02	3.786E-02	6.311E-02	3.727E-03	1.176
RB-86	1076.63	*		-5.501E-02	7.425E-01	1.235E+00	8.555E-02	-0.045
Y-88	898.02			-1.196E-02	4.083E-02	6.403E-02	5.668E-03	-0.187
	1836.01	*		5.791E-04	2.641E-02	4.321E-02	2.467E-03	0.013
ZR-88	392.90	*		-1.020E-02	3.054E-02	4.996E-02	2.782E-03	-0.204
Y-91	1204.90	*		3.443E+00	1.834E+01	3.099E+01	1.809E+00	0.111
NB-94	702.63	*		1.307E-02	3.172E-02	5.332E-02	3.358E-03	0.245
	871.10			-1.373E-02	3.268E-02	5.064E-02	4.274E-03	-0.271
NB-95	765.79	*		3.130E-02	4.799E-02	7.192E-02	5.083E-03	0.435
NB-95M	235.69	*		3.779E-01	1.407E-01	2.229E-01	1.651E-02	1.696
ZR-95	724.18			7.736E-03	9.764E-02	1.386E-01	1.041E-02	0.056

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	756.15	*		3.837E-02	6.695E-02	1.139E-01	9.114E-03	0.337
	657.90	*		2.068E-01	6.695E-02	Half-Life	too short	
	1024.50			-1.233E+01	6.695E-02	Half-Life	too short	
ZR-97	254.15			8.493E+00	6.695E-02	Half-Life	too short	
	355.39			1.171E+01	6.695E-02	Half-Life	too short	
	507.63	*		5.969E+00	6.695E-02	Half-Life	too short	
	602.52			6.202E+00	6.695E-02	Half-Life	too short	
	1021.30			-3.630E+00	6.695E-02	Half-Life	too short	
	1147.95			5.323E-01	6.695E-02	Half-Life	too short	
	1362.66			-1.127E+00	6.695E-02	Half-Life	too short	
	1750.46			2.435E+00	6.695E-02	Half-Life	too short	
MO-99	140.51			4.971E+00	3.571E+01	5.101E+01	1.372E+01	0.097
	181.06			-7.556E+00	2.341E+01	3.226E+01	5.478E+00	-0.234
	366.43			1.499E+02	9.980E+01	1.796E+02	1.022E+01	0.834
	739.58	*		7.983E+00	1.455E+01	2.463E+01	3.498E+00	0.324
	778.00			-6.434E+00	4.278E+01	5.871E+01	4.239E+00	-0.110
TC-99M	140.51	*		8.415E+10	4.278E+01	Half-Life	too short	
RH-101	127.23			1.660E-02	3.073E-02	5.097E-02	2.974E-03	0.326
	198.01	*		9.725E-03	3.119E-02	5.039E-02	2.733E-03	0.193
	325.23			6.603E-02	2.397E-01	3.565E-01	2.069E-02	0.185
RH-102	418.52			-7.121E-03	2.544E-01	4.223E-01	2.395E-02	-0.017
	475.06	*		-7.091E-03	2.875E-02	4.687E-02	2.736E-03	-0.151
	631.29			1.834E-03	5.017E-02	8.239E-02	4.847E-03	0.022
	697.49			-1.618E-02	7.014E-02	1.123E-01	7.003E-03	-0.144
	766.84			1.639E-01	1.243E-01	1.966E-01	1.392E-02	0.834
	1046.59			2.501E-02	1.089E-01	1.860E-01	1.361E-02	0.134
	1112.84			-1.093E-01	2.191E-01	3.510E-01	2.254E-02	-0.311
RU-103	497.08	*		-3.154E-03	3.827E-02	6.290E-02	7.976E-03	-0.050
RH-106	+ 610.33			9.404E+00	2.210E+00	2.527E+00	3.907E-01	3.722
	+ 511.85			7.546E-01	2.967E-01	3.838E-01	2.265E-02	1.966
	621.84	*		-4.248E-02	2.750E-01	4.448E-01	5.243E-02	-0.095
RU-106	+ 1050.47			-6.614E-01	2.215E+00	3.617E+00	2.630E-01	-0.183
	+ 511.85			7.546E-01	2.967E-01	3.838E-01	2.265E-02	1.966
	621.84	*		-4.248E-02	2.750E-01	4.448E-01	2.623E-02	-0.095
AG-108M	1050.47			-6.614E-01	2.215E+00	3.617E+00	2.630E-01	-0.183
	433.93	*		-1.519E-02	3.337E-02	5.303E-02	3.303E-03	-0.286
	614.37			4.551E-02	3.828E-02	6.104E-02	3.901E-03	0.746
AG-110M	722.95			-7.912E-03	3.934E-02	5.388E-02	3.761E-03	-0.147
	657.75	*		2.731E-02	3.779E-02	5.752E-02	3.569E-03	0.475
	677.61			6.451E-02	2.954E-01	4.905E-01	3.114E-02	0.132
	706.67			5.169E-02	1.965E-01	3.268E-01	2.178E-02	0.158
	763.93			7.554E-02	1.680E-01	2.483E-01	1.822E-02	0.304
	884.67			2.165E-02	4.663E-02	7.846E-02	6.985E-03	0.276
	937.48			1.581E-02	1.000E-01	1.635E-01	1.439E-02	0.097
	1384.27			1.498E-01	1.532E-01	2.562E-01	1.944E-02	0.585
IN-111	171.28			5.285E-01	1.228E+00	2.018E+00	1.059E-01	0.262
	245.39	*		3.148E-01	1.382E+00	1.957E+00	1.113E-01	0.161
IN-113M	391.69	*		-1.006E-02	4.467E-02	7.354E-02	4.388E-03	-0.137
SN-113	391.69	*		-1.006E-02	4.467E-02	7.354E-02	4.388E-03	-0.137

---- Non-Identified Nuclides ----

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IN-114M	190.27	*		6.738E-02	1.924E-01	2.763E-01	1.485E-02	0.244
CD-115	260.90			-8.716E+00	1.718E+02	2.734E+02	1.570E+01	-0.032
	492.35			-2.793E+01	4.700E+01	7.459E+01	4.380E+00	-0.374
	527.90	*		8.540E+00	1.332E+01	2.294E+01	1.358E+00	0.372
SN-117M	156.02			1.764E+00	2.320E+00	3.863E+00	2.070E-01	0.457
	158.56	*		-1.662E-02	5.702E-02	9.115E-02	4.852E-03	-0.182
SB-122	563.90	*		3.111E+00	2.611E+00	4.177E+00	2.479E-01	0.745
	692.80			-2.093E+00	5.012E+01	8.149E+01	5.038E+00	-0.026
I-123	159.00	*		-9.665E+00	5.012E+01	Half-Life	too short	
	528.96			3.629E+02	5.012E+01	Half-Life	too short	
TE-123M	159.00	*		-1.392E-02	2.818E-02	4.466E-02	2.412E-03	-0.312
I-124	602.71	*		-1.017E-01	8.867E-01	1.245E+00	7.370E-02	-0.082
	722.78			-5.421E-01	4.864E+00	6.744E+00	4.410E-01	-0.080
	1325.50			9.821E+00	3.811E+01	6.487E+01	4.724E+00	0.151
	1376.25			4.678E+01	3.720E+01	6.300E+01	4.608E+00	0.742
	1509.49			2.989E+00	1.433E+01	2.434E+01	1.712E+00	0.123
	1691.02			-7.292E-01	3.899E+00	6.156E+00	3.937E-01	-0.118
SB-124	602.71			-5.084E-03	4.432E-02	6.224E-02	3.685E-03	-0.082
	645.85			2.009E-01	4.474E-01	7.584E-01	5.001E-02	0.265
	709.31			-5.313E-01	2.670E+00	4.284E+00	2.732E-01	-0.124
	713.82			-2.439E-01	1.394E+00	2.234E+00	2.364E-01	-0.109
	722.78			-3.928E-02	3.524E-01	4.887E-01	3.314E-02	-0.080
	968.20			1.220E+01	4.044E+00	6.786E+00	5.561E-01	1.799
	1045.16			8.102E-01	2.411E+00	4.150E+00	3.045E-01	0.195
	1325.50			7.600E-01	2.949E+00	5.020E+00	3.656E-01	0.151
	1368.21			-2.511E-01	1.494E+00	2.417E+00	3.066E-01	-0.104
	1436.60			6.755E-03	3.016E+00	4.980E+00	3.589E-01	0.001
	1691.02	*		-1.246E-02	6.664E-02	1.052E-01	7.206E-03	-0.118
SB-125	427.89	*		-1.075E-02	8.814E-02	1.454E-01	8.656E-03	-0.074
	463.38			3.415E-01	3.402E-01	5.011E-01	3.393E-02	0.682
	600.56			1.462E-01	1.751E-01	2.962E-01	2.018E-02	0.494
	635.90			-3.745E-02	2.448E-01	3.959E-01	2.714E-02	-0.095
TE-125M	109.28	*		-8.436E+00	9.276E+00	1.458E+01	1.289E+00	-0.579
I-126	388.63			-1.334E-01	2.135E-01	3.437E-01	1.918E-02	-0.388
	666.33	*		1.056E-01	1.865E-01	2.809E-01	1.651E-02	0.376
	753.82			9.488E-01	1.443E+00	2.470E+00	1.709E-01	0.384
SB-126	223.80			6.258E-01	4.304E+00	6.943E+00	3.874E-01	0.090
	278.60			1.273E+00	2.358E+00	3.972E+00	2.300E-01	0.320
	296.50			1.206E+01	2.366E+00	3.516E+00	2.044E-01	3.430
	414.70			-8.404E-02	7.278E-02	1.121E-01	6.343E-03	-0.749
	415.30			-4.609E+00	5.900E+00	9.321E+00	5.275E-01	-0.494
	555.20			-3.344E-01	3.535E+00	5.775E+00	3.427E-01	-0.058
	573.80			-5.265E-01	1.079E+00	1.448E+00	8.591E-02	-0.364
	593.00			1.910E-01	8.839E-01	1.475E+00	8.740E-02	0.130
	656.30			1.693E+00	3.796E+00	5.628E+00	3.284E-01	0.301
	666.33			4.421E-02	7.809E-02	1.176E-01	6.913E-03	0.376
	675.00			1.037E+00	2.024E+00	3.433E+00	2.051E-01	0.302
	695.00			-1.146E-02	7.340E-02	1.182E-01	7.338E-03	-0.097
	697.00			-1.156E-01	2.615E-01	4.113E-01	2.563E-02	-0.281

---- Non-Identified Nuclides ----

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SB-127	720.50	*		1.456E-01	1.391E-01	2.217E-01	1.444E-02	0.657
	856.80			1.045E-01	4.860E-01	6.979E-01	5.756E-02	0.150
	989.30			2.890E-01	1.199E+00	1.973E+00	1.574E-01	0.146
	1034.80			1.010E+01	8.497E+00	1.562E+01	1.166E+00	0.646
	1213.00			-2.942E+00	5.165E+00	8.231E+00	4.883E-01	-0.357
	61.10			1.283E+02	7.002E+01	1.076E+02	1.147E+01	1.193
	252.40			-6.658E-01	4.991E+00	7.903E+00	3.289E+00	-0.084
	290.80			-8.265E+00	2.555E+01	3.657E+01	3.482E+00	-0.226
	411.60			7.748E+00	1.341E+01	2.297E+01	3.341E+00	0.337
	444.90			-5.100E+00	1.012E+01	1.619E+01	1.792E+00	-0.315
	473.00			-1.407E+00	1.938E+00	3.048E+00	3.500E-01	-0.462
	543.00			7.949E+00	1.761E+01	2.991E+01	3.954E+00	0.266
	603.60			-5.578E+00	1.553E+01	2.126E+01	2.365E+00	-0.262
	685.20	*		-3.884E-01	1.514E+00	2.420E+00	2.409E-01	-0.161
	698.50			5.975E+00	1.674E+01	2.801E+01	4.170E+00	0.213
	722.20			1.612E+01	3.273E+01	4.892E+01	4.883E+00	0.330
	783.80			2.658E+00	4.122E+00	7.016E+00	8.294E-01	0.379
XE-127	57.60			8.995E-01	6.157E+00	8.984E+00	6.731E-01	0.100
	145.22	+		7.429E-01	7.781E-01	1.150E+00	6.348E-02	0.646
	172.10			1.110E-02	1.165E-01	1.888E-01	9.920E-03	0.059
I-131	202.84	*		-2.291E-02	4.547E-02	7.140E-02	3.896E-03	-0.321
	374.96			2.006E-01	1.859E-01	3.281E-01	1.855E-02	0.611
	80.18			-1.437E+00	7.042E+00	7.180E+00	6.000E-01	-0.200
TE-132	284.30			-2.177E-02	1.483E+00	2.494E+00	1.611E-01	-0.009
	364.48	*		4.433E-03	1.174E-01	1.965E-01	1.256E-02	0.023
	636.97			-1.740E-01	1.505E+00	2.441E+00	1.603E-01	-0.071
BA-133	722.89			-1.224E+00	7.224E+00	9.939E+00	6.581E-01	-0.123
	49.72			1.041E+00	2.076E+01	3.440E+01	3.448E+00	0.030
	111.76			6.020E+00	3.564E+01	5.847E+01	5.632E+00	0.103
I-133	116.30			-8.262E+00	3.352E+01	5.410E+01	5.103E+00	-0.153
	228.16	*		-1.820E-01	8.774E-01	1.392E+00	2.016E-01	-0.131
	53.15			-1.110E+00	3.072E+00	5.008E+00	3.699E-01	-0.222
CS-134	79.62			1.885E+00	1.886E+00	2.083E+00	3.129E-01	0.905
	81.00			-8.677E-03	1.325E-01	1.366E-01	2.150E-02	-0.064
	276.40			3.720E-01	3.660E-01	5.690E-01	7.372E-02	0.654
I-133	302.84			-8.461E-02	1.338E-01	2.174E-01	2.536E-02	-0.389
	356.01	*		3.163E-02	4.835E-02	7.343E-02	8.463E-03	0.431
	383.85			1.606E-01	2.860E-01	4.907E-01	5.285E-02	0.327
CS-134	510.53	+		3.353E+00	2.860E-01	Half-Life	too short	
	529.87	*		1.896E-04	2.860E-01	Half-Life	too short	
	706.58			2.227E-01	2.860E-01	Half-Life	too short	
CS-134	856.28			9.467E-02	2.860E-01	Half-Life	too short	
	875.33			9.934E-02	2.860E-01	Half-Life	too short	
	1236.41			1.392E+00	2.860E-01	Half-Life	too short	
CS-134	1298.22			2.113E-01	2.860E-01	Half-Life	too short	
	475.35			-1.759E-01	1.912E+00	3.148E+00	1.838E-01	-0.056
	563.23			2.816E-01	3.478E-01	5.387E-01	3.262E-02	0.523
CS-134	569.32	+		1.122E+00	3.565E-01	4.657E-01	2.843E-02	2.409
	604.70			-2.087E-02	3.692E-02	4.939E-02	2.938E-03	-0.422



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	795.84	*		4.405E-02	4.240E-02	7.447E-02	5.599E-03	0.592
	801.93			1.302E-01	4.028E-01	6.687E-01	5.069E-02	0.195
	1038.57			-4.137E+00	3.738E+00	5.638E+00	4.181E-01	-0.734
	1167.94			-1.480E+00	2.351E+00	3.707E+00	2.064E-01	-0.399
	1365.15			6.253E-01	1.020E+00	1.818E+00	1.416E-01	0.344
	268.24	*		1.051E-01	1.635E-01	2.498E-01	1.906E-02	0.421
	288.45			-4.720E+10	1.635E-01	Half-Life	too short	
	417.63			1.475E+11	1.635E-01	Half-Life	too short	
	546.56			1.668E+10	1.635E-01	Half-Life	too short	
	836.80			3.350E+11	1.635E-01	Half-Life	too short	
	1038.76			-2.300E+11	1.635E-01	Half-Life	too short	
	1124.00			9.569E+11	1.635E-01	Half-Life	too short	
	1131.51			2.379E+10	1.635E-01	Half-Life	too short	
	1260.41	*		-8.271E+09	1.635E-01	Half-Life	too short	
	1457.56			2.014E+12	1.635E-01	Half-Life	too short	
CS-136 + CE-139 BA-140	1678.03			1.094E+11	1.635E-01	Half-Life	too short	
	1706.46			1.248E+11	1.635E-01	Half-Life	too short	
	1791.20			8.491E+09	1.635E-01	Half-Life	too short	
	66.91			-2.784E-01	8.541E-01	1.215E+00	1.809E-01	-0.229
	86.29			4.353E+00	1.699E+00	2.027E+00	2.630E-01	2.148
	153.22			-2.780E-01	6.674E-01	1.062E+00	7.336E-02	-0.262
	163.89			1.034E-02	1.044E+00	1.689E+00	1.151E-01	0.006
	176.55			-5.739E-02	3.749E-01	6.008E-01	3.643E-02	-0.096
	273.65			-5.879E-01	4.772E-01	6.387E-01	4.214E-02	-0.921
	340.57			3.141E-01	1.417E-01	2.346E-01	1.442E-02	1.339
	818.51			-1.082E-03	7.445E-02	1.204E-01	9.333E-03	-0.009
	1048.07	*		-5.338E-02	1.095E-01	1.759E-01	1.359E-02	-0.304
	1235.34			-5.377E-02	6.302E-01	1.042E+00	1.065E-01	-0.052
	165.85	*		-6.397E-03	2.862E-02	4.581E-02	2.392E-03	-0.140
	162.64			-3.639E-01	7.482E-01	1.184E+00	7.167E-02	-0.307
LA-140 + CE-141 CE-143	304.84			-1.263E+00	1.274E+00	1.955E+00	5.335E-01	-0.646
	423.70			4.709E-02	1.813E+00	3.018E+00	9.586E-01	0.016
	537.32	*		1.598E-01	2.569E-01	4.329E-01	1.409E-01	0.369
	328.77			1.841E-01	3.993E-01	5.441E-01	3.534E-02	0.338
	432.53			-5.676E-01	2.146E+00	3.508E+00	2.222E-01	-0.162
	487.03			1.264E-01	1.374E-01	2.401E-01	1.590E-02	0.526
	751.79			-3.185E-01	1.685E+00	2.695E+00	2.160E-01	-0.118
	815.85			2.464E-01	3.090E-01	5.355E-01	4.714E-02	0.460
	867.82			4.880E-01	1.431E+00	2.322E+00	2.059E-01	0.210
	919.63			-1.146E+00	3.138E+00	4.358E+00	4.647E-01	-0.263
	925.24			3.371E-01	1.031E+00	1.717E+00	1.568E-01	0.196
	1596.49	*		1.110E-02	7.678E-02	1.288E-01	8.713E-03	0.086
	145.44	*		1.363E-02	7.201E-02	1.031E-01	5.936E-03	0.132
	57.37			1.287E-04	7.201E-02	Half-Life	too short	
	231.56			6.413E-04	7.201E-02	Half-Life	too short	
	293.26	*		1.375E-03	7.201E-02	Half-Life	too short	
	350.59			3.513E-02	7.201E-02	Half-Life	too short	
	490.36			-2.446E-03	7.201E-02	Half-Life	too short	
	664.57			9.649E-03	7.201E-02	Half-Life	too short	

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	721.93			1.186E-03	7.201E-02	Half-Life too short		
CE-144	80.11			-3.072E-01	2.993E+00	3.078E+00	2.550E-01	-0.100
	133.54	*		-8.534E-02	1.949E-01	3.105E-01	4.398E-02	-0.275
PM-144	476.78			1.080E-02	6.878E-02	1.149E-01	8.018E-03	0.094
	618.01			1.856E-02	2.884E-02	4.846E-02	3.026E-03	0.383
	696.49	*		-5.383E-03	3.156E-02	5.077E-02	3.163E-03	-0.106
	778.57			-6.627E-01	2.297E+00	3.091E+00	2.235E-01	-0.214
PR-144	696.49	*		-3.650E-01	2.140E+00	3.442E+00	2.143E-01	-0.106
	1489.15			2.155E+00	8.278E+00	1.428E+01	1.012E+00	0.151
PM-146	453.90	*		3.162E-02	4.213E-02	7.284E-02	6.272E-03	0.434
	633.02			1.932E-01	1.240E+00	2.052E+00	7.560E-01	0.094
	735.90			5.708E-02	1.344E-01	2.251E-01	6.322E-02	0.254
	747.13			-4.928E-02	8.614E-02	1.328E-01	1.729E-02	-0.371
ND-147	91.11			1.548E+00	3.341E-01	5.484E-01	5.065E-02	2.823
	319.41			-6.394E-01	3.219E+00	5.344E+00	3.107E-01	-0.120
	439.89			2.910E+00	5.836E+00	9.977E+00	5.733E-01	0.292
	531.02	*		-2.678E-01	5.612E-01	8.920E-01	1.211E-01	-0.300
PM-149	285.90	*		3.109E+01	1.138E+02	1.939E+02	2.749E+01	0.160
EU-152	121.78			-4.519E-03	7.089E-02	1.151E-01	8.910E-03	-0.039
	244.69			1.984E-01	3.483E-01	5.045E-01	2.867E-02	0.393
	344.27	*		-1.740E-02	1.136E-01	1.425E-01	9.276E-03	-0.122
	443.98			-4.859E-01	8.324E-01	1.325E+00	7.629E-02	-0.367
	778.89			-7.773E-02	2.720E-01	3.665E-01	2.651E-02	-0.212
	867.32			2.907E-01	8.242E-01	1.300E+00	1.091E-01	0.224
	964.01			-3.875E-02	3.504E-01	4.790E-01	3.945E-02	-0.081
	1085.78			1.500E-01	3.870E-01	6.677E-01	4.544E-02	0.225
	1112.02			-9.336E-02	3.070E-01	5.003E-01	3.218E-02	-0.187
	1407.95			8.441E-02	1.642E-01	2.878E-01	2.091E-02	0.293
GD-153	69.67			1.543E+00	1.718E+00	2.568E+00	1.977E-01	0.601
	83.37			1.177E+01	1.396E+01	2.244E+01	1.917E+00	0.524
	97.43	*		3.723E-02	8.608E-02	1.259E-01	9.789E-03	0.296
	103.18			-1.120E-01	1.052E-01	1.647E-01	1.193E-02	-0.680
EU-154	123.07			-3.115E-03	5.007E-02	8.128E-02	7.711E-03	-0.038
	247.94			2.526E-02	3.586E-01	5.309E-01	5.032E-02	0.048
	591.81			-1.183E-01	5.624E-01	9.084E-01	8.948E-02	-0.130
	723.30			-5.812E-02	1.691E-01	2.274E-01	1.751E-02	-0.256
	756.87			1.028E-01	7.206E-01	1.185E+00	1.285E-01	0.087
	873.19			5.353E-03	2.846E-01	4.604E-01	5.588E-02	0.012
	996.32			-1.788E-01	3.613E-01	5.497E-01	9.580E-02	-0.325
	1004.76			-8.665E-02	2.162E-01	3.514E-01	3.884E-02	-0.247
	1274.45	*		-2.750E-02	1.182E-01	1.921E-01	1.901E-02	-0.143
EU-155	48.70			-5.852E-01	2.108E+00	3.453E+00	2.422E-01	-0.169
	60.01			7.991E+00	4.968E+00	7.671E+00	5.771E-01	1.042
	86.54	+		3.818E-01	1.446E-01	1.773E-01	1.579E-02	2.153
	105.31	*		1.523E-01	1.055E-01	1.801E-01	1.295E-02	0.846
TB-160	86.79	+		1.029E+00	3.894E-01	4.751E-01	4.203E-02	2.166
	197.04			2.530E-01	5.322E-01	8.659E-01	4.692E-02	0.292
	215.65			-4.526E-01	7.158E-01	1.114E+00	6.163E-02	-0.406
	298.57			1.551E-01	1.192E-01	1.885E-01	1.096E-02	0.823

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		879.36	*	-5.909E-02	1.383E-01	2.143E-01	1.833E-02	-0.276
		962.29		-7.652E-01	6.065E-01	7.521E-01	6.207E-02	-1.017
		966.15		2.987E-01	2.433E-01	3.789E-01	3.113E-02	0.788
		1177.93		-3.200E-01	3.559E-01	5.482E-01	3.033E-02	-0.584
		1271.85		4.367E-02	6.919E-01	1.156E+00	7.657E-02	0.038
		80.57		-1.789E-01	3.796E-01	3.779E-01	3.144E-02	-0.474
	+	184.41		1.190E-01	4.939E-02	6.235E-02	3.326E-03	1.908
		280.46		-4.402E-02	7.755E-02	1.271E-01	7.360E-03	-0.346
		410.95		2.458E-01	2.266E-01	3.992E-01	2.252E-02	0.616
		711.68	*	2.232E-02	5.455E-02	9.185E-02	5.883E-03	0.243
TM-171		752.31		-4.912E-03	2.502E-01	4.061E-01	2.802E-02	-0.012
		810.29		-6.059E-02	5.465E-02	7.880E-02	6.015E-03	-0.769
		51.35		7.907E-01	2.642E+01	4.373E+01	3.190E+00	0.018
		52.39		-2.061E-01	1.365E+01	2.254E+01	1.657E+00	-0.009
LU-176		59.40		3.043E+01	2.663E+01	4.047E+01	3.044E+00	0.752
		66.72	*	-1.777E+01	2.962E+01	4.161E+01	3.163E+00	-0.427
	+	88.36		7.515E-01	2.844E-01	3.578E-01	3.186E-02	2.101
		201.83		-3.739E-02	2.752E-02	4.140E-02	2.256E-03	-0.903
LU-177		306.84	*	-6.555E-03	2.246E-02	3.715E-02	2.161E-03	-0.176
		401.10		1.355E-01	6.285E+00	1.048E+01	5.872E-01	0.013
		112.95		4.542E-02	1.768E+00	2.886E+00	1.879E-01	0.016
		208.36	*	9.832E-01	1.181E+00	1.960E+00	1.076E-01	0.502
LU-177M		52.97		-5.612E-01	1.394E+00	2.269E+00	1.674E-01	-0.247
		54.07		-1.375E-01	7.420E-01	1.217E+00	9.029E-02	-0.113
		61.30		2.133E+00	1.549E+00	2.364E+00	1.779E-01	0.902
		121.62		5.069E-03	3.661E-01	5.962E-01	3.564E-02	0.009
HF-181		147.16		4.407E-01	6.873E-01	1.008E+00	5.536E-02	0.437
		171.86		2.136E-01	4.631E-01	7.619E-01	4.002E-02	0.280
		218.09		-7.507E-02	8.112E-01	1.296E+00	7.188E-02	-0.058
		268.79		8.717E-01	8.471E-01	1.320E+00	7.613E-02	0.660
		319.02		-5.783E-02	2.351E-01	3.892E-01	2.262E-02	-0.149
		367.43		1.042E+00	8.395E-01	1.493E+00	8.491E-02	0.697
		413.65	*	-1.507E-01	1.637E-01	2.568E-01	1.452E-02	-0.587
		56.28		-3.529E-01	8.393E-01	1.364E+00	1.019E-01	-0.259
		57.53		6.451E-02	5.164E-01	7.528E-01	5.639E-02	0.086
		65.20		1.224E-01	1.026E+00	1.490E+00	1.127E-01	0.082
		133.02		-6.981E-02	6.496E-02	1.009E-01	5.773E-03	-0.692
		136.25		-8.623E-02	4.372E-01	7.042E-01	3.989E-02	-0.122
		345.85		2.638E-02	1.954E-01	2.875E-01	1.656E-02	0.092
		482.03	*	-2.149E-02	4.304E-02	6.897E-02	4.036E-03	-0.312
W-181		56.28		-2.460E-01	3.294E-01	5.285E-01	3.947E-02	-0.465
		57.53		2.489E-02	2.002E-01	2.919E-01	2.186E-02	0.085
		65.20	*	4.706E-02	3.944E-01	5.730E-01	4.336E-02	0.082
TA-182		67.75		1.171E-03	1.254E-01	1.687E-01	1.288E-02	0.007
		100.10		1.406E-01	1.960E-01	2.902E-01	2.181E-02	0.484
		152.43		-2.315E-01	3.274E-01	5.147E-01	2.786E-02	-0.450
		222.10		-1.728E-01	3.512E-01	5.502E-01	3.066E-02	-0.314
		1001.68		1.233E+00	2.099E+00	3.597E+00	2.822E-01	0.343
	+	1121.28		5.014E-01	2.147E-01	3.297E-01	2.076E-02	1.521

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183	1189.05			-2.241E-01	3.073E-01	4.816E-01	2.725E-02	-0.465
	1221.42	*		-4.290E-02	2.169E-01	3.559E-01	2.146E-02	-0.121
	1230.97			-1.016E-01	5.027E-01	8.241E-01	5.061E-02	-0.123
	57.98			-3.256E-02	2.046E-01	2.940E-01	2.205E-02	-0.111
	59.32			1.204E-01	1.103E-01	1.673E-01	1.258E-02	0.720
	67.20			-2.680E-02	2.106E-01	3.025E-01	2.304E-02	-0.089
	162.32	*		-1.094E-01	1.062E-01	1.641E-01	8.643E-03	-0.667
RE-184	208.81			6.522E-01	9.856E-01	1.625E+00	8.924E-02	0.401
	291.72			-1.999E-01	9.609E-01	1.387E+00	8.059E-02	-0.144
	57.98			-1.193E-01	7.495E-01	1.077E+00	8.078E-02	-0.111
	59.32			4.409E-01	4.037E-01	6.125E-01	4.607E-02	0.720
	67.20			-9.817E-02	7.715E-01	1.108E+00	8.438E-02	-0.089
	161.27			-1.333E-01	3.392E-01	5.393E-01	2.849E-02	-0.247
	216.55			-1.551E-01	2.568E-01	4.002E-01	2.217E-02	-0.388
OS-185	252.85	*		8.666E-02	2.173E-01	3.543E-01	2.025E-02	0.245
	318.01			-1.300E-01	4.004E-01	6.601E-01	3.837E-02	-0.197
	792.07			-7.447E-01	9.302E-01	1.401E+00	1.037E-01	-0.532
	903.28			1.897E-01	9.664E-01	1.545E+00	1.355E-01	0.123
	920.93			-1.525E-01	4.369E-01	6.797E-01	5.864E-02	-0.224
	59.72			4.056E-01	2.975E-01	4.556E-01	3.428E-02	0.890
	61.14			3.135E-01	1.668E-01	2.591E-01	1.949E-02	1.210
RE-188	69.30			3.061E-01	3.298E-01	4.627E-01	3.554E-02	0.662
	592.07			-1.691E-01	2.335E+00	3.814E+00	2.260E-01	-0.044
	646.12	*		2.374E-02	3.743E-02	6.439E-02	3.771E-03	0.369
	717.42			-9.371E-01	7.878E-01	1.138E+00	7.369E-02	-0.823
	874.81			3.707E-02	5.654E-01	9.184E-01	7.799E-02	0.040
	880.27			2.727E-01	7.588E-01	1.264E+00	1.083E-01	0.216
	155.03	*		1.188E-02	1.693E-01	2.748E-01	1.477E-02	0.043
W-188	477.96			4.156E+00	3.012E+00	5.385E+00	3.147E-01	0.772
	633.10			4.102E-01	2.527E+00	4.192E+00	2.465E-01	0.098
IR-192	63.58			9.437E+01	7.251E+01	8.529E+01	6.433E+00	1.106
	227.08			7.128E+00	1.317E+01	2.160E+01	1.209E+00	0.330
AU-195	290.67	*		-4.789E+00	7.662E+00	1.073E+01	6.229E-01	-0.447
	295.96			8.826E-01	1.734E-01	2.621E-01	1.547E-02	3.368
TL-200	308.46			-2.297E-02	8.969E-02	1.487E-01	8.746E-03	-0.155
	316.51	*		-2.373E-02	3.141E-02	5.054E-02	2.953E-03	-0.470
TL-201	468.07			3.009E-03	6.959E-02	1.004E-01	6.734E-03	0.030
	604.41			-2.462E-01	5.060E-01	6.824E-01	7.786E-02	-0.361
TL-201	612.46			1.871E+00	8.603E-01	1.425E+00	1.091E-01	1.314
	65.12			3.536E-02	1.828E-01	2.663E-01	2.015E-02	0.133
TL-201	66.83			-5.219E-02	9.832E-02	1.386E-01	1.054E-02	-0.377
	75.70			1.175E+00	2.883E-01	4.246E-01	3.393E-02	2.766
TL-201	98.88	*		3.513E-01	2.399E-01	3.667E-01	2.799E-02	0.958
	129.76			3.265E+00	2.719E+00	4.607E+00	2.665E-01	0.709
TL-201	367.94	*		5.484E-04	2.719E+00	Half-Life	too short	
	579.30			6.742E-03	2.719E+00	Half-Life	too short	
TL-201	828.27			5.186E-03	2.719E+00	Half-Life	too short	
	1205.75			3.308E-03	2.719E+00	Half-Life	too short	
TL-201	68.90			5.450E+00	6.577E+00	9.191E+00	7.047E-01	0.593

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82		2.000E+00	3.538E+00	5.222E+00	4.043E-01	0.383
		80.30		-3.327E+00	8.782E+00	8.818E+00	7.319E-01	-0.377
		135.34		1.475E+01	2.952E+01	4.888E+01	2.777E+00	0.302
		167.43	*	1.605E+00	8.255E+00	1.344E+01	7.024E-01	0.119
		68.90		4.147E-01	5.005E-01	6.994E-01	5.362E-02	0.593
		70.82		1.518E-01	2.685E-01	3.963E-01	3.068E-02	0.383
HG-203		80.30		-2.526E-01	6.666E-01	6.694E-01	5.556E-02	-0.377
		439.56	*	3.951E-02	6.953E-02	1.193E-01	6.850E-03	0.331
		70.83		4.458E-01	1.126E+00	1.649E+00	2.155E-01	0.270
		72.87		1.568E+00	7.202E-01	1.078E+00	1.369E-01	1.455
BI-207		82.60		5.500E-01	1.032E+00	1.662E+00	2.269E-01	0.331
		279.20	*	9.536E-03	3.744E-02	6.378E-02	3.922E-03	0.150
		72.80		4.116E-01	2.016E-01	3.080E-01	2.413E-02	1.336
	+	74.97		6.492E-01	1.593E-01	2.159E-01	1.716E-02	3.007
		84.90		3.690E-01	1.857E-01	3.058E-01	2.652E-02	1.207
	+	569.67		1.747E-01	5.546E-02	7.128E-02	4.231E-03	2.451
TL-207		1063.62	*	6.872E-02	4.971E-02	9.209E-02	6.539E-03	0.746
		1770.23		1.276E-01	3.875E-01	5.984E-01	3.610E-02	0.213
		81.07		-1.614E-02	2.924E-01	3.018E-01	2.522E-02	-0.053
		83.78		1.010E-01	1.182E-01	1.900E-01	1.630E-02	0.532
		94.90		5.945E-01	2.493E-01	4.171E-01	3.358E-02	1.425
		122.32		-3.283E-01	1.706E+00	2.755E+00	1.882E-01	-0.119
	+	144.24		7.151E-01	7.495E-01	1.101E+00	7.728E-02	0.650
		154.21		1.143E-01	3.828E-01	6.268E-01	4.184E-02	0.182
	+	269.46		5.031E-01	2.861E-01	3.101E-01	1.871E-02	1.622
		323.87	*	1.123E-01	7.160E-01	1.056E+00	1.744E-01	0.106
PO-209	+	338.28		5.878E+00	1.619E+00	2.174E+00	2.287E-01	2.704
		445.03		-8.121E-01	1.970E+00	3.174E+00	3.252E-01	-0.256
		260.50		2.019E+00	9.251E+00	1.493E+01	8.572E-01	0.135
		262.80		8.967E+00	2.673E+01	4.190E+01	2.409E+00	0.214
		896.60	*	2.420E-01	7.259E+00	1.174E+01	1.032E+00	0.021
		46.50	*	7.278E-01	3.045E+00	5.105E+00	3.891E-01	0.143
BI-210		46.50	*	7.278E-01	3.045E+00	5.105E+00	3.891E-01	0.143
PB-210		46.50	*	7.278E-01	3.045E+00	5.105E+00	3.891E-01	0.143
PO-210		46.50	*	7.278E-01	3.045E+00	5.105E+00	3.891E-01	0.143
PB-211		404.84	*	-1.041E+00	1.096E+00	1.369E+00	8.531E-01	-0.760
BI-212		427.08		-2.199E-02	1.927E+00	3.201E+00	1.978E+00	-0.007
		831.96		-9.745E-01	1.304E+00	1.723E+00	1.078E+00	-0.566
	+	727.18	*	1.169E+00	3.919E-01	6.147E-01	5.117E-02	1.903
		785.46		1.075E+00	1.716E+00	2.919E+00	2.135E-01	0.368
PO-215		1620.62		-1.727E-01	1.181E+00	1.894E+00	1.264E-01	-0.091
		81.07		-1.614E-02	2.924E-01	3.018E-01	2.522E-02	-0.053
		83.78		1.010E-01	1.182E-01	1.900E-01	1.630E-02	0.532
		94.90		5.945E-01	2.493E-01	4.171E-01	3.358E-02	1.425
		122.32		-3.283E-01	1.706E+00	2.755E+00	1.882E-01	-0.119
	+	144.24		7.151E-01	7.495E-01	1.101E+00	7.728E-02	0.650
		154.21		1.143E-01	3.828E-01	6.268E-01	4.184E-02	0.182
	+	269.46		5.031E-01	2.861E-01	3.101E-01	1.871E-02	1.622
		323.87	*	1.123E-01	7.160E-01	1.056E+00	1.744E-01	0.106
	+	338.28		5.878E+00	1.619E+00	2.174E+00	2.287E-01	2.704

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		-8.121E-01	1.970E+00	3.174E+00	3.252E-01	-0.256
		271.23		6.455E-01	3.687E-01	3.940E-01	3.185E-02	1.638
		401.81	*	1.710E-02	3.828E-01	6.390E-01	8.642E-02	0.027
RN-220		549.76	*	-1.003E+01	2.245E+01	3.565E+01	2.115E+00	-0.281
RA-223		81.07		-1.614E-02	2.924E-01	3.018E-01	2.522E-02	-0.053
		83.78		1.010E-01	1.182E-01	1.900E-01	1.630E-02	0.532
		94.90		5.945E-01	2.493E-01	4.171E-01	3.358E-02	1.425
AC-227		122.32		-3.283E-01	1.706E+00	2.755E+00	1.882E-01	-0.119
		144.24	+	7.151E-01	7.495E-01	1.101E+00	7.728E-02	0.650
		154.21		1.143E-01	3.828E-01	6.268E-01	4.184E-02	0.182
	+	269.46		5.031E-01	2.861E-01	3.101E-01	1.871E-02	1.622
		323.87	*	1.123E-01	7.160E-01	1.056E+00	1.744E-01	0.106
	+	338.28		5.878E+00	1.619E+00	2.174E+00	2.287E-01	2.704
		445.03		-8.121E-01	1.970E+00	3.174E+00	3.252E-01	-0.256
		79.80		1.013E+00	2.347E+00	2.507E+00	5.356E-01	0.404
		236.00		1.442E+00	3.148E-01	4.877E-01	5.056E-02	2.957
		256.20	*	1.066E-01	3.666E-01	5.937E-01	8.270E-02	0.180
		286.10		2.377E-01	1.396E+00	2.368E+00	2.737E-01	0.100
		299.80		2.026E+00	1.510E+00	2.350E+00	3.828E-01	0.862
TH-227		304.40		-2.138E+00	1.781E+00	2.750E+00	4.758E-01	-0.778
		334.20		2.998E-01	2.672E+00	3.448E+00	6.321E-01	0.087
		79.80		1.013E+00	2.348E+00	2.507E+00	5.425E-01	0.404
	+	94.00		1.028E+01	3.750E+00	3.858E+00	8.334E-01	2.664
		236.00		1.442E+00	3.057E-01	4.877E-01	4.369E-02	2.957
	+	256.20	*	1.066E-01	3.668E-01	5.937E-01	1.002E-01	0.180
		286.10		2.377E-01	1.416E+00	2.368E+00	2.372E+00	0.100
		299.80		2.026E+00	1.510E+00	2.350E+00	3.828E-01	0.862
		304.40		-2.138E+00	1.781E+00	2.750E+00	4.758E-01	-0.778
		334.20		2.998E-01	2.672E+00	3.448E+00	6.321E-01	0.087
TH-229	+	85.43		5.527E-01	1.912E-01	3.175E-01	2.769E-02	1.741
		88.47		4.326E-01	1.637E-01	2.051E-01	1.823E-02	2.110
		100.00		1.470E-01	2.023E-01	2.997E-01	2.255E-02	0.491
		193.63	*	-5.504E-02	4.779E-01	7.651E-01	4.129E-02	-0.072
		210.97		1.596E+00	7.370E-01	1.281E+00	7.055E-02	1.246
PA-231		283.67	*	3.808E-01	1.398E+00	2.381E+00	3.282E-01	0.160
TH-231		301.29		3.918E-01	5.412E-01	9.150E-01	9.572E-02	0.428
		81.07		-1.614E-02	2.924E-01	3.018E-01	2.522E-02	-0.053
		83.78		1.010E-01	1.182E-01	1.900E-01	1.630E-02	0.532
U-231		94.90		5.945E-01	2.493E-01	4.171E-01	3.358E-02	1.425
		122.32		-3.283E-01	1.706E+00	2.755E+00	1.882E-01	-0.119
	+	144.24		7.151E-01	7.495E-01	1.101E+00	7.728E-02	0.650
		154.21		1.143E-01	3.828E-01	6.268E-01	4.184E-02	0.182
	+	269.46		5.031E-01	2.861E-01	3.101E-01	1.871E-02	1.622
		323.87	*	1.123E-01	7.160E-01	1.056E+00	1.744E-01	0.106
	+	338.28		5.878E+00	1.619E+00	2.174E+00	2.287E-01	2.704
		445.03		-8.121E-01	1.970E+00	3.174E+00	3.252E-01	-0.256
	+	84.21		5.866E+00	5.979E+00	9.646E+00	8.310E-01	0.608
		92.29		1.193E+01	3.640E+00	4.669E+00	3.904E-01	2.555
		95.87	*	-1.353E-01	1.423E+00	2.031E+00	1.613E-01	-0.067

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		-4.186E-01	2.354E+00	3.816E+00	2.617E-01	-0.110
	+	75.28		1.894E+01	5.234E+00	6.572E+00	9.851E-01	2.882
	+	86.59		6.203E+00	2.827E+00	2.877E+00	7.737E-01	2.156
		300.12		5.418E-01	4.167E-01	6.522E-01	8.768E-02	0.831
		311.98	*	1.597E-02	5.846E-02	9.947E-02	6.141E-03	0.161
		340.50		1.628E+00	7.542E-01	1.107E+00	2.542E-01	1.471
		398.62		3.654E-01	1.978E+00	3.324E+00	8.580E-01	0.110
PA-234		415.76		-7.223E-01	1.467E+00	2.352E+00	4.833E-01	-0.307
	+	63.00		2.710E+00	2.112E+00	2.535E+00	3.783E-01	1.069
		94.67		5.896E-01	1.930E-01	3.128E-01	3.763E-02	1.885
		98.44		1.130E-01	1.161E-01	1.479E-01	8.229E-02	0.764
		99.86		4.887E-01	5.080E-01	7.602E-01	5.730E-02	0.643
		111.00		1.592E-02	1.796E-01	2.938E-01	3.164E-02	0.054
		131.20		2.035E-02	1.003E-01	1.643E-01	9.457E-03	0.124
		152.70		-9.067E-02	3.108E-01	4.968E-01	7.784E-02	-0.183
	+	186.00		4.283E+00	2.194E+00	2.320E+00	7.069E-01	1.846
		226.40		2.949E-01	4.104E-01	6.762E-01	7.748E-02	0.436
		227.20		2.239E-01	4.409E-01	7.218E-01	4.041E-02	0.310
		248.90		-2.193E-01	7.644E-01	1.200E+00	2.576E-01	-0.183
	+	293.70		5.505E+00	1.360E+00	1.582E+00	2.546E-01	3.479
		369.80		-8.021E-01	8.089E-01	1.245E+00	2.588E-01	-0.644
	+	568.70		5.686E+00	1.805E+00	2.402E+00	1.426E-01	2.367
	+	569.50		1.551E+00	4.922E-01	6.379E-01	3.787E-02	2.431
		574.00		-7.557E-01	1.464E+00	1.957E+00	1.162E-01	-0.386
		699.00		3.267E-01	6.621E-01	1.116E+00	2.024E-01	0.293
		706.10		2.566E-02	9.962E-01	1.627E+00	7.192E-01	0.016
		733.00		-4.005E-01	4.006E-01	4.758E-01	1.023E-01	-0.842
		742.81		3.353E-01	1.346E+00	2.203E+00	1.476E+00	0.152
		796.30		6.993E-01	8.700E-01	1.470E+00	3.924E-01	0.476
		805.60		3.794E-01	9.920E-01	1.648E+00	5.004E-01	0.230
		819.60		2.716E-01	1.169E+00	1.925E+00	7.284E-01	0.141
		826.30		-4.387E-01	7.880E-01	1.169E+00	5.212E-01	-0.375
		831.60		-4.588E-01	6.070E-01	8.901E-01	2.639E-01	-0.515
		876.40		4.215E-01	8.859E-01	1.312E+00	1.348E+00	0.321
		880.51		1.615E-01	2.736E-01	4.644E-01	3.980E-02	0.348
		883.24		5.129E-03	2.796E-01	4.520E-01	3.038E-01	0.011
		899.00		5.497E-01	8.214E-01	1.348E+00	5.899E-01	0.408
		925.00		4.518E-01	1.028E+00	1.729E+00	1.486E-01	0.261
		926.50		-1.110E-01	1.607E-01	2.359E-01	5.960E-02	-0.470
		946.00	*	2.818E-02	2.868E-01	4.657E-01	8.693E-02	0.061
		949.00		-1.614E-01	4.638E-01	7.226E-01	6.054E-02	-0.223
		980.50		3.532E-01	7.011E-01	1.180E+00	9.520E-02	0.299
PA-234M		1394.10		-9.422E-02	9.233E-01	1.500E+00	9.738E-01	-0.063
		766.42		1.391E+01	1.471E+01	2.011E+01	1.015E+01	0.692
NP-236		1001.03	*	4.107E+00	4.688E+00	8.183E+00	7.618E-01	0.502
		94.67		4.499E-01	1.410E-01	2.375E-01	1.918E-02	1.895
		98.44		8.539E-02	7.407E-02	1.118E-01	8.579E-03	0.764
		111.00		1.204E-02	1.358E-01	2.223E-01	1.477E-02	0.054
		160.31	*	-6.375E-03	7.593E-02	1.224E-01	6.483E-03	-0.052

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	99.55			2.186E-01	1.680E-01	2.551E-01	1.930E-02	0.857
	117.00	*		-2.395E-02	1.867E-01	3.027E-01	1.893E-02	-0.079
	209.75			1.056E+00	7.658E-01	1.295E+00	7.121E-02	0.816
	228.18			-4.799E-02	2.330E-01	3.699E-01	2.073E-02	-0.130
	277.60			1.681E-01	1.741E-01	2.820E-01	1.632E-02	0.596
AM-241	334.30			1.183E-01	1.512E+00	1.945E+00	1.126E-01	0.061
	59.54	*		1.922E-01	1.552E-01	2.364E-01	1.946E-02	0.813
CM-243	99.55			2.250E-01	1.729E-01	2.625E-01	1.987E-02	0.857
	103.76	*		-4.205E-02	9.519E-02	1.529E-01	1.100E-02	-0.275
	117.00			-2.464E-02	1.921E-01	3.115E-01	1.948E-02	-0.079
	209.75			1.041E+00	7.549E-01	1.277E+00	7.021E-02	0.816
	228.18			-4.850E-02	2.355E-01	3.738E-01	2.094E-02	-0.130
AM-246	277.60			1.695E-01	1.755E-01	2.843E-01	1.645E-02	0.596
	798.80			-1.149E-01	1.392E-01	2.097E-01	1.569E-02	-0.548
	1036.00			4.126E-02	2.769E-01	4.702E-01	3.502E-02	0.088
	1062.04			2.633E-01	2.200E-01	4.023E-01	2.865E-02	0.654
	1078.86	*		-6.770E-02	1.289E-01	2.052E-01	1.416E-02	-0.330
CM-247	278.00			3.954E-01	7.012E-01	1.150E+00	6.654E-02	0.344
	287.40			3.756E-01	1.178E+00	1.906E+00	1.106E-01	0.197
CF-249	402.60	*		1.970E-03	3.365E-02	5.622E-02	3.154E-03	0.035
	252.85			3.239E-01	8.120E-01	1.324E+00	7.568E-02	0.245
	333.44			-8.308E-02	2.251E-01	2.475E-01	1.434E-02	-0.336
CF-251	387.95	*		-3.668E-02	3.974E-02	6.285E-02	3.510E-03	-0.584
	176.60	*		2.722E-02	1.210E-01	1.971E-01	1.041E-02	0.138
	227.00			2.093E-01	3.913E-01	6.414E-01	3.591E-02	0.326
	285.00			1.148E-01	1.601E+00	2.703E+00	1.568E-01	0.042



## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229011      *
* Acquisition date   : 22-JAN-2010 14:16:00 Detector SN# :                  *
* Detector ID        : GAM19 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.61 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229011 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.4570E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                           *
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                             *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.174E+01	2.845E+00	4.802E-01	0.000E+00
CD-109	3.228E+00	1.197E+00	1.244E+00	0.000E+00
SN-126	3.169E-01	1.175E-01	1.227E-01	0.000E+00
BA-137M	4.864E-01	7.100E-02	5.787E-02	0.000E+00
CS-137	5.141E-01	7.510E-02	6.117E-02	0.000E+00
TL-208	3.880E-01	7.444E-02	5.465E-02	0.000E+00
BI-211	2.707E+00	4.685E-01	3.349E-01	0.000E+00
PB-212	1.320E+00	1.330E-01	8.958E-02	0.000E+00
PO-212	1.320E+00	1.330E-01	8.958E-02	0.000E+00
BI-214	8.560E-01	1.625E-01	1.066E-01	0.000E+00
PB-214	9.417E-01	1.699E-01	1.167E-01	0.000E+00
PO-214	9.417E-01	1.699E-01	1.167E-01	0.000E+00
PO-216	1.320E+00	1.330E-01	8.958E-02	0.000E+00
PO-218	9.417E-01	1.699E-01	1.167E-01	0.000E+00
RA-224	3.883E+00	1.322E+00	1.019E+00	0.000E+00
RA-226	8.560E-01	1.625E-01	1.066E-01	0.000E+00
AC-228	1.172E+00	2.845E-01	2.028E-01	0.000E+00
RA-228	1.172E+00	2.845E-01	2.028E-01	0.000E+00
TH-228	1.342E+00	1.352E-01	9.103E-02	0.000E+00
TH-230	8.560E-01	1.625E-01	1.066E-01	0.000E+00
TH-232	1.172E+00	2.845E-01	2.028E-01	0.000E+00
TH-234	2.325E+00	1.788E+00	2.049E+00	0.000E+00
U-234	8.560E-01	1.625E-01	1.066E-01	0.000E+00
U-235	2.206E-01	2.288E-01	3.417E-01	0.000E+00
NP-237	9.305E-01	3.931E-01	3.641E-01	0.000E+00
U-238	2.325E+00	1.788E+00	2.049E+00	0.000E+00
AM-243	3.616E-01	8.698E-02	8.819E-02	0.000E+00
ANH-511	1.508E-01	5.810E-02	4.017E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	2.399E-01	3.156E-01	5.742E-01	0.000E+00	NOT IDENT.
NA-22	-1.381E-02	4.183E-02	6.937E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	1.795E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.705E-03	2.323E-02	3.926E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.701E-02	7.732E-02	0.000E+00	FAIL ABUN
SC-46	-1.573E-02	3.614E-02	5.794E-02	0.000E+00	FAIL ABUN
V-48	-3.071E-02	6.999E-02	1.113E-01	0.000E+00	NOT IDENT.
CR-51	-2.170E-01	3.432E-01	5.915E-01	0.000E+00	NOT IDENT.
MN-52	1.733E-01	2.046E-01	3.872E-01	0.000E+00	NOT IDENT.
MN-54	-1.852E-02	3.708E-02	5.985E-02	0.000E+00	NOT IDENT.
CO-56	1.073E-03	3.453E-02	5.821E-02	0.000E+00	NOT IDENT.
CO-57	-2.614E-03	2.407E-02	4.233E-02	0.000E+00	NOT IDENT.
CO-58	-4.850E-02	3.703E-02	5.458E-02	0.000E+00	NOT IDENT.
FE-59	-3.347E-02	9.048E-02	1.516E-01	0.000E+00	FAIL ABUN
CO-60	1.379E-02	3.727E-02	6.606E-02	0.000E+00	NOT IDENT.
ZN-65	2.003E-02	9.369E-02	1.429E-01	0.000E+00	NOT IDENT.
GE-68	-2.725E-02	1.115E+00	1.924E+00	0.000E+00	NOT IDENT.
AS-73	-2.288E-01	7.046E-01	1.270E+00	0.000E+00	NOT IDENT.
AS-74	-3.730E-02	8.833E-02	1.473E-01	0.000E+00	NOT IDENT.
SE-75	3.389E-02	4.408E-02	7.254E-02	0.000E+00	NOT IDENT.
BR-77	5.356E+00	1.169E+01	2.095E+01	0.000E+00	FAIL ABUN
SR-82	-1.801E-02	3.661E-01	5.307E-01	0.000E+00	NOT IDENT.
RB-83	4.622E-02	5.815E-02	1.043E-01	0.000E+00	NOT IDENT.
RB-84	5.991E-02	6.593E-02	1.192E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.163E+00	1.255E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.710E-02	6.503E-02	0.000E+00	NOT IDENT.
RB-86	-5.501E-02	7.277E-01	1.250E+00	0.000E+00	NOT IDENT.
Y-88	5.791E-04	2.588E-02	4.322E-02	0.000E+00	NOT IDENT.
ZR-88	-1.020E-02	2.993E-02	5.179E-02	0.000E+00	NOT IDENT.
Y-91	3.443E+00	1.798E+01	3.130E+01	0.000E+00	NOT IDENT.
NB-94	1.307E-02	3.109E-02	5.454E-02	0.000E+00	NOT IDENT.
NB-95	3.130E-02	4.703E-02	7.343E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.378E-01	2.337E-01	0.000E+00	NOT IDENT.
ZR-95	3.837E-02	6.561E-02	1.163E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.701E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.702E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	7.983E+00	1.426E+01	2.516E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	5.924E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	9.725E-03	3.056E-02	5.303E-02	0.000E+00	NOT IDENT.
RH-102	-7.091E-03	2.818E-02	4.838E-02	0.000E+00	NOT IDENT.
RU-103	-3.154E-03	3.750E-02	6.485E-02	0.000E+00	FAIL ABUN
RH-106	-4.248E-02	2.695E-01	4.563E-01	0.000E+00	FAIL ABUN
RU-106	-4.248E-02	2.695E-01	4.563E-01	0.000E+00	FAIL ABUN
AG-108M	-1.519E-02	3.270E-02	5.485E-02	0.000E+00	NOT IDENT.
AG-110M	2.731E-02	3.704E-02	5.894E-02	0.000E+00	NOT IDENT.
IN-111	3.148E-01	1.354E+00	2.050E+00	0.000E+00	NOT IDENT.
IN-113M	-1.006E-02	4.378E-02	7.624E-02	0.000E+00	NOT IDENT.
SN-113	-1.006E-02	4.378E-02	7.624E-02	0.000E+00	NOT IDENT.
IN-114M	6.738E-02	1.886E-01	2.911E-01	0.000E+00	NOT IDENT.
CD-115	8.540E+00	1.305E+01	2.362E+01	0.000E+00	NOT IDENT.
SN-117M	-1.662E-02	5.588E-02	9.640E-02	0.000E+00	NOT IDENT.
SB-122	3.111E+00	2.559E+00	4.295E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.918E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.392E-02	2.762E-02	4.723E-02	0.000E+00	NOT IDENT.
I-124	-1.017E-01	8.689E-01	1.278E+00	0.000E+00	NOT IDENT.
SB-124	-1.246E-02	6.531E-02	1.054E-01	0.000E+00	NOT IDENT.
SB-125	-1.075E-02	8.637E-02	1.504E-01	0.000E+00	FAIL ABUN
TE-125M	-8.436E+00	9.090E+00	1.554E+01	0.000E+00	NOT IDENT.
I-126	1.056E-01	1.827E-01	2.877E-01	0.000E+00	NOT IDENT.
SB-126	1.456E-01	1.364E-01	2.267E-01	0.000E+00	FAIL ABUN
SB-127	-3.884E-01	1.484E+00	2.477E+00	0.000E+00	NOT IDENT.
XE-127	-2.291E-02	4.456E-02	7.511E-02	0.000E+00	FAIL ABUN
I-131	4.433E-03	1.150E-01	2.040E-01	0.000E+00	NOT IDENT.
TE-132	-1.820E-01	8.599E-01	1.460E+00	0.000E+00	NOT IDENT.
BA-133	3.163E-02	4.738E-02	7.629E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.179E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	4.405E-02	4.155E-02	7.596E-02	0.000E+00	FAIL ABUN
CS-135	1.051E-01	1.603E-01	2.611E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.389E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.338E-02	1.073E-01	1.782E-01	0.000E+00	FAIL ABUN
CE-139	-6.397E-03	2.805E-02	4.840E-02	0.000E+00	NOT IDENT.
BA-140	1.598E-01	2.517E-01	4.456E-01	0.000E+00	NOT IDENT.
LA-140	1.110E-02	7.524E-02	1.292E-01	0.000E+00	FAIL ABUN
CE-141	1.363E-02	7.057E-02	1.092E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.913E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-8.534E-02	1.910E-01	3.296E-01	0.000E+00	NOT IDENT.
PM-144	-5.383E-03	3.093E-02	5.195E-02	0.000E+00	NOT IDENT.

PR-144	-3.650E-01	2.097E+00	3.522E+00	0.000E+00	NOT IDENT.
PM-146	3.162E-02	4.129E-02	7.526E-02	0.000E+00	NOT IDENT.
ND-147	-2.678E-01	5.500E-01	9.184E-01	0.000E+00	NOT IDENT.
PM-149	3.109E+01	1.116E+02	2.024E+02	0.000E+00	NOT IDENT.
EU-152	-1.740E-02	1.113E-01	1.482E-01	0.000E+00	NOT IDENT.
GD-153	3.723E-02	8.436E-02	1.345E-01	0.000E+00	NOT IDENT.
EU-154	-2.750E-02	1.159E-01	1.938E-01	0.000E+00	NOT IDENT.
EU-155	1.523E-01	1.034E-01	1.921E-01	0.000E+00	FAIL ABUN
TB-160	-5.909E-02	1.355E-01	2.180E-01	0.000E+00	FAIL ABUN
HO-166M	2.232E-02	5.346E-02	9.393E-02	0.000E+00	FAIL ABUN
TM-171	-1.777E+01	2.903E+01	4.483E+01	0.000E+00	NOT IDENT.
LU-176	-6.555E-03	2.201E-02	3.872E-02	0.000E+00	FAIL ABUN
LU-177	9.832E-01	1.158E+00	2.061E+00	0.000E+00	NOT IDENT.
LU-177M	-1.507E-01	1.604E-01	2.659E-01	0.000E+00	NOT IDENT.
HF-181	-2.149E-02	4.218E-02	7.116E-02	0.000E+00	NOT IDENT.
W-181	4.706E-02	3.866E-01	6.175E-01	0.000E+00	NOT IDENT.
TA-182	-4.290E-02	2.125E-01	3.594E-01	0.000E+00	FAIL ABUN
RE-183	-1.094E-01	1.041E-01	1.734E-01	0.000E+00	NOT IDENT.
RE-184	8.666E-02	2.129E-01	3.709E-01	0.000E+00	NOT IDENT.
OS-185	2.374E-02	3.669E-02	6.599E-02	0.000E+00	NOT IDENT.
RE-188	1.188E-02	1.660E-01	2.908E-01	0.000E+00	NOT IDENT.
W-188	-4.789E+00	7.509E+00	1.119E+01	0.000E+00	FAIL ABUN
IR-192	-2.373E-02	3.078E-02	5.265E-02	0.000E+00	FAIL ABUN
AU-195	3.513E-01	2.351E-01	3.917E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	7.740E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.605E+00	8.089E+00	1.420E+01	0.000E+00	NOT IDENT.
TL-202	3.951E-02	6.814E-02	1.233E-01	0.000E+00	NOT IDENT.
HG-203	9.536E-03	3.669E-02	6.662E-02	0.000E+00	NOT IDENT.
BI-207	6.872E-02	4.872E-02	9.330E-02	0.000E+00	FAIL ABUN
TL-207	1.123E-01	7.016E-01	1.099E+00	0.000E+00	FAIL ABUN
PO-209	2.420E-01	7.114E+00	1.195E+01	0.000E+00	NOT IDENT.
BI-210	7.278E-01	2.984E+00	5.541E+00	0.000E+00	NOT IDENT.
PB-210	7.278E-01	2.984E+00	5.541E+00	0.000E+00	NOT IDENT.
PO-210	7.278E-01	2.984E+00	5.541E+00	0.000E+00	NOT IDENT.
PB-211	-1.041E+00	1.074E+00	1.418E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.841E-01	6.283E-01	0.000E+00	FAIL ABUN
PO-215	1.123E-01	7.016E-01	1.099E+00	0.000E+00	FAIL ABUN
RN-219	1.710E-02	3.751E-01	6.621E-01	0.000E+00	FAIL ABUN
RN-220	-1.003E+01	2.200E+01	3.668E+01	0.000E+00	NOT IDENT.
RA-223	1.123E-01	7.016E-01	1.099E+00	0.000E+00	FAIL ABUN
AC-227	1.066E-01	3.593E-01	6.213E-01	0.000E+00	NOT IDENT.
TH-227	1.066E-01	3.594E-01	6.213E-01	0.000E+00	FAIL ABUN
TH-229	-5.504E-02	4.683E-01	8.057E-01	0.000E+00	FAIL ABUN
PA-231	3.808E-01	1.370E+00	2.487E+00	0.000E+00	NOT IDENT.
TH-231	1.123E-01	7.016E-01	1.099E+00	0.000E+00	FAIL ABUN
U-231	-1.353E-01	1.395E+00	2.171E+00	0.000E+00	FAIL ABUN
PA-233	1.597E-02	5.729E-02	1.036E-01	0.000E+00	FAIL ABUN
PA-234	2.818E-02	2.811E-01	4.731E-01	0.000E+00	FAIL ABUN
PA-234M	4.107E+00	4.594E+00	8.302E+00	0.000E+00	NOT IDENT.
NP-236	-6.375E-03	7.442E-02	1.294E-01	0.000E+00	NOT IDENT.
NP-239	-2.395E-02	1.830E-01	3.222E-01	0.000E+00	NOT IDENT.
AM-241	1.922E-01	1.521E-01	2.553E-01	0.000E+00	NOT IDENT.
CM-243	-4.205E-02	9.329E-02	1.632E-01	0.000E+00	NOT IDENT.
AM-246	-6.770E-02	1.263E-01	2.078E-01	0.000E+00	NOT IDENT.
CM-247	1.970E-03	3.298E-02	5.825E-02	0.000E+00	NOT IDENT.
CF-249	-3.668E-02	3.894E-02	6.517E-02	0.000E+00	NOT IDENT.
CF-251	2.722E-02	1.186E-01	2.079E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229011.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:16:00
Sample ID       : G244229011           Sample quantity  : 1.45700E+02 GRAM
Detector name   : GAM19                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.61  0.0%
Energy tolerance: 1.50000 keV           Analyst Initials : MXR1
Abundance limit : 75.00000              Sensitivity      : 5.00000
Batch ID        : 941239                 Detector SN#      :
Matrix Spike ID :                        LCS ID          : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1536	10.67*	1.168E+00	3.174E+01	3.174E+01	9.15
CD-109	88.03	278	3.72*	6.112E+00	3.152E+00	3.228E+00	37.85
SN-126	64.28	124	9.60	3.622E+00	9.204E-01	9.204E-01	77.85
	86.94	278	8.90	6.112E+00	1.317E+00	1.317E+00	55.39
	87.57	278	37.00*	6.112E+00	3.169E-01	3.169E-01	37.85
BA-137M	661.65	390	89.98*	2.301E+00	4.859E-01	4.864E-01	14.90
CS-137	661.65	390	85.12*	2.301E+00	5.136E-01	5.141E-01	14.90
TL-208	277.35	-----	6.80	4.511E+00	-----	Line Not Found	-----
	510.84	166	21.60	2.842E+00	6.981E-01	6.981E-01	40.19
	583.14	324	84.20*	2.554E+00	3.880E-01	3.880E-01	19.58
	860.37	51	12.46	1.836E+00	5.760E-01	5.760E-01	59.54
BI-211	72.87	-----	1.27	4.857E+00	-----	Line Not Found	-----
	351.07	515	12.94*	3.787E+00	2.707E+00	2.707E+00	17.66
PB-212	74.81	470	10.70	5.073E+00	2.231E+00	2.231E+00	26.26
	77.11	566	18.00	5.308E+00	1.526E+00	1.526E+00	17.03
	87.30	278	8.00	6.112E+00	1.465E+00	1.465E+00	39.14
	238.63	1147	44.60*	5.016E+00	1.320E+00	1.320E+00	10.28
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
PO-212	74.81	470	10.70	5.073E+00	2.231E+00	2.231E+00	26.26
	77.11	566	18.00	5.308E+00	1.526E+00	1.526E+00	17.03
	87.30	278	8.00	6.112E+00	1.465E+00	1.465E+00	39.14
	115.19	-----	0.60	6.866E+00	-----	Line Not Found	-----
	238.63	1147	44.60*	5.016E+00	1.320E+00	1.320E+00	10.28
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
BI-214	609.31	379	46.30*	2.464E+00	8.560E-01	8.560E-01	19.37
	1120.29	90	15.10	1.455E+00	1.054E+00	1.054E+00	43.33
	1764.49	81	15.80	1.029E+00	1.277E+00	1.277E+00	33.05
PB-214	74.81	470	6.21	5.073E+00	3.843E+00	3.844E+00	25.64
	77.11	566	10.50	5.308E+00	2.616E+00	2.616E+00	18.66
	87.30	278	4.67	6.112E+00	2.510E+00	2.510E+00	38.62
	241.98	296	7.49	4.974E+00	2.048E+00	2.048E+00	35.19
	295.21	369	19.20	4.313E+00	1.147E+00	1.147E+00	20.59

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	515	37.20*	3.787E+00	9.417E-01	9.417E-01	18.41
	74.81	470	6.21	5.073E+00	3.843E+00	3.844E+00	25.64
	77.11	566	10.50	5.308E+00	2.616E+00	2.616E+00	18.66
	87.30	278	4.67	6.112E+00	2.510E+00	2.510E+00	38.62
	241.98	296	7.49	4.974E+00	2.048E+00	2.048E+00	35.19
PO-216	295.21	369	19.20	4.313E+00	1.147E+00	1.147E+00	20.59
	351.92	515	37.20*	3.787E+00	9.417E-01	9.417E-01	18.41
	74.81	470	10.70	5.073E+00	2.231E+00	2.231E+00	26.26
	77.11	566	18.00	5.308E+00	1.526E+00	1.526E+00	17.03
	87.30	278	8.00	6.112E+00	1.465E+00	1.465E+00	39.14
PO-218	238.63	1147	44.60*	5.016E+00	1.320E+00	1.320E+00	10.28
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
	74.81	470	6.21	5.073E+00	3.843E+00	3.844E+00	25.64
	77.11	566	10.50	5.308E+00	2.616E+00	2.616E+00	18.66
	87.30	278	4.67	6.112E+00	2.510E+00	2.510E+00	38.62
RA-224	241.98	296	7.49	4.974E+00	2.048E+00	2.048E+00	35.19
	295.21	369	19.20	4.313E+00	1.147E+00	1.147E+00	20.59
	351.92	515	37.20*	3.787E+00	9.417E-01	9.417E-01	18.41
	240.98	296	3.95*	4.974E+00	3.883E+00	3.883E+00	34.74
	609.31	379	46.30*	2.464E+00	8.560E-01	8.560E-01	19.37
AC-228	1120.29	90	15.10	1.455E+00	1.054E+00	1.054E+00	43.33
	1764.49	81	15.80	1.029E+00	1.277E+00	1.277E+00	33.05
	338.32	243	11.40	3.903E+00	1.408E+00	1.408E+00	48.06
	911.07	220	27.70*	1.745E+00	1.172E+00	1.172E+00	24.77
	969.11	98	16.60	1.652E+00	9.214E-01	9.214E-01	54.58
RA-228	338.32	243	11.40	3.903E+00	1.408E+00	1.408E+00	48.06
	911.07	220	27.70*	1.745E+00	1.172E+00	1.172E+00	24.77
	969.11	98	16.60	1.652E+00	9.214E-01	9.214E-01	54.58
	74.81	470	10.70	5.073E+00	2.231E+00	2.267E+00	24.57
	77.11	566	18.00	5.308E+00	1.526E+00	1.551E+00	17.03
TH-228	87.30	278	8.00	6.112E+00	1.465E+00	1.489E+00	37.85
	238.63	1147	44.60*	5.016E+00	1.320E+00	1.342E+00	10.28
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
	609.31	379	46.30*	2.464E+00	8.560E-01	8.560E-01	19.37
	1120.29	90	15.10	1.455E+00	1.054E+00	1.054E+00	43.33
TH-230	1764.49	81	15.80	1.029E+00	1.277E+00	1.277E+00	33.05
	338.32	243	11.40	3.903E+00	1.408E+00	1.408E+00	26.10
	911.07	220	27.70*	1.745E+00	1.172E+00	1.172E+00	24.77
	969.11	98	16.60	1.652E+00	9.214E-01	9.214E-01	54.58
	63.29	124	3.80*	3.622E+00	2.325E+00	2.325E+00	78.44
TH-234	92.38	357	5.41	6.388E+00	2.660E+00	2.660E+00	34.41
	609.31	379	46.30*	2.464E+00	8.560E-01	8.560E-01	19.37
	1120.29	90	15.10	1.455E+00	1.054E+00	1.054E+00	43.33
	1764.49	81	15.80	1.029E+00	1.277E+00	1.277E+00	33.05
	89.95	-----	2.70	6.249E+00	-----	Line Not Found	-----
U-234	93.35	357	4.50	6.388E+00	3.197E+00	3.197E+00	40.53
	105.00	-----	2.10	6.763E+00	-----	Line Not Found	-----
	143.76	60	10.50*	6.634E+00	2.206E-01	2.206E-01	105.83
	163.35	-----	4.70	6.300E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	185.71	196	54.00	5.885E+00	1.586E-01	1.586E-01	41.51
	205.31	-----	4.70	5.540E+00	-----	Line Not Found	-----
NP-237	86.50	278	12.60*	6.112E+00	9.305E-01	9.305E-01	43.11
	95.87	-----	2.60	6.515E+00	-----	Line Not Found	-----
U-238	63.29	124	3.80*	3.622E+00	2.325E+00	2.325E+00	78.44
	92.38	357	5.41	6.388E+00	2.660E+00	2.660E+00	30.52
AM-243	74.67	470	66.00*	5.073E+00	3.616E-01	3.616E-01	24.54
	86.72	278	0.34	6.112E+00	3.489E+01	3.489E+01	37.85
	117.66	-----	0.55	6.871E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.659E+00	-----	Line Not Found	-----
ANH-511	511.00	166	100.00*	2.842E+00	1.508E-01	1.508E-01	39.32

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 27 93.10%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.174E+01	3.174E+01	0.290E+01	9.15	
CD-109	464.00D	1.02	3.152E+00	3.228E+00	1.222E+00	37.85	
SN-126	1.00E+05Y	1.00	3.169E-01	3.169E-01	1.199E-01	37.85	
BA-137M	30.17Y	1.00	4.859E-01	4.864E-01	0.724E-01	14.90	
CS-137	30.17Y	1.00	5.136E-01	5.141E-01	0.766E-01	14.90	
TL-208	1.41E+10Y	1.00	3.880E-01	3.880E-01	0.760E-01	19.58	
BI-211	7.04E+08Y	1.00	2.707E+00	2.707E+00	0.478E+00	17.66	
PB-212	1.41E+10Y	1.00	1.320E+00	1.320E+00	0.136E+00	10.28	
PO-212	1.41E+10Y	1.00	1.320E+00	1.320E+00	0.136E+00	10.28	
BI-214	1600.00Y	1.00	8.560E-01	8.560E-01	1.658E-01	19.37	
PB-214	1600.00Y	1.00	9.417E-01	9.417E-01	1.734E-01	18.41	
PO-214	1600.00Y	1.00	9.417E-01	9.417E-01	1.734E-01	18.41	
PO-216	1.41E+10Y	1.00	1.320E+00	1.320E+00	0.136E+00	10.28	
PO-218	1600.00Y	1.00	9.417E-01	9.417E-01	1.734E-01	18.41	
RA-224	1.41E+10Y	1.00	3.883E+00	3.883E+00	1.349E+00	34.74	
RA-226	1600.00Y	1.00	8.560E-01	8.560E-01	1.658E-01	19.37	
AC-228	1.41E+10Y	1.00	1.172E+00	1.172E+00	0.290E+00	24.77	
RA-228	1.41E+10Y	1.00	1.172E+00	1.172E+00	0.290E+00	24.77	
TH-228	1.91Y	1.02	1.320E+00	1.342E+00	0.138E+00	10.28	
TH-230	4.47E+09Y	1.00	8.560E-01	8.560E-01	1.658E-01	19.37	
TH-232	1.41E+10Y	1.00	1.172E+00	1.172E+00	0.290E+00	24.77	
TH-234	4.47E+09Y	1.00	2.325E+00	2.325E+00	1.824E+00	78.44	
U-234	4.47E+09Y	1.00	8.560E-01	8.560E-01	1.658E-01	19.37	
U-235	7.04E+08Y	1.00	2.206E-01	2.206E-01	2.335E-01	105.83	
NP-237	2.14E+06Y	1.00	9.305E-01	9.305E-01	4.011E-01	43.11	
U-238	4.47E+09Y	1.00	2.325E+00	2.325E+00	1.824E+00	78.44	
AM-243	7380.00Y	1.00	3.616E-01	3.616E-01	0.888E-01	24.54	
ANH-511	1.00E+09Y	1.00	1.508E-01	1.508E-01	0.593E-01	39.32	

Total Activity : 6.455E+01 6.465E+01

Grand Total Activity : 6.455E+01 6.465E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229011

Page : 5  
Acquisition date : 22-JAN-2010 14:16:00

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	270.39	122	235	1.34	540.35	534	14	1.69E-02	56.5	4.59E+00	T
0	328.60	24	207	0.96	656.69	651	9	3.38E-03	****	3.99E+00	T
0	463.28	42	118	1.19	925.90	922	9	5.78E-03	99.4	3.07E+00	T
0	568.69	173	101	1.79	1136.63	1130	16	2.40E-02	31.2	2.61E+00	T
0	727.47	114	56	1.90	1454.11	1447	12	1.58E-02	32.5	2.12E+00	T
0	771.12	88	134	5.06	1541.39	1529	22	1.22E-02	72.1	2.02E+00	
0	1378.07	33	21	1.73	2755.42	2749	14	4.58E-03	68.4	1.22E+00	

Flags: "T" = Tentatively associated



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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229011.CNF;1
* Acquisition date   : 22-JAN-2010 14:16:00   Detector SN#      :
* Detector ID        : GAM19                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.61          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229011             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity  : 1.45700E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54.1MS Isotope      :
* MSD ID              :                               MSD Isotope :
* LCS ID              : 1032-A                         LCS Isotope   :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.174E+01	2.903E+00	4.776E-01	3.556E-02	66.465
CD-109	3.228E+00	1.222E+00	1.162E+00	1.041E-01	2.778
SN-126	3.169E-01	1.199E-01	1.145E-01	1.022E-02	2.766
BA-137M	4.864E-01	7.245E-02	5.649E-02	3.290E-03	8.610
CS-137	5.141E-01	7.663E-02	5.972E-02	3.492E-03	8.610
TL-208	3.880E-01	7.596E-02	5.320E-02	3.618E-03	7.294
BI-211	2.707E+00	4.780E-01	3.223E-01	2.058E-02	8.401
PB-212	1.320E+00	1.357E-01	8.546E-02	6.168E-03	15.450
PO-212	1.320E+00	1.357E-01	8.546E-02	6.168E-03	15.450
BI-214	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
PB-214	9.417E-01	1.734E-01	1.123E-01	9.261E-03	8.384
PO-214	9.417E-01	1.734E-01	1.123E-01	9.261E-03	8.384
PO-216	1.320E+00	1.357E-01	8.546E-02	6.168E-03	15.450
PO-218	9.417E-01	1.734E-01	1.123E-01	9.261E-03	8.384
RA-224	3.883E+00	1.349E+00	9.720E-01	5.508E-02	3.995
RA-226	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
AC-228	1.172E+00	2.903E-01	1.995E-01	2.256E-02	5.877
RA-228	1.172E+00	2.903E-01	1.995E-01	2.256E-02	5.877

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.342E+00	1.379E-01	8.684E-02	6.268E-03	15.450
TH-230	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
TH-232	1.172E+00	2.903E-01	1.995E-01	2.256E-02	5.877
TH-234	2.325E+00	1.824E+00	1.901E+00	3.325E-01	1.223
U-234	8.560E-01	1.658E-01	1.039E-01	8.170E-03	8.238
U-235	2.206E-01	2.335E-01	3.224E-01	5.228E-02	0.684
NP-237	9.305E-01	4.011E-01	3.399E-01	7.627E-02	2.738
U-238	2.325E+00	1.824E+00	1.901E+00	3.325E-01	1.223
AM-243	3.616E-01	8.875E-02	8.207E-02	6.508E-03	4.407
ANH-511	1.508E-01	5.929E-02	3.899E-02	2.300E-03	3.868

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.399E-01		3.221E-01	5.564E-01	3.777E-02	0.431
NA-22	-1.381E-02		4.269E-02	6.876E-02	4.587E-03	-0.201
NA-24	-3.888E-01		9.158E-01	Half-Life	too short	
AL-26	1.705E-03		2.370E-02	3.924E-02	2.291E-03	0.043
TI-44	2.817E-01	+	4.797E-02	7.202E-02	5.879E-03	3.911
SC-46	-1.573E-02		3.687E-02	5.695E-02	4.949E-03	-0.276
V-48	-3.071E-02		7.142E-02	1.097E-01	8.819E-03	-0.280
CR-51	-2.170E-01		3.502E-01	5.680E-01	3.676E-02	-0.382
MN-52	1.733E-01		2.088E-01	3.849E-01	2.777E-02	0.450
MN-54	-1.852E-02		3.784E-02	5.874E-02	4.673E-03	-0.315
CO-56	1.073E-03		3.524E-02	5.715E-02	4.637E-03	0.019
CO-57	-2.614E-03		2.456E-02	3.980E-02	2.376E-03	-0.066
CO-58	-4.850E-02		3.778E-02	5.353E-02	4.102E-03	-0.906
FE-59	-3.347E-02		9.233E-02	1.498E-01	1.124E-02	-0.223
CO-60	1.379E-02		3.803E-02	6.556E-02	4.831E-03	0.210
ZN-65	2.003E-02		9.560E-02	1.412E-01	9.027E-03	0.142
GE-68	-2.725E-02		1.137E+00	1.900E+00	1.314E-01	-0.014
AS-73	-2.288E-01		7.190E-01	1.174E+00	8.682E-02	-0.195
AS-74	-3.730E-02		9.013E-02	1.434E-01	8.498E-03	-0.260
SE-75	3.389E-02		4.498E-02	6.937E-02	4.034E-03	0.489
BR-77	5.356E+00		1.193E+01	2.034E+01	1.202E+00	0.263
SR-82	-1.801E-02		3.735E-01	5.200E-01	3.744E-02	-0.035
RB-83	4.622E-02		5.934E-02	1.013E-01	5.987E-03	0.456
RB-84	5.991E-02		6.727E-02	1.171E-01	1.005E-02	0.512
KR-85	1.432E+01		7.309E+00	1.218E+01	7.194E-01	1.176
SR-85	7.420E-02		3.786E-02	6.311E-02	3.727E-03	1.176
RB-86	-5.501E-02		7.425E-01	1.235E+00	8.555E-02	-0.045
Y-88	5.791E-04		2.641E-02	4.321E-02	2.467E-03	0.013
ZR-88	-1.020E-02		3.054E-02	4.996E-02	2.782E-03	-0.204
Y-91	3.443E+00		1.834E+01	3.099E+01	1.809E+00	0.111
NB-94	1.307E-02		3.172E-02	5.332E-02	3.358E-03	0.245
NB-95	3.130E-02		4.799E-02	7.192E-02	5.083E-03	0.435
NB-95M	3.779E-01		1.407E-01	2.229E-01	1.651E-02	1.696

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	3.837E-02		6.695E-02	1.139E-01	9.114E-03	0.337
NB-97	2.068E-01		1.378E-01	Half-Life too short		
ZR-97	5.969E+00		2.399E+00	Half-Life too short		
MO-99	7.983E+00		1.455E+01	2.463E+01	3.498E+00	0.324
TC-99M	8.415E+10		3.022E+11	Half-Life too short		
RH-101	9.725E-03		3.119E-02	5.039E-02	2.733E-03	0.193
RH-102	-7.091E-03		2.875E-02	4.687E-02	2.736E-03	-0.151
RU-103	-3.154E-03		3.827E-02	6.290E-02	7.976E-03	-0.050
RH-106	-4.248E-02		2.750E-01	4.448E-01	5.243E-02	-0.095
RU-106	-4.248E-02		2.750E-01	4.448E-01	2.623E-02	-0.095
AG-108M	-1.519E-02		3.337E-02	5.303E-02	3.303E-03	-0.286
AG-110M	2.731E-02		3.779E-02	5.752E-02	3.569E-03	0.475
IN-111	3.148E-01		1.382E+00	1.957E+00	1.113E-01	0.161
IN-113M	-1.006E-02		4.467E-02	7.354E-02	4.388E-03	-0.137
SN-113	-1.006E-02		4.467E-02	7.354E-02	4.388E-03	-0.137
IN-114M	6.738E-02		1.924E-01	2.763E-01	1.485E-02	0.244
CD-115	8.540E+00		1.332E+01	2.294E+01	1.358E+00	0.372
SN-117M	-1.662E-02		5.702E-02	9.115E-02	4.852E-03	-0.182
SB-122	3.111E+00		2.611E+00	4.177E+00	2.479E-01	0.745
I-123	-9.665E+00		9.786E+00	Half-Life too short		
TE-123M	-1.392E-02		2.818E-02	4.466E-02	2.412E-03	-0.312
I-124	-1.017E-01		8.867E-01	1.245E+00	7.370E-02	-0.082
SB-124	-1.246E-02		6.664E-02	1.052E-01	7.206E-03	-0.118
SB-125	-1.075E-02		8.814E-02	1.454E-01	8.656E-03	-0.074
TE-125M	-8.436E+00		9.276E+00	1.458E+01	1.289E+00	-0.579
I-126	1.056E-01		1.865E-01	2.809E-01	1.651E-02	0.376
SB-126	1.456E-01		1.391E-01	2.217E-01	1.444E-02	0.657
SB-127	-3.884E-01		1.514E+00	2.420E+00	2.409E-01	-0.161
XE-127	-2.291E-02		4.547E-02	7.140E-02	3.896E-03	-0.321
I-131	4.433E-03		1.174E-01	1.965E-01	1.256E-02	0.023
TE-132	-1.820E-01		8.774E-01	1.392E+00	2.016E-01	-0.131
BA-133	3.163E-02		4.835E-02	7.343E-02	8.463E-03	0.431
I-133	1.896E-04		6.015E-03	Half-Life too short		
CS-134	4.405E-02		4.240E-02	7.447E-02	5.599E-03	0.592
CS-135	1.051E-01		1.635E-01	2.498E-01	1.906E-02	0.421
I-135	-8.271E+09		3.260E+10	Half-Life too short		
CS-136	-5.338E-02		1.095E-01	1.759E-01	1.359E-02	-0.304
CE-139	-6.397E-03		2.862E-02	4.581E-02	2.392E-03	-0.140
BA-140	1.598E-01		2.569E-01	4.329E-01	1.409E-01	0.369
LA-140	1.110E-02		7.678E-02	1.288E-01	8.713E-03	0.086
CE-141	1.363E-02		7.201E-02	1.031E-01	5.936E-03	0.132
CE-143	1.375E-03		1.997E-04	Half-Life too short		
CE-144	-8.534E-02		1.949E-01	3.105E-01	4.398E-02	-0.275
PM-144	-5.383E-03		3.156E-02	5.077E-02	3.163E-03	-0.106
PR-144	-3.650E-01		2.140E+00	3.442E+00	2.143E-01	-0.106
PM-146	3.162E-02		4.213E-02	7.284E-02	6.272E-03	0.434
ND-147	-2.678E-01		5.612E-01	8.920E-01	1.211E-01	-0.300
PM-149	3.109E+01		1.138E+02	1.939E+02	2.749E+01	0.160

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-152	-1.740E-02		1.136E-01	1.425E-01	9.276E-03	-0.122
GD-153	3.723E-02		8.608E-02	1.259E-01	9.789E-03	0.296
EU-154	-2.750E-02		1.182E-01	1.921E-01	1.901E-02	-0.143
EU-155	1.523E-01		1.055E-01	1.801E-01	1.295E-02	0.846
TB-160	-5.909E-02		1.383E-01	2.143E-01	1.833E-02	-0.276
HO-166M	2.232E-02		5.455E-02	9.185E-02	5.883E-03	0.243
TM-171	-1.777E+01		2.962E+01	4.161E+01	3.163E+00	-0.427
LU-176	-6.555E-03		2.246E-02	3.715E-02	2.161E-03	-0.176
LU-177	9.832E-01		1.181E+00	1.960E+00	1.076E-01	0.502
LU-177M	-1.507E-01		1.637E-01	2.568E-01	1.452E-02	-0.587
HF-181	-2.149E-02		4.304E-02	6.897E-02	4.036E-03	-0.312
W-181	4.706E-02		3.944E-01	5.730E-01	4.336E-02	0.082
TA-182	-4.290E-02		2.169E-01	3.559E-01	2.146E-02	-0.121
RE-183	-1.094E-01		1.062E-01	1.641E-01	8.643E-03	-0.667
RE-184	8.666E-02		2.173E-01	3.543E-01	2.025E-02	0.245
OS-185	2.374E-02		3.743E-02	6.439E-02	3.771E-03	0.369
RE-188	1.188E-02		1.693E-01	2.748E-01	1.477E-02	0.043
W-188	-4.789E+00		7.662E+00	1.073E+01	6.229E-01	-0.447
IR-192	-2.373E-02		3.141E-02	5.054E-02	2.953E-03	-0.470
AU-195	3.513E-01		2.399E-01	3.667E-01	2.799E-02	0.958
TL-200	5.484E-04		3.949E-04	Half-Life too short		
TL-201	1.605E+00		8.255E+00	1.344E+01	7.024E-01	0.119
TL-202	3.951E-02		6.953E-02	1.193E-01	6.850E-03	0.331
HG-203	9.536E-03		3.744E-02	6.378E-02	3.922E-03	0.150
BI-207	6.872E-02		4.971E-02	9.209E-02	6.539E-03	0.746
TL-207	1.123E-01		7.160E-01	1.056E+00	1.744E-01	0.106
PO-209	2.420E-01		7.259E+00	1.174E+01	1.032E+00	0.021
BI-210	7.278E-01		3.045E+00	5.105E+00	3.891E-01	0.143
PB-210	7.278E-01		3.045E+00	5.105E+00	3.891E-01	0.143
PO-210	7.278E-01		3.045E+00	5.105E+00	3.328E-01	0.143
PB-211	-1.041E+00		1.096E+00	1.369E+00	8.531E-01	-0.760
BI-212	1.169E+00	+	3.919E-01	6.147E-01	5.117E-02	1.903
PO-215	1.123E-01		7.160E-01	1.056E+00	1.744E-01	0.106
RN-219	1.710E-02		3.828E-01	6.390E-01	8.642E-02	0.027
RN-220	-1.003E+01		2.245E+01	3.565E+01	2.115E+00	-0.281
RA-223	1.123E-01		7.160E-01	1.056E+00	1.744E-01	0.106
AC-227	1.066E-01		3.666E-01	5.937E-01	8.270E-02	0.180
TH-227	1.066E-01		3.668E-01	5.937E-01	1.002E-01	0.180
TH-229	-5.504E-02		4.779E-01	7.651E-01	4.129E-02	-0.072
PA-231	3.808E-01		1.398E+00	2.381E+00	3.282E-01	0.160
TH-231	1.123E-01		7.160E-01	1.056E+00	1.744E-01	0.106
U-231	-1.353E-01		1.423E+00	2.031E+00	1.613E-01	-0.067
PA-233	1.597E-02		5.846E-02	9.947E-02	6.141E-03	0.161
PA-234	2.818E-02		2.868E-01	4.657E-01	8.693E-02	0.061
PA-234M	4.107E+00		4.688E+00	8.183E+00	7.618E-01	0.502
NP-236	-6.375E-03		7.593E-02	1.224E-01	6.483E-03	-0.052
NP-239	-2.395E-02		1.867E-01	3.027E-01	1.893E-02	-0.079
AM-241	1.922E-01		1.552E-01	2.364E-01	1.946E-02	0.813

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-4.205E-02		9.519E-02	1.529E-01	1.100E-02	-0.275
AM-246	-6.770E-02		1.289E-01	2.052E-01	1.416E-02	-0.330
CM-247	1.970E-03		3.365E-02	5.622E-02	3.154E-03	0.035
CF-249	-3.668E-02		3.974E-02	6.285E-02	3.510E-03	-0.584
CF-251	2.722E-02		1.210E-01	1.971E-01	1.041E-02	0.138

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229011          *
* Acquisition date   : 22-JAN-2010 14:16:00 Detector SN#                  *
* Detector ID        : GAM19 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.61 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229011 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.4570E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope                   :
* MSD DPM             : 0.000 MSD Isotope                               :
* LCS DPM             : 0.000 LCS Isotope                               :
* LCSD DPM            : 0.000 LCSD Isotope                              :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.174E+01	2.845E+00	2.402E-01	1.451E+00
CD-109	3.228E+00	1.197E+00	6.226E-01	6.109E-01
SN-126	3.169E-01	1.175E-01	6.138E-02	5.996E-02
BA-137M	4.864E-01	7.100E-02	2.895E-02	3.622E-02
CS-137	5.141E-01	7.510E-02	3.060E-02	3.832E-02
TL-208	3.880E-01	7.444E-02	2.734E-02	3.798E-02
BI-211	2.707E+00	4.685E-01	1.676E-01	2.390E-01
PB-212	1.320E+00	1.330E-01	4.482E-02	6.786E-02
PO-212	1.320E+00	1.330E-01	4.482E-02	6.786E-02
BI-214	8.560E-01	1.625E-01	5.335E-02	8.291E-02
PB-214	9.417E-01	1.699E-01	5.840E-02	8.670E-02
PO-214	9.417E-01	1.699E-01	5.840E-02	8.670E-02
PO-216	1.320E+00	1.330E-01	4.482E-02	6.786E-02
PO-218	9.417E-01	1.699E-01	5.840E-02	8.670E-02
RA-224	3.883E+00	1.322E+00	5.096E-01	6.746E-01
RA-226	8.560E-01	1.625E-01	5.335E-02	8.291E-02
AC-228	1.172E+00	2.845E-01	1.015E-01	1.452E-01
RA-228	1.172E+00	2.845E-01	1.015E-01	1.452E-01
TH-228	1.342E+00	1.352E-01	4.554E-02	6.896E-02
TH-230	8.560E-01	1.625E-01	5.335E-02	8.291E-02
TH-232	1.172E+00	2.845E-01	1.015E-01	1.452E-01
TH-234	2.325E+00	1.788E+00	1.025E+00	9.120E-01
U-234	8.560E-01	1.625E-01	5.335E-02	8.291E-02
U-235	2.206E-01	2.288E-01	1.709E-01	1.168E-01
NP-237	9.305E-01	3.931E-01	1.822E-01	2.005E-01
U-238	2.325E+00	1.788E+00	1.025E+00	9.120E-01
AM-243	3.616E-01	8.698E-02	4.412E-02	4.438E-02
ANH-511	1.508E-01	5.810E-02	2.010E-02	2.964E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	2.399E-01	3.156E-01	2.873E-01	1.610E-01	NOT IDENT.
NA-22	-1.381E-02	4.183E-02	3.470E-02	2.134E-02	NOT IDENT.
NA-24	-3.888E+05	1.795E+06	0.000E+00	9.158E+05	SHORT HLIF
AL-26	1.705E-03	2.323E-02	1.964E-02	1.185E-02	NOT IDENT.
TI-44	2.817E-01	4.701E-02	3.868E-02	2.399E-02	FAIL ABUN
SC-46	-1.573E-02	3.614E-02	2.899E-02	1.844E-02	FAIL ABUN
V-48	-3.071E-02	6.999E-02	5.570E-02	3.571E-02	NOT IDENT.
CR-51	-2.170E-01	3.432E-01	2.959E-01	1.751E-01	NOT IDENT.
MN-52	1.733E-01	2.046E-01	1.937E-01	1.044E-01	NOT IDENT.
MN-54	-1.852E-02	3.708E-02	2.994E-02	1.892E-02	NOT IDENT.
CO-56	1.073E-03	3.453E-02	2.912E-02	1.762E-02	NOT IDENT.
CO-57	-2.614E-03	2.407E-02	2.118E-02	1.228E-02	NOT IDENT.
CO-58	-4.850E-02	3.703E-02	2.731E-02	1.889E-02	NOT IDENT.
FE-59	-3.347E-02	9.048E-02	7.586E-02	4.616E-02	FAIL ABUN
CO-60	1.379E-02	3.727E-02	3.305E-02	1.902E-02	NOT IDENT.
ZN-65	2.003E-02	9.369E-02	7.149E-02	4.780E-02	NOT IDENT.
GE-68	-2.725E-02	1.115E+00	9.626E-01	5.687E-01	NOT IDENT.
AS-73	-2.288E-01	7.046E-01	6.355E-01	3.595E-01	NOT IDENT.
AS-74	-3.730E-02	8.833E-02	7.369E-02	4.507E-02	NOT IDENT.
SE-75	3.389E-02	4.408E-02	3.629E-02	2.249E-02	NOT IDENT.
BR-77	5.356E+00	1.169E+01	1.048E+01	5.966E+00	FAIL ABUN
SR-82	-1.801E-02	3.661E-01	2.655E-01	1.868E-01	NOT IDENT.
RB-83	4.622E-02	5.815E-02	5.219E-02	2.967E-02	NOT IDENT.
RB-84	5.991E-02	6.593E-02	5.963E-02	3.364E-02	NOT IDENT.
KR-85	1.432E+01	7.163E+00	6.280E+00	3.654E+00	NOT IDENT.
SR-85	7.420E-02	3.710E-02	3.253E-02	1.893E-02	NOT IDENT.
RB-86	-5.501E-02	7.277E-01	6.256E-01	3.713E-01	NOT IDENT.
Y-88	5.791E-04	2.588E-02	2.162E-02	1.320E-02	NOT IDENT.
ZR-88	-1.020E-02	2.993E-02	2.591E-02	1.527E-02	NOT IDENT.
Y-91	3.443E+00	1.798E+01	1.566E+01	9.171E+00	NOT IDENT.
NB-94	1.307E-02	3.109E-02	2.729E-02	1.586E-02	NOT IDENT.
NB-95	3.130E-02	4.703E-02	3.674E-02	2.400E-02	NOT IDENT.
NB-95M	3.779E-01	1.378E-01	1.169E-01	7.033E-02	NOT IDENT.
ZR-95	3.837E-02	6.561E-02	5.817E-02	3.348E-02	NOT IDENT.
NB-97	2.068E+05	2.701E+05	0.000E+00	1.378E+05	SHORT HLIF
ZR-97	5.969E+06	4.702E+06	0.000E+00	2.399E+06	SHORT HLIF
MO-99	7.983E+00	1.426E+01	1.259E+01	7.277E+00	NOT IDENT.
TC-99M	8.415E+16	5.924E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	9.725E-03	3.056E-02	2.653E-02	1.559E-02	NOT IDENT.
RH-102	-7.091E-03	2.818E-02	2.420E-02	1.438E-02	NOT IDENT.
RU-103	-3.154E-03	3.750E-02	3.245E-02	1.913E-02	FAIL ABUN
RH-106	-4.248E-02	2.695E-01	2.283E-01	1.375E-01	FAIL ABUN
RU-106	-4.248E-02	2.695E-01	2.283E-01	1.375E-01	FAIL ABUN
AG-108M	-1.519E-02	3.270E-02	2.744E-02	1.668E-02	NOT IDENT.
AG-110M	2.731E-02	3.704E-02	2.949E-02	1.890E-02	NOT IDENT.
IN-111	3.148E-01	1.354E+00	1.026E+00	6.909E-01	NOT IDENT.
IN-113M	-1.006E-02	4.378E-02	3.814E-02	2.233E-02	NOT IDENT.
SN-113	-1.006E-02	4.378E-02	3.814E-02	2.233E-02	NOT IDENT.
IN-114M	6.738E-02	1.886E-01	1.456E-01	9.621E-02	NOT IDENT.
CD-115	8.540E+00	1.305E+01	1.182E+01	6.658E+00	NOT IDENT.
SN-117M	-1.662E-02	5.588E-02	4.823E-02	2.851E-02	NOT IDENT.
SB-122	3.111E+00	2.559E+00	2.149E+00	1.306E+00	NOT IDENT.
I-123	-9.665E+06	1.918E+07	0.000E+00	9.786E+06	SHORT HLIF
TE-123M	-1.392E-02	2.762E-02	2.363E-02	1.409E-02	NOT IDENT.
I-124	-1.017E-01	8.689E-01	6.395E-01	4.433E-01	NOT IDENT.
SB-124	-1.246E-02	6.531E-02	5.274E-02	3.332E-02	NOT IDENT.
SB-125	-1.075E-02	8.637E-02	7.526E-02	4.407E-02	FAIL ABUN
TE-125M	-8.436E+00	9.090E+00	7.776E+00	4.638E+00	NOT IDENT.
I-126	1.056E-01	1.827E-01	1.439E-01	9.323E-02	NOT IDENT.
SB-126	1.456E-01	1.364E-01	1.134E-01	6.957E-02	FAIL ABUN
SB-127	-3.884E-01	1.484E+00	1.239E+00	7.572E-01	NOT IDENT.
XE-127	-2.291E-02	4.456E-02	3.758E-02	2.273E-02	FAIL ABUN
I-131	4.433E-03	1.150E-01	1.021E-01	5.869E-02	NOT IDENT.
TE-132	-1.820E-01	8.599E-01	7.307E-01	4.387E-01	NOT IDENT.
BA-133	3.163E-02	4.738E-02	3.817E-02	2.418E-02	NOT IDENT.
I-133	1.896E+02	1.179E+04	0.000E+00	6.015E+03	SHORT HLIF
CS-134	4.405E-02	4.155E-02	3.800E-02	2.120E-02	FAIL ABUN
CS-135	1.051E-01	1.603E-01	1.306E-01	8.177E-02	NOT IDENT.
I-135	-8.271E+15	6.389E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.338E-02	1.073E-01	8.917E-02	5.477E-02	FAIL ABUN
CE-139	-6.397E-03	2.805E-02	2.422E-02	1.431E-02	NOT IDENT.
BA-140	1.598E-01	2.517E-01	2.229E-01	1.284E-01	NOT IDENT.
LA-140	1.110E-02	7.524E-02	6.465E-02	3.839E-02	FAIL ABUN
CE-141	1.363E-02	7.057E-02	5.464E-02	3.601E-02	NOT IDENT.
CE-143	1.375E+03	3.913E+02	0.000E+00	1.997E+02	SHORT HLIF
CE-144	-8.534E-02	1.910E-01	1.649E-01	9.746E-02	NOT IDENT.
PM-144	-5.383E-03	3.093E-02	2.599E-02	1.578E-02	NOT IDENT.

PR-144	-3.650E-01	2.097E+00	1.762E+00	1.070E+00	NOT IDENT.
PM-146	3.162E-02	4.129E-02	3.765E-02	2.106E-02	NOT IDENT.
ND-147	-2.678E-01	5.500E-01	4.595E-01	2.806E-01	NOT IDENT.
PM-149	3.109E+01	1.116E+02	1.013E+02	5.692E+01	NOT IDENT.
EU-152	-1.740E-02	1.113E-01	7.413E-02	5.680E-02	NOT IDENT.
GD-153	3.723E-02	8.436E-02	6.729E-02	4.304E-02	NOT IDENT.
EU-154	-2.750E-02	1.159E-01	9.693E-02	5.911E-02	NOT IDENT.
EU-155	1.523E-01	1.034E-01	9.610E-02	5.273E-02	FAIL ABUN
TB-160	-5.909E-02	1.355E-01	1.091E-01	6.916E-02	FAIL ABUN
HO-166M	2.232E-02	5.346E-02	4.699E-02	2.727E-02	FAIL ABUN
TM-171	-1.777E+01	2.903E+01	2.243E+01	1.481E+01	NOT IDENT.
LU-176	-6.555E-03	2.201E-02	1.937E-02	1.123E-02	FAIL ABUN
LU-177	9.832E-01	1.158E+00	1.031E+00	5.907E-01	NOT IDENT.
LU-177M	-1.507E-01	1.604E-01	1.330E-01	8.184E-02	NOT IDENT.
HF-181	-2.149E-02	4.218E-02	3.560E-02	2.152E-02	NOT IDENT.
W-181	4.706E-02	3.866E-01	3.089E-01	1.972E-01	NOT IDENT.
TA-182	-4.290E-02	2.125E-01	1.798E-01	1.084E-01	FAIL ABUN
RE-183	-1.094E-01	1.041E-01	8.676E-02	5.312E-02	NOT IDENT.
RE-184	8.666E-02	2.129E-01	1.856E-01	1.086E-01	NOT IDENT.
OS-185	2.374E-02	3.669E-02	3.302E-02	1.872E-02	NOT IDENT.
RE-188	1.188E-02	1.660E-01	1.455E-01	8.467E-02	NOT IDENT.
W-188	-4.789E+00	7.509E+00	5.600E+00	3.831E+00	FAIL ABUN
IR-192	-2.373E-02	3.078E-02	2.634E-02	1.570E-02	FAIL ABUN
AU-195	3.513E-01	2.351E-01	1.960E-01	1.200E-01	FAIL ABUN
TL-200	5.484E+02	7.740E+02	0.000E+00	3.949E+02	SHORT HLIF
TL-201	1.605E+00	8.089E+00	7.105E+00	4.127E+00	NOT IDENT.
TL-202	3.951E-02	6.814E-02	6.171E-02	3.476E-02	NOT IDENT.
HG-203	9.536E-03	3.669E-02	3.333E-02	1.872E-02	NOT IDENT.
BI-207	6.872E-02	4.872E-02	4.668E-02	2.486E-02	FAIL ABUN
TL-207	1.123E-01	7.016E-01	5.501E-01	3.580E-01	FAIL ABUN
PO-209	2.420E-01	7.114E+00	5.976E+00	3.630E+00	NOT IDENT.
BI-210	7.278E-01	2.984E+00	2.772E+00	1.522E+00	NOT IDENT.
PB-210	7.278E-01	2.984E+00	2.772E+00	1.522E+00	NOT IDENT.
PO-210	7.278E-01	2.984E+00	2.772E+00	1.522E+00	NOT IDENT.
PB-211	-1.041E+00	1.074E+00	7.094E-01	5.478E-01	NOT IDENT.
BI-212	1.169E+00	3.841E-01	3.143E-01	1.960E-01	FAIL ABUN
PO-215	1.123E-01	7.016E-01	5.501E-01	3.580E-01	FAIL ABUN
RN-219	1.710E-02	3.751E-01	3.312E-01	1.914E-01	FAIL ABUN
RN-220	-1.003E+01	2.200E+01	1.835E+01	1.122E+01	NOT IDENT.
RA-223	1.123E-01	7.016E-01	5.501E-01	3.580E-01	FAIL ABUN
AC-227	1.066E-01	3.593E-01	3.108E-01	1.833E-01	NOT IDENT.
TH-227	1.066E-01	3.594E-01	3.108E-01	1.834E-01	FAIL ABUN
TH-229	-5.504E-02	4.683E-01	4.031E-01	2.390E-01	FAIL ABUN
PA-231	3.808E-01	1.370E+00	1.244E+00	6.990E-01	NOT IDENT.
TH-231	1.123E-01	7.016E-01	5.501E-01	3.580E-01	FAIL ABUN
U-231	-1.353E-01	1.395E+00	1.086E+00	7.117E-01	FAIL ABUN
PA-233	1.597E-02	5.729E-02	5.185E-02	2.923E-02	FAIL ABUN
PA-234	2.818E-02	2.811E-01	2.367E-01	1.434E-01	FAIL ABUN
PA-234M	4.107E+00	4.594E+00	4.154E+00	2.344E+00	NOT IDENT.
NP-236	-6.375E-03	7.442E-02	6.473E-02	3.797E-02	NOT IDENT.
NP-239	-2.395E-02	1.830E-01	1.612E-01	9.336E-02	NOT IDENT.
AM-241	1.922E-01	1.521E-01	1.277E-01	7.758E-02	NOT IDENT.
CM-243	-4.205E-02	9.329E-02	8.164E-02	4.759E-02	NOT IDENT.
AM-246	-6.770E-02	1.263E-01	1.040E-01	6.443E-02	NOT IDENT.
CM-247	1.970E-03	3.298E-02	2.914E-02	1.683E-02	NOT IDENT.
CF-249	-3.668E-02	3.894E-02	3.260E-02	1.987E-02	NOT IDENT.
CF-251	2.722E-02	1.186E-01	1.040E-01	6.050E-02	NOT IDENT.



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\* GEL Laboratories LLC \*  
\* 2040 SAVAGE ROAD \*  
\* CHARLESTON ,SC 29417 \*  
\* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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MDA COUNTS

46.50	363.4603
46.50	363.4603
46.50	363.4603
48.70	385.8660
49.72	376.5784
51.35	364.5908
52.39	367.9642
52.97	371.1458
53.15	371.2225
53.44	372.3245
54.07	375.5312
56.28	399.0633
56.28	417.7401
57.37	0.0000
57.53	393.7054
57.53	393.7065
57.60	393.7355
57.98	422.2587
57.98	422.2587
59.32	391.3107
59.32	391.3107
59.40	391.3440
59.54	391.4030
59.72	391.4779
60.01	385.2829
61.10	404.6977
61.14	404.7141
61.30	445.8927
63.00	477.1758
63.29	477.3187
63.29	477.3187
63.58	475.4800
64.28	499.6126
65.12	539.7256
65.20	539.7692
65.20	539.7692
66.05	532.2889
66.72	534.2367
66.83	534.2961
66.91	523.2072
67.20	523.3578
67.20	523.3578
67.75	523.2451
67.85	538.5538
68.90	482.0134
68.90	482.0134
69.30	482.2036
69.67	489.5548
70.82	522.0284
70.82	522.0284
70.83	534.8059
72.80	555.0115
72.87	556.6492
72.87	556.6492
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74.81	521.9579
74.81	521.9579
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74.81	521.9579
74.81	521.9579
74.97	522.0355
75.28	522.1866
75.70	522.3914
77.11	489.8094
77.11	489.8094

77.11	489.8094
77.11	489.8094
77.11	489.8094
77.11	489.8094
77.11	489.8094
78.38	494.4005
79.62	494.9579
79.80	495.0386
79.80	495.0386
80.11	495.1775
80.18	495.2075
80.30	495.2619
80.30	495.2619
80.57	495.3820
81.00	455.2830
81.07	455.3105
81.07	455.3105
81.07	455.3105
81.07	455.3105
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83.78	466.2162
83.78	466.2162
83.78	466.2162
83.78	466.2162
84.21	466.3923
84.90	466.6741
85.43	466.8890
86.29	467.2377
86.50	467.3223
86.54	467.3381
86.59	467.3593
86.72	467.4121
86.79	467.4385
86.94	467.5002
87.30	467.6446
87.30	467.6446
87.30	467.6446
87.30	467.6446
87.30	467.6446
87.30	467.6446
87.57	467.7538
87.88	467.8771
88.03	467.9370
88.36	468.0691
88.47	468.1131
89.95	468.7014
91.11	469.1576
92.29	469.6208
92.38	469.6560
92.38	469.6560
93.35	470.0329
94.00	470.2848
94.67	470.5419
94.67	470.5437
94.90	470.6335
94.90	470.6335
94.90	470.6335
94.90	470.6335
95.87	471.7047
95.87	471.7047
96.73	457.3345
97.43	397.1249
98.44	354.9216
98.44	354.9229
98.88	338.6858
99.55	348.6887
99.55	348.6887
99.86	365.1489
100.00	378.2907
100.10	378.3217
103.18	446.3436
103.76	415.7498
105.00	346.2766
105.31	355.6101
108.00	402.6878
109.28	427.8184

111.00	387.0821
111.00	387.0821
111.76	389.3680
112.95	396.9478
115.19	358.2565
116.30	391.7058
117.00	378.4266
117.00	378.4266
117.66	397.2786
121.11	351.4688
121.62	352.6353
121.78	352.6754
122.06	355.8669
122.32	363.2173
122.32	363.2173
122.32	363.2173
122.32	363.2173
123.07	356.1213
127.23	354.0216
129.76	332.6679
131.20	350.7951
133.02	393.1646
133.54	355.5450
135.34	317.1194
136.00	339.3186
136.25	339.3752
136.48	353.0881
140.51	335.4797
140.51	0.0000
142.18	317.2775
142.65	362.9542
143.76	351.5996
144.24	365.4393
144.24	365.4393
144.24	365.4393
144.24	365.4393
145.22	353.4095
145.44	368.6786
147.16	308.1314
152.43	367.3293
152.70	350.4009
153.22	357.9494
154.21	340.1001
154.21	340.1001
154.21	340.1001
154.21	340.1001
155.03	353.0312
156.02	328.7746
158.56	355.9249
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159.00	358.1510
160.31	325.3633
161.27	330.8887
162.32	351.3898
162.64	329.0241
163.35	319.5444
163.89	304.6803
165.85	325.3680
167.43	304.2461
171.28	300.6339
171.86	295.3640
172.10	303.9974
176.55	317.6958
176.60	299.3964
181.06	310.9482
184.41	314.9897
185.71	276.0289
186.00	276.0736
190.27	269.1233
192.34	270.6657
193.63	289.1800
197.04	262.4795
198.01	270.2415
198.60	291.0372
200.40	281.4946
201.83	327.5642
202.84	302.6116
205.31	356.5998

208.36	304.5737
208.81	318.8896
209.75	293.8263
209.75	293.8263
210.97	251.2253
215.65	281.5117
216.55	287.1394
218.09	264.2413
222.10	302.2776
223.80	285.9686
226.40	274.1714
227.00	279.7820
227.08	279.7936
227.20	280.9150
228.16	302.0700
228.18	302.0721
228.18	302.0721
231.56	0.0000
235.69	234.5369
236.00	234.5723
236.00	234.5723
238.63	254.6601
238.63	254.6601
238.63	254.6601
238.63	254.6601
239.00	254.7038
240.98	254.9414
241.98	255.0620
241.98	255.0620
241.98	255.0620
244.69	212.3377
245.39	199.9115
247.94	199.5524
248.90	212.3048
249.79	231.3952
252.40	219.3620
252.85	194.7796
252.85	194.7796
254.15	0.0000
256.20	209.6517
256.20	209.6517
260.50	206.6884
260.90	215.7129
262.80	203.0437
264.65	183.0621
268.24	207.3987
268.79	210.4557
269.46	199.3910
269.46	199.3910
269.46	199.3910
269.46	199.3910
271.23	199.5448
273.65	228.9803
276.40	173.4499
277.35	182.3578
277.60	182.3774
277.60	182.3774
278.00	192.4355
278.60	189.2138
279.20	201.1414
279.53	201.1699
280.46	216.6608
281.68	210.4256
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284.30	193.4083
285.00	192.5572
285.90	188.0865
286.10	188.1042
286.10	188.1042
287.40	182.9786
288.45	0.0000
290.67	203.3364
290.80	189.6896
291.72	194.3177
293.26	0.0000
293.70	173.2057
295.21	246.2893
295.21	246.2893

295.21	246.2893
295.96	258.5313
296.50	247.9423
297.23	226.7163
298.57	184.2128
299.80	175.1672
299.80	175.1672
300.09	175.1883
300.09	175.1883
300.09	175.1883
300.09	175.1883
300.12	175.1906
301.29	193.0564
302.84	210.4618
303.76	222.4405
303.91	216.0472
304.40	217.9216
304.40	217.9216
304.84	205.1383
306.84	179.6420
308.46	184.3449
311.98	166.2385
316.51	178.5004
318.01	165.7178
319.02	170.3888
319.41	172.2571
320.08	182.4370
323.87	183.0177
323.87	183.0177
323.87	183.0177
323.87	183.0177
325.23	183.1145
328.77	174.1210
333.44	179.0670
334.20	164.4497
334.20	164.4497
334.30	164.4562
338.28	146.9222
338.28	146.9222
338.28	146.9222
338.28	146.9222
338.32	146.9241
338.32	146.9241
338.32	146.9241
340.50	150.1416
340.57	150.1455
344.27	153.4548
345.85	142.6906
350.59	0.0000
351.07	174.3606
351.92	174.4154
351.92	174.4154
351.92	174.4154
355.39	0.0000
356.01	161.9139
364.48	148.0479
366.43	117.2104
367.43	121.9417
367.94	0.0000
369.80	163.3544
374.96	124.1528
383.85	139.6425
387.95	181.4180
388.63	174.8444
391.69	167.4629
391.69	167.4629
392.90	164.6925
398.62	141.3081
400.65	150.8967
401.10	143.3265
401.81	139.5639
402.60	133.9035
404.84	167.2709
410.95	121.9031
411.60	127.6451
413.65	150.6092
414.70	148.7561
415.30	135.4339

415.76	127.8234
417.63	0.0000
418.52	119.3481
423.70	121.4655
427.08	129.2602
427.89	135.9990
432.53	143.8788
433.93	150.6621
439.47	118.2464
439.56	118.2509
439.89	117.3014
443.98	113.6052
444.90	111.7123
445.03	109.7904
445.03	109.7904
445.03	109.7904
445.03	109.7904
453.90	115.8955
463.38	102.6797
468.07	109.9425
473.00	133.1034
475.06	130.2721
475.35	132.2281
476.78	132.2862
477.59	114.8051
477.96	99.2495
482.03	134.4456
484.57	132.6000
487.03	98.5477
490.36	0.0000
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497.08	106.6755
507.63	0.0000
510.53	0.0000
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511.00	85.4951
511.85	85.5158
511.85	85.5158
513.99	86.8814
513.99	86.8814
520.41	71.1678
520.65	80.8088
527.90	85.9146
528.96	0.0000
529.64	95.8372
529.87	0.0000
531.02	107.7360
537.32	88.1265
543.00	83.3089
546.56	0.0000
549.76	88.4351
552.65	75.5770
555.20	79.6113
563.23	71.4777
563.90	69.8274
568.70	89.8967
569.32	89.9121
569.50	89.9165
569.67	89.9209
573.80	86.6878
574.00	86.6921
574.64	92.0427
578.91	81.7983
579.30	0.0000
583.14	91.2511
585.48	90.3054
591.81	90.4570
592.07	90.4636
593.00	83.4478
595.88	103.6362
600.56	92.9067
602.52	0.0000
602.71	114.2381
602.71	114.2381
603.60	117.6265
604.41	115.9714
604.70	115.9799
609.31	97.9449

609.31	97.9449
609.31	97.9449
609.31	97.9449
610.33	97.9709
612.46	97.6862
614.37	69.0891
618.01	71.9653
621.84	76.9890
621.84	76.9890
631.29	82.2538
633.02	76.1938
633.10	76.1957
634.78	84.3577
635.90	81.3320
636.97	79.3216
645.85	69.3065
646.12	65.2344
656.30	80.0469
657.75	78.3718
657.90	0.0000
661.65	95.1615
661.65	95.1615
664.57	0.0000
666.33	66.5869
666.33	66.5869
675.00	81.1004
677.61	83.2069
685.20	84.3883
692.80	79.3875
695.00	81.4929
696.49	85.6505
696.49	85.6505
697.00	90.8209
697.49	86.7029
698.33	81.5575
698.50	81.5613
699.00	79.5059
702.63	83.7073
706.10	88.9479
706.58	0.0000
706.67	82.7539
709.31	89.0150
711.68	70.4238
713.82	67.3502
717.42	82.9629
720.50	48.4303
721.93	0.0000
722.20	57.1014
722.78	67.4915
722.78	67.4915
722.89	67.4930
722.95	67.4946
723.30	72.6917
724.18	79.6315
727.18	57.1672
733.00	83.2637
735.90	64.5732
739.58	75.0516
742.81	78.2355
744.21	70.9567
747.13	82.4910
751.79	77.3513
752.31	72.1333
753.82	66.9297
755.35	65.9054
756.15	68.0104
756.87	73.2539
763.93	68.1294
765.79	83.8867
766.42	83.8984
766.84	82.1582
776.49	57.8104
778.00	61.3340
778.57	64.8479
778.89	68.3579
783.80	71.5893
785.46	74.7753
792.07	86.4864

795.84	60.1687
796.30	67.5641
798.80	94.0062
801.93	72.9318
805.60	72.9891
810.29	78.3576
810.76	84.7207
815.85	53.0078
817.79	61.5146
818.51	67.8891
819.60	63.6606
826.30	71.1891
828.27	0.0000
831.60	80.8428
831.96	82.9778
834.83	92.6074
836.80	0.0000
846.75	58.6926
848.13	56.5739
856.28	0.0000
856.80	53.4680
860.37	73.1280
867.32	58.9437
867.82	60.7354
871.10	68.6422
873.19	63.3069
874.81	63.3271
875.33	0.0000
876.40	53.6853
879.36	71.9808
880.27	61.2486
880.51	59.1035
881.50	51.5906
883.24	65.5869
884.67	55.9267
889.25	64.5908
896.60	65.7641
898.02	70.0972
899.00	53.9319
903.28	61.1754
911.07	64.8735
911.07	64.8735
911.07	64.8735
919.63	66.5321
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944.10	55.5023
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949.00	77.3425
962.29	102.9708
964.01	94.6816
966.15	78.3259
968.20	98.4023
969.11	80.9230
969.11	80.9230
969.11	80.9230
977.42	54.7632
980.50	53.7002
983.50	64.6955
989.30	49.3978
996.32	69.2492
1001.03	59.5913
1001.68	65.1007
1004.76	79.8173
1021.30	0.0000
1024.50	0.0000
1034.80	43.3587
1036.00	57.2092
1037.82	64.6139
1038.57	76.6237
1038.76	0.0000
1045.16	61.0022
1046.59	60.0938
1048.07	70.2821



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	739.58	*		6.735E+00	1.564E+01	2.682E+01	3.771E+00	0.251
	778.00			-1.534E+01	5.199E+01	7.148E+01	5.177E+00	-0.215
TC-99M	140.51	*		-4.319E+11	5.199E+01	Half-Life too short		
RH-101	127.23			2.996E-03	3.662E-02	5.306E-02	3.391E-03	0.056
	198.01	*		2.184E-02	3.334E-02	5.361E-02	3.080E-03	0.407
	325.23			-8.503E-02	2.556E-01	3.612E-01	2.405E-02	-0.235
RH-102	418.52			-1.471E-01	2.752E-01	4.260E-01	2.884E-02	-0.345
	475.06	*		4.551E-03	2.835E-02	4.642E-02	3.062E-03	0.098
	631.29			1.726E-02	5.568E-02	9.554E-02	5.083E-03	0.181
	697.49			-2.897E-02	8.513E-02	1.380E-01	7.722E-03	-0.210
	766.84			1.927E-01	1.284E-01	2.135E-01	1.495E-02	0.903
	1046.59			2.770E-02	1.338E-01	2.205E-01	1.852E-02	0.126
	1112.84			-4.615E-02	3.279E-01	4.683E-01	3.428E-02	-0.099
RU-103	497.08	*		-6.942E-03	4.227E-02	6.712E-02	8.709E-03	-0.103
	610.33	+		1.108E+01	2.459E+00	2.901E+00	4.447E-01	3.818
RH-106	511.85	+		1.015E+00	3.866E-01	4.706E-01	3.012E-02	2.157
	621.84	*		1.428E-01	3.023E-01	5.259E-01	6.079E-02	0.272
	1050.47			-2.207E+00	2.762E+00	4.077E+00	3.401E-01	-0.541
RU-106	511.85	+		1.015E+00	3.866E-01	4.706E-01	3.012E-02	2.157
	621.84	*		1.428E-01	3.020E-01	5.259E-01	2.856E-02	0.272
	1050.47			-2.207E+00	2.762E+00	4.077E+00	3.401E-01	-0.541
AG-108M	433.93	*		-9.193E-03	3.333E-02	5.303E-02	3.802E-03	-0.173
	614.37			1.244E-02	4.098E-02	6.197E-02	3.737E-03	0.201
	722.95			1.605E-02	4.449E-02	6.705E-02	4.399E-03	0.239
AG-110M	657.75	*		-2.230E-02	3.356E-02	5.279E-02	2.860E-03	-0.422
	677.61			1.797E-01	3.003E-01	5.256E-01	2.951E-02	0.342
	706.67			2.276E-01	2.296E-01	4.088E-01	2.502E-02	0.557
	763.93			3.638E-03	1.926E-01	2.768E-01	2.004E-02	0.013
	884.67			3.290E-03	4.984E-02	8.209E-02	8.228E-03	0.040
	937.48			8.229E-02	1.189E-01	2.063E-01	2.070E-02	0.399
	1384.27			-1.151E-02	1.690E-01	2.766E-01	2.443E-02	-0.042
IN-111	171.28			-1.250E-01	1.315E+00	2.085E+00	1.147E-01	-0.060
	245.39	*		-2.776E-01	1.488E+00	2.176E+00	1.344E-01	-0.128
IN-113M	391.69	*		-2.383E-02	4.670E-02	7.370E-02	5.255E-03	-0.323
SN-113	391.69	*		-2.383E-02	4.670E-02	7.370E-02	5.255E-03	-0.323
IN-114M	190.27	*		9.879E-03	2.042E-01	2.884E-01	1.636E-02	0.034
CD-115	260.90			1.252E+02	1.709E+02	2.972E+02	1.871E+01	0.421
	492.35			-2.737E+00	5.174E+01	8.302E+01	5.407E+00	-0.033
	527.90	*		7.053E-02	1.436E+01	2.303E+01	1.450E+00	0.003
SN-117M	156.02			1.290E+00	2.411E+00	3.960E+00	2.242E-01	0.326
	158.56	*		-2.657E-03	6.016E-02	9.605E-02	5.387E-03	-0.028
SB-122	563.90	*		1.274E+00	3.015E+00	4.970E+00	2.989E-01	0.256
	692.80			-5.138E+00	6.210E+01	1.027E+02	5.656E+00	-0.050
I-123	159.00	*		1.021E+00	6.210E+01	Half-Life too short		
	528.96			-1.840E+02	6.210E+01	Half-Life too short		
TE-123M	159.00	*		1.427E-03	2.968E-02	4.759E-02	2.703E-03	0.030
I-124	602.71	*		-6.677E-02	8.127E-01	1.282E+00	7.230E-02	-0.052
	722.78			1.296E+00	5.430E+00	8.066E+00	4.911E-01	0.161
	1325.50			-2.307E-01	4.549E+01	7.540E+01	6.464E+00	-0.003

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124		1376.25		5.444E+01	4.031E+01	7.639E+01	6.573E+00	0.713
		1509.49		8.648E+00	1.753E+01	3.109E+01	2.542E+00	0.278
		1691.02		9.693E-01	4.921E+00	8.304E+00	5.972E-01	0.117
		602.71		-3.325E-03	4.047E-02	6.383E-02	3.602E-03	-0.052
		645.85		1.574E-02	5.457E-01	9.149E-01	5.460E-02	0.017
		709.31		-4.126E-01	3.166E+00	5.211E+00	3.034E-01	-0.079
		713.82		3.790E-01	1.831E+00	3.089E+00	3.174E-01	0.123
		722.78		9.356E-02	3.920E-01	5.823E-01	3.697E-02	0.161
		968.20		1.032E+01	4.960E+00	8.005E+00	7.546E-01	1.289
		1045.16		1.521E+00	2.883E+00	4.896E+00	4.123E-01	0.311
		1325.50		-1.779E-02	3.508E+00	5.814E+00	4.984E-01	-0.003
		1368.21		-1.960E-01	2.087E+00	3.412E+00	4.599E-01	-0.057
		1436.60		3.320E+00	4.064E+00	7.450E+00	6.290E-01	0.446
		1691.02	*	1.651E-02	8.379E-02	1.414E-01	1.074E-02	0.117
SB-125		427.89	*	-6.554E-03	9.375E-02	1.517E-01	1.057E-02	-0.043
	+	463.38		9.664E-01	4.269E-01	5.794E-01	4.345E-02	1.668
		600.56		4.088E-02	1.788E-01	3.055E-01	2.014E-02	0.134
TE-125M		635.90		-1.386E-02	2.888E-01	4.819E-01	3.055E-02	-0.029
		109.28	*	2.177E+00	9.623E+00	1.583E+01	1.520E+00	0.138
I-126		388.63		1.542E-01	2.210E-01	3.780E-01	2.569E-02	0.408
		666.33	*	-3.765E-02	1.877E-01	3.081E-01	1.546E-02	-0.122
SB-126		753.82		2.578E-01	1.819E+00	3.042E+00	2.046E-01	0.085
		223.80		2.058E+00	4.202E+00	7.252E+00	4.342E-01	0.284
		278.60		2.330E+00	2.642E+00	4.599E+00	2.952E-01	0.507
	+	296.50		1.030E+01	2.482E+00	3.661E+00	2.389E-01	2.813
		414.70		3.479E-03	7.283E-02	1.192E-01	8.075E-03	0.029
		415.30		4.845E-02	6.131E+00	1.000E+01	6.774E-01	0.005
		555.20		1.727E+00	4.248E+00	7.031E+00	4.281E-01	0.246
		573.80		-6.327E-01	1.045E+00	1.677E+00	9.937E-02	-0.377
		593.00		-3.008E-01	9.164E-01	1.500E+00	8.612E-02	-0.201
		656.30		-1.247E+00	3.344E+00	5.405E+00	2.705E-01	-0.231
		666.33		-1.577E-02	7.862E-02	1.291E-01	6.474E-03	-0.122
		675.00		1.274E+00	2.162E+00	3.774E+00	1.952E-01	0.338
		695.00		9.053E-02	8.923E-02	1.593E-01	8.836E-03	0.568
		697.00		2.189E-01	3.052E-01	5.346E-01	2.986E-02	0.410
SB-127		720.50	*	-1.121E-01	1.652E-01	2.407E-01	1.454E-02	-0.466
		856.80		2.677E-02	5.826E-01	8.320E-01	7.552E-02	0.032
		989.30		5.952E-01	1.596E+00	2.678E+00	2.457E-01	0.222
		1034.80		5.710E+00	1.181E+01	1.991E+01	1.707E+00	0.287
		1213.00		-4.308E+00	6.179E+00	9.735E+00	6.587E-01	-0.443
		61.10		2.636E+01	1.087E+02	1.644E+02	2.350E+01	0.160
		252.40		6.550E-01	5.128E+00	8.651E+00	3.607E+00	0.076
		290.80		1.278E+01	2.895E+01	4.379E+01	4.363E+00	0.292
		411.60		2.273E+00	1.469E+01	2.420E+01	3.637E+00	0.094
		444.90		2.335E+00	1.180E+01	1.943E+01	2.254E+00	0.120
		473.00		2.177E-01	1.966E+00	3.206E+00	3.817E-01	0.068
		543.00		-9.728E+00	2.107E+01	3.231E+01	4.311E+00	-0.301
		603.60		-4.409E-01	1.557E+01	2.272E+01	2.496E+00	-0.019
		685.20	*	9.761E-01	1.623E+00	2.835E+00	2.702E-01	0.344

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127	698.50			9.169E-01	1.979E+01	3.303E+01	4.835E+00	0.028
	722.20			-1.526E+00	3.959E+01	5.678E+01	5.505E+00	-0.027
	783.80			2.337E+00	4.885E+00	8.354E+00	9.921E-01	0.280
	57.60			1.266E+00	9.837E+00	1.651E+01	2.099E+00	0.077
	145.22			5.615E-01	6.957E-01	1.160E+00	6.841E-02	0.484
	172.10			2.684E-02	1.225E-01	1.974E-01	1.087E-02	0.136
I-131	202.84	*		-2.054E-02	4.496E-02	7.471E-02	4.327E-03	-0.275
	374.96			4.312E-02	2.060E-01	3.427E-01	2.324E-02	0.126
	80.18			-2.740E+00	5.864E+00	8.420E+00	9.282E-01	-0.325
	284.30			-1.221E+00	1.561E+00	2.480E+00	1.749E-01	-0.492
	364.48	*		2.402E-02	1.232E-01	2.051E-01	1.510E-02	0.117
	636.97			-1.003E+00	1.830E+00	2.935E+00	1.767E-01	-0.342
TE-132	722.89			2.588E+00	8.139E+00	1.220E+01	7.540E-01	0.212
	49.72			-1.510E+01	5.151E+01	8.521E+01	1.234E+01	-0.177
	111.76			-1.813E+01	3.675E+01	5.831E+01	5.985E+00	-0.311
BA-133	116.30			1.550E+01	3.458E+01	5.728E+01	5.706E+00	0.271
	228.16	*		1.514E-01	8.497E-01	1.445E+00	2.118E-01	0.105
	53.15			-1.167E+00	6.938E+00	1.122E+01	1.486E+00	-0.104
	79.62			-8.123E-02	1.503E+00	2.213E+00	3.688E-01	-0.037
	81.00			-1.590E-01	1.230E-01	1.642E-01	2.839E-02	-0.968
	276.40			2.641E-01	3.795E-01	6.530E-01	8.650E-02	0.404
I-133	302.84			-1.499E-03	1.621E-01	2.367E-01	2.853E-02	-0.006
	356.01	*		2.900E-02	4.800E-02	7.233E-02	8.727E-03	0.401
	383.85			-6.657E-02	3.018E-01	4.866E-01	5.563E-02	-0.137
	510.53	+		4.595E+00	3.018E-01	Half-Life	too short	
	529.87	*		-3.255E-03	3.018E-01	Half-Life	too short	
	706.58			9.770E-01	3.018E-01	Half-Life	too short	
CS-134	856.28			8.292E-02	3.018E-01	Half-Life	too short	
	875.33			7.568E-02	3.018E-01	Half-Life	too short	
	1236.41			1.122E+00	3.018E-01	Half-Life	too short	
	1298.22			3.156E-01	3.018E-01	Half-Life	too short	
	475.35			-1.810E-01	1.879E+00	3.012E+00	1.986E-01	-0.060
	563.23			2.064E-01	4.041E-01	6.708E-01	4.117E-02	0.308
I-135	569.32			1.905E-02	2.093E-01	3.365E-01	2.064E-02	0.057
	604.70			-2.130E-02	3.796E-02	5.212E-02	2.947E-03	-0.409
	795.84	+	*	9.082E-02	4.983E-02	9.130E-02	7.038E-03	0.995
	801.93			2.976E-01	4.641E-01	7.874E-01	6.165E-02	0.378
	1038.57			-4.208E+00	4.812E+00	7.069E+00	6.020E-01	-0.595
	1167.94			-3.500E-01	3.115E+00	5.171E+00	3.244E-01	-0.068
CS-135	1365.15			6.462E-01	1.343E+00	2.358E+00	2.127E-01	0.274
	268.24	*		2.325E-01	1.752E-01	2.806E-01	2.267E-02	0.829
	288.45			1.257E+11	1.752E-01	Half-Life	too short	
	417.63			-4.755E+10	1.752E-01	Half-Life	too short	
	546.56			2.328E+11	1.752E-01	Half-Life	too short	
	836.80			1.798E+11	1.752E-01	Half-Life	too short	
I-135	1038.76			-2.361E+11	1.752E-01	Half-Life	too short	
	1124.00			1.014E+12	1.752E-01	Half-Life	too short	
	1131.51			-1.526E+10	1.752E-01	Half-Life	too short	
	1260.41	*		-1.728E+10	1.752E-01	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1457.56		5.108E+12	1.752E-01	Half-Life	too short	
		1678.03		4.862E+10	1.752E-01	Half-Life	too short	
		1706.46		2.344E+11	1.752E-01	Half-Life	too short	
		1791.20		1.041E+11	1.752E-01	Half-Life	too short	
		66.91		1.018E+00	1.162E+00	1.790E+00	3.065E-01	0.569
	+	86.29		3.715E+00	1.719E+00	2.419E+00	3.564E-01	1.536
		153.22		-2.553E-01	6.988E-01	1.099E+00	7.872E-02	-0.232
		163.89		1.099E-01	1.148E+00	1.811E+00	1.270E-01	0.061
		176.55		1.221E-01	3.976E-01	6.424E-01	4.043E-02	0.190
		273.65		-1.160E-01	5.432E-01	7.869E-01	5.615E-02	-0.147
		340.57		3.545E-01	1.513E-01	2.551E-01	1.794E-02	1.389
		818.51		7.195E-02	9.038E-02	1.583E-01	1.293E-02	0.454
		1048.07	*	1.389E-01	1.278E-01	2.279E-01	1.995E-02	0.610
		1235.34		-5.424E-01	7.306E-01	1.142E+00	1.234E-01	-0.475
BA-137M		661.65	*	1.015E-02	3.508E-02	5.994E-02	2.958E-03	0.169
CS-137		661.65	*	1.073E-02	3.708E-02	6.337E-02	3.145E-03	0.169
CE-139		165.85	*	-8.789E-03	2.980E-02	4.682E-02	2.558E-03	-0.188
BA-140		162.64		-3.572E-01	8.216E-01	1.261E+00	7.920E-02	-0.283
		304.84		8.764E-01	1.487E+00	2.248E+00	6.173E-01	0.390
		423.70		3.902E-02	1.924E+00	3.137E+00	1.003E+00	0.012
LA-140	+	537.32	*	-9.632E-02	2.821E-01	4.354E-01	1.419E-01	-0.221
		328.77		6.249E-01	4.429E-01	5.929E-01	4.319E-02	1.054
		432.53		1.416E-01	2.217E+00	3.621E+00	2.632E-01	0.039
		487.03		-6.228E-02	1.463E-01	2.274E-01	1.643E-02	-0.274
		751.79		1.449E+00	2.074E+00	3.613E+00	2.830E-01	0.401
		815.85		-1.038E-01	4.095E-01	6.491E-01	5.937E-02	-0.160
		867.82		4.147E-01	1.735E+00	2.747E+00	2.685E-01	0.151
		919.63		3.052E+00	3.542E+00	5.585E+00	6.553E-01	0.546
		925.24		-3.402E-01	1.316E+00	2.088E+00	2.162E-01	-0.163
CE-141		1596.49	*	-8.992E-02	1.001E-01	1.373E-01	1.066E-02	-0.655
CE-143		145.44	*	7.314E-03	6.430E-02	1.039E-01	6.357E-03	0.070
		57.37		-6.077E-04	6.430E-02	Half-Life	too short	
		231.56		-5.030E-03	6.430E-02	Half-Life	too short	
		293.26	*	8.811E-04	6.430E-02	Half-Life	too short	
	+	350.59		3.900E-02	6.430E-02	Half-Life	too short	
		490.36		4.341E-03	6.430E-02	Half-Life	too short	
		664.57		1.070E-03	6.430E-02	Half-Life	too short	
		721.93		3.065E-04	6.430E-02	Half-Life	too short	
CE-144		80.11		-1.118E+00	2.486E+00	3.573E+00	3.920E-01	-0.313
		133.54	*	2.169E-01	2.168E-01	3.295E-01	4.734E-02	0.658
PM-144		476.78		1.468E-02	6.601E-02	1.086E-01	8.266E-03	0.135
		618.01		1.015E-02	3.182E-02	5.199E-02	3.038E-03	0.195
		696.49	*	2.639E-02	3.800E-02	6.640E-02	3.705E-03	0.398
		778.57		-1.938E+00	2.861E+00	3.728E+00	2.706E-01	-0.520
PR-144		696.49	*	1.789E+00	2.577E+00	4.502E+00	2.510E-01	0.398
		1489.15		-6.068E+00	1.168E+01	1.732E+01	1.430E+00	-0.350
PM-146		453.90	*	2.259E-02	4.579E-02	7.681E-02	7.095E-03	0.294
		633.02		7.660E-01	1.442E+00	2.469E+00	9.073E-01	0.310
		735.90		-4.292E-02	1.561E-01	2.518E-01	7.051E-02	-0.170

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	747.13			-4.302E-02	1.009E-01	1.609E-01	2.073E-02	-0.267
	91.11			1.816E-01	4.522E-01	5.711E-01	6.367E-02	0.318
	319.41			-2.604E+00	3.546E+00	5.602E+00	3.718E-01	-0.465
	439.89			5.968E+00	6.367E+00	1.102E+01	7.412E-01	0.541
	531.02	*		-1.817E-01	5.910E-01	9.201E-01	1.263E-01	-0.197
PM-149	285.90	*		3.775E+01	1.202E+02	2.037E+02	2.946E+01	0.185
EU-152	121.78			-5.860E-03	7.434E-02	1.200E-01	9.889E-03	-0.049
	244.69			-5.285E-03	3.597E-01	5.326E-01	3.286E-02	-0.010
	344.27	*		1.875E-02	1.025E-01	1.588E-01	1.170E-02	0.118
	443.98			2.617E-01	9.688E-01	1.604E+00	1.077E-01	0.163
	778.89			-2.825E-01	3.377E-01	4.303E-01	3.125E-02	-0.656
	867.32			1.900E-01	1.019E+00	1.547E+00	1.445E-01	0.123
	964.01			6.120E-01	3.996E-01	6.539E-01	6.195E-02	0.936
	1085.78			-4.251E-01	4.944E-01	7.240E-01	5.636E-02	-0.587
	1112.02			2.899E-01	4.187E-01	6.788E-01	4.979E-02	0.427
	1407.95			-1.658E-02	1.891E-01	3.081E-01	2.627E-02	-0.054
GD-153	69.67			-4.058E+00	2.226E+00	3.154E+00	3.517E-01	-1.287
	83.37			1.665E+01	1.945E+01	2.752E+01	3.050E+00	0.605
	97.43	*		-2.540E-02	9.256E-02	1.319E-01	1.228E-02	-0.193
EU-154	103.18			-5.659E-02	1.096E-01	1.746E-01	1.476E-02	-0.324
	123.07			-6.434E-04	5.271E-02	8.533E-02	8.432E-03	-0.008
	247.94			4.897E-02	3.596E-01	6.082E-01	5.952E-02	0.081
	591.81			-1.923E-02	5.643E-01	9.468E-01	9.229E-02	-0.020
	723.30			1.635E-01	1.813E-01	2.906E-01	2.129E-02	0.562
	756.87			3.882E-01	8.274E-01	1.421E+00	1.525E-01	0.273
	873.19			1.134E-01	3.104E-01	5.261E-01	6.771E-02	0.216
	996.32			-3.234E-01	4.270E-01	6.314E-01	1.136E-01	-0.512
	1004.76			-4.597E-01	2.547E-01	3.217E-01	3.831E-02	-1.429
	1274.45	*		-1.224E-01	1.445E-01	2.188E-01	2.330E-02	-0.559
EU-155	48.70			-5.143E+00	5.554E+00	8.883E+00	1.067E+00	-0.579
	60.01			3.070E+00	8.135E+00	1.240E+01	1.528E+00	0.247
	86.54			3.254E-01	1.474E-01	2.118E-01	2.397E-02	1.536
TB-160	105.31	*		1.773E-01	1.128E-01	1.950E-01	1.618E-02	0.909
	86.79			8.772E-01	3.972E-01	5.700E-01	6.422E-02	1.539
	197.04			-3.789E-01	5.738E-01	8.738E-01	5.011E-02	-0.434
	215.65			-1.465E-01	7.323E-01	1.228E+00	7.259E-02	-0.119
	298.57			7.287E-02	1.856E-01	2.064E-01	1.349E-02	0.353
	879.36	*		-4.569E-02	1.349E-01	2.122E-01	2.046E-02	-0.215
	962.29			-6.566E-02	7.227E-01	1.061E+00	1.007E-01	-0.062
	966.15			6.651E-01	3.173E-01	5.287E-01	4.996E-02	1.258
	1177.93			-4.618E-01	4.746E-01	7.316E-01	4.563E-02	-0.631
	1271.85			-1.176E-01	8.265E-01	1.356E+00	1.043E-01	-0.087
HO-166M	80.57			-2.189E-01	3.224E-01	4.567E-01	5.017E-02	-0.479
	184.41			1.017E-01	5.429E-02	6.628E-02	3.723E-03	1.534
	280.46			-6.620E-02	8.561E-02	1.367E-01	8.791E-03	-0.484
	410.95			1.880E-01	2.505E-01	4.285E-01	2.906E-02	0.439
	711.68	*		-4.518E-02	6.966E-02	1.099E-01	6.451E-03	-0.411
	752.31			2.190E-01	3.162E-01	5.506E-01	3.685E-02	0.398
	810.29			9.164E-03	6.273E-02	1.046E-01	8.337E-03	0.088

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		51.35		3.285E+01	6.221E+01	1.063E+02	1.399E+01	0.309
		52.39		-3.914E+00	3.175E+01	5.150E+01	6.821E+00	-0.076
		59.40		5.541E+00	4.503E+01	6.781E+01	8.425E+00	0.082
		66.72	*	3.590E+01	3.983E+01	6.182E+01	7.043E+00	0.581
LU-176	+	88.36		6.405E-01	2.900E-01	3.960E-01	4.454E-02	1.618
		201.83		-1.376E-02	2.707E-02	4.490E-02	2.595E-03	-0.306
		306.84	*	8.232E-03	2.373E-02	4.022E-02	2.645E-03	0.205
		401.10		-4.616E-01	6.790E+00	1.104E+01	7.498E-01	-0.042
LU-177	+	112.95		-6.244E-01	1.806E+00	2.888E+00	2.126E-01	-0.216
		208.36	*	2.182E+00	1.585E+00	2.203E+00	1.287E-01	0.990
LU-177M	+	52.97		-2.602E-01	3.170E+00	5.147E+00	6.819E-01	-0.051
		54.07		-6.953E-01	1.602E+00	2.554E+00	3.369E-01	-0.272
		61.30		9.280E-01	2.357E+00	3.593E+00	4.347E-01	0.258
		121.62		2.654E-02	3.811E-01	6.197E-01	4.101E-02	0.043
		147.16		-9.335E-02	6.451E-01	1.028E+00	6.019E-02	-0.091
		171.86		2.143E-01	4.879E-01	7.948E-01	4.375E-02	0.270
		218.09		-6.134E-01	8.228E-01	1.342E+00	7.962E-02	-0.457
		268.79	+	2.253E+00	1.105E+00	1.503E+00	9.547E-02	1.499
		319.02		-1.537E-01	2.591E-01	4.132E-01	2.741E-02	-0.372
		367.43		7.041E-02	8.613E-01	1.423E+00	9.637E-02	0.049
		413.65	*	-1.759E-01	1.756E-01	2.641E-01	1.790E-02	-0.666
		56.28		-8.429E-01	1.595E+00	2.596E+00	3.353E-01	-0.325
HF-181		57.53		-1.173E-01	8.359E-01	1.387E+00	1.765E-01	-0.085
		65.20		-1.221E+00	1.417E+00	2.002E+00	2.313E-01	-0.610
		133.02		1.317E-02	7.191E-02	1.047E-01	6.500E-03	0.126
		136.25		1.113E-01	4.695E-01	7.654E-01	4.684E-02	0.145
		345.85		-2.376E-01	2.173E-01	3.022E-01	2.032E-02	-0.786
		482.03	*	3.908E-02	4.366E-02	7.532E-02	4.944E-03	0.519
W-181		56.28		-3.265E-01	6.175E-01	1.005E+00	1.299E-01	-0.325
		57.53		-4.578E-02	3.240E-01	5.375E-01	6.839E-02	-0.085
		65.20	*	-4.695E-01	5.449E-01	7.696E-01	8.893E-02	-0.610
TA-182		67.75		1.325E-01	1.434E-01	2.355E-01	2.660E-02	0.563
		100.10		2.019E-01	1.896E-01	3.228E-01	2.868E-02	0.625
		152.43		3.566E-02	3.326E-01	5.361E-01	3.076E-02	0.067
		222.10		9.822E-02	3.452E-01	5.906E-01	3.527E-02	0.166
		1001.68		3.792E+00	2.211E+00	4.131E+00	3.726E-01	0.918
		1121.28	+	5.353E-01	3.237E-01	4.028E-01	2.888E-02	1.329
RE-183		1189.05		-2.400E-01	4.191E-01	6.707E-01	4.294E-02	-0.358
		1221.42	*	1.073E-01	2.545E-01	4.378E-01	3.019E-02	0.245
		1230.97		1.787E-01	5.552E-01	9.499E-01	6.691E-02	0.188
		57.98		3.920E-02	3.148E-01	5.281E-01	6.682E-02	0.074
		59.32		1.833E-02	1.871E-01	2.814E-01	3.500E-02	0.065
		67.20		2.712E-01	2.814E-01	4.376E-01	4.966E-02	0.620
RE-184	+	162.32	*	-5.896E-02	1.155E-01	1.767E-01	9.773E-03	-0.334
		208.81		1.786E+00	1.298E+00	1.804E+00	1.055E-01	0.990
		291.72		3.182E-01	1.063E+00	1.592E+00	1.035E-01	0.200
		57.98		1.436E-01	1.153E+00	1.935E+00	2.448E-01	0.074
		59.32		6.711E-02	6.850E-01	1.030E+00	1.281E-01	0.065
		67.20		9.933E-01	1.031E+00	1.603E+00	1.819E-01	0.620

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		161.27		-3.549E-02	3.617E-01	5.753E-01	3.194E-02	-0.062
		216.55		-1.113E-01	2.569E-01	4.258E-01	2.521E-02	-0.261
		252.85	*	3.850E-02	2.311E-01	3.911E-01	2.438E-02	0.098
		318.01		-3.235E-01	4.492E-01	7.104E-01	4.709E-02	-0.455
		792.07		-4.103E-01	1.242E+00	1.701E+00	1.285E-01	-0.241
		903.28		-2.560E-03	1.234E+00	1.898E+00	1.913E-01	-0.001
		920.93		4.519E-01	5.231E-01	8.797E-01	8.725E-02	0.514
		59.72		1.611E-01	4.923E-01	7.491E-01	9.264E-02	0.215
		61.14		6.705E-02	2.599E-01	3.936E-01	4.773E-02	0.170
		69.30		-5.677E-01	4.022E-01	5.881E-01	6.573E-02	-0.965
		592.07		2.525E-01	2.351E+00	3.990E+00	2.295E-01	0.063
		646.12	*	-7.328E-04	4.580E-02	7.652E-02	3.931E-03	-0.010
		717.42		1.184E-02	9.631E-01	1.601E+00	9.577E-02	0.007
		874.81		1.242E-01	5.907E-01	9.880E-01	9.412E-02	0.126
		880.27		-2.718E-01	7.304E-01	1.142E+00	1.104E-01	-0.238
RE-188		155.03	*	1.325E-01	1.742E-01	2.890E-01	1.642E-02	0.459
		477.96		-8.471E-01	3.090E+00	4.875E+00	3.209E-01	-0.174
		633.10		1.682E+00	2.898E+00	5.070E+00	2.686E-01	0.332
W-188	+	63.58		7.770E+01	1.067E+02	1.271E+02	1.495E+01	0.611
		227.08		7.458E+00	1.266E+01	2.193E+01	1.319E+00	0.340
IR-192	+	290.67	*	1.482E+00	8.581E+00	1.274E+01	8.268E-01	0.116
		295.96		7.529E-01	1.816E-01	2.780E-01	1.836E-02	2.708
		308.46		-7.773E-02	9.189E-02	1.440E-01	9.571E-03	-0.540
		316.51	*	-2.830E-02	3.525E-02	5.549E-02	3.689E-03	-0.510
		468.07		3.553E-02	7.349E-02	1.094E-01	8.114E-03	0.325
AU-195		604.41		-2.384E-01	5.217E-01	7.248E-01	8.162E-02	-0.329
		612.46		1.602E+00	8.366E-01	1.432E+00	1.056E-01	1.119
		65.12		-2.227E-01	2.522E-01	3.558E-01	4.114E-02	-0.626
		66.83		1.151E-01	1.322E-01	2.049E-01	2.332E-02	0.562
	+	75.70		9.899E-01	2.993E-01	5.533E-01	6.052E-02	1.789
		98.88	*	5.715E-02	2.441E-01	3.976E-01	3.608E-02	0.144
TL-200	+	129.76		8.910E+00	5.280E+00	5.425E+00	3.422E-01	1.642
		367.94	*	3.397E-04	5.280E+00	Half-Life	too short	
		579.30		1.739E-03	5.280E+00	Half-Life	too short	
		828.27		2.330E-03	5.280E+00	Half-Life	too short	
TL-201		1205.75		6.734E-04	5.280E+00	Half-Life	too short	
		68.90		-3.872E+00	7.494E+00	1.216E+01	1.362E+00	-0.318
		70.82		6.262E-01	4.600E+00	6.876E+00	7.622E-01	0.091
		80.30		-5.541E+00	7.494E+00	1.057E+01	1.161E+00	-0.524
		135.34		-1.658E+01	3.358E+01	5.008E+01	3.077E+00	-0.331
TL-202		167.43	*	-7.590E+00	9.019E+00	1.375E+01	7.518E-01	-0.552
		68.90		-2.934E-01	5.680E-01	9.214E-01	1.033E-01	-0.318
		70.82		4.733E-02	3.476E-01	5.197E-01	5.761E-02	0.091
		80.30		-4.189E-01	5.666E-01	7.994E-01	8.775E-02	-0.524
HG-203		439.56	*	8.500E-02	7.506E-02	1.315E-01	8.841E-03	0.646
		70.83		2.018E-01	1.445E+00	2.160E+00	3.302E-01	0.093
		72.87		2.053E+00	8.973E-01	1.392E+00	2.069E-01	1.475
		82.60		8.941E-02	1.499E+00	2.025E+00	3.116E-01	0.044
		279.20	*	3.472E-02	3.994E-02	6.964E-02	4.699E-03	0.498

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-207		72.80		5.388E-01	2.496E-01	3.969E-01	4.366E-02	1.357
	+	74.97		5.470E-01	1.654E-01	2.741E-01	3.000E-02	1.996
		84.90		1.982E-01	2.374E-01	3.615E-01	4.034E-02	0.548
		569.67		-2.213E-03	3.222E-02	5.109E-02	3.047E-03	-0.043
		1063.62	*	1.256E-02	5.555E-02	9.179E-02	7.473E-03	0.137
TL-207		1770.23		7.102E-02	4.551E-01	6.669E-01	4.425E-02	0.106
		81.07		-3.531E-01	2.672E-01	3.618E-01	3.979E-02	-0.976
		83.78		8.702E-02	1.552E-01	2.342E-01	2.600E-02	0.372
		94.90		1.303E-01	2.525E-01	3.805E-01	3.715E-02	0.343
		122.32		-8.784E-01	1.774E+00	2.802E+00	2.068E-01	-0.313
		144.24		4.798E-01	6.990E-01	1.135E+00	8.320E-02	0.423
		154.21		-8.317E-02	3.982E-01	6.314E-01	4.376E-02	-0.132
	+	269.46		5.252E-01	2.577E-01	3.587E-01	2.366E-02	1.464
		323.87	*	2.289E-01	7.596E-01	1.130E+00	1.903E-01	0.203
	+	338.28		5.665E+00	1.898E+00	2.491E+00	2.754E-01	2.274
PO-209		445.03		4.983E-01	2.298E+00	3.790E+00	4.096E-01	0.131
		260.50		3.211E+00	9.363E+00	1.597E+01	1.005E+00	0.201
		262.80		-2.527E+00	2.529E+01	4.213E+01	2.658E+00	-0.060
		896.60	*	-1.744E+00	8.813E+00	1.414E+01	1.426E+00	-0.123
BI-210		46.50	*	5.385E+00	8.862E+00	1.525E+01	1.496E+00	0.353
PB-210		46.50	*	5.385E+00	8.862E+00	1.525E+01	1.496E+00	0.353
PO-210		46.50	*	5.385E+00	8.860E+00	1.525E+01	1.369E+00	0.353
PB-211		404.84	*	-3.821E-01	9.402E-01	1.439E+00	8.986E-01	-0.265
		427.08		3.066E-01	2.062E+00	3.377E+00	2.091E+00	0.091
BI-212		831.96		-9.226E-01	1.559E+00	2.252E+00	1.411E+00	-0.410
	+	727.18	*	9.663E-01	4.824E-01	6.825E-01	5.460E-02	1.416
		785.46		1.792E+00	1.970E+00	3.477E+00	2.575E-01	0.515
PO-215		1620.62		4.078E-01	1.314E+00	2.260E+00	1.723E-01	0.180
		81.07		-3.531E-01	2.672E-01	3.618E-01	3.979E-02	-0.976
		83.78		8.702E-02	1.552E-01	2.342E-01	2.600E-02	0.372
		94.90		1.303E-01	2.525E-01	3.805E-01	3.715E-02	0.343
		122.32		-8.784E-01	1.774E+00	2.802E+00	2.068E-01	-0.313
		144.24		4.798E-01	6.990E-01	1.135E+00	8.320E-02	0.423
		154.21		-8.317E-02	3.982E-01	6.314E-01	4.376E-02	-0.132
	+	269.46		5.252E-01	2.577E-01	3.587E-01	2.366E-02	1.464
		323.87	*	2.289E-01	7.596E-01	1.130E+00	1.903E-01	0.203
	+	338.28		5.665E+00	1.898E+00	2.491E+00	2.754E-01	2.274
RN-219		445.03		4.983E-01	2.298E+00	3.790E+00	4.096E-01	0.131
	+	271.23		6.739E-01	3.326E-01	4.564E-01	3.889E-02	1.476
		401.81	*	-6.225E-03	4.101E-01	6.692E-01	9.406E-02	-0.009
RN-220		549.76	*	5.511E+00	2.775E+01	4.511E+01	2.766E+00	0.122
RA-223		81.07		-3.531E-01	2.672E-01	3.618E-01	3.979E-02	-0.976
		83.78		8.702E-02	1.552E-01	2.342E-01	2.600E-02	0.372
		94.90		1.303E-01	2.525E-01	3.805E-01	3.715E-02	0.343
		122.32		-8.784E-01	1.774E+00	2.802E+00	2.068E-01	-0.313
		144.24		4.798E-01	6.990E-01	1.135E+00	8.320E-02	0.423
		154.21		-8.317E-02	3.982E-01	6.314E-01	4.376E-02	-0.132
	+	269.46		5.252E-01	2.577E-01	3.587E-01	2.366E-02	1.464
		323.87	*	2.289E-01	7.596E-01	1.130E+00	1.903E-01	0.203



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227	+	338.28		5.665E+00	1.898E+00	2.491E+00	2.754E-01	2.274
		445.03		4.983E-01	2.298E+00	3.790E+00	4.096E-01	0.131
		79.80		-7.109E-01	1.936E+00	2.790E+00	6.291E-01	-0.255
		236.00		7.551E-01	2.640E-01	4.385E-01	4.657E-02	1.722
		256.20	*	3.564E-02	3.674E-01	6.192E-01	8.767E-02	0.058
TH-227		286.10		3.809E-01	1.461E+00	2.470E+00	2.942E-01	0.154
	+	299.80		1.785E+00	2.037E+00	2.636E+00	4.366E-01	0.677
		304.40		1.204E+00	2.057E+00	3.131E+00	5.502E-01	0.384
		334.20		-1.815E-02	3.055E+00	3.734E+00	6.957E-01	-0.005
		79.80		-7.109E-01	1.936E+00	2.790E+00	6.365E-01	-0.255
TH-229	+	94.00		8.693E+00	3.805E+00	3.913E+00	8.739E-01	2.222
		236.00		7.551E-01	2.610E-01	4.385E-01	4.056E-02	1.722
		256.20	*	3.564E-02	3.674E-01	6.192E-01	1.057E-01	0.058
		286.10		3.809E-01	1.509E+00	2.470E+00	2.476E+00	0.154
	+	299.80		1.785E+00	2.037E+00	2.636E+00	4.366E-01	0.677
PA-231		304.40		1.204E+00	2.057E+00	3.131E+00	5.502E-01	0.384
		334.20		-1.815E-02	3.055E+00	3.734E+00	6.957E-01	-0.005
		85.43		3.051E-01	2.422E-01	3.733E-01	4.175E-02	0.817
	+	88.47		3.687E-01	1.669E-01	2.259E-01	2.534E-02	1.632
		100.00		1.979E-01	1.951E-01	3.317E-01	2.953E-02	0.596
TH-231		193.63	*	1.175E-01	5.036E-01	8.073E-01	4.604E-02	0.146
		210.97		7.871E-01	8.302E-01	1.310E+00	7.688E-02	0.601
		283.67	*	-1.203E+00	1.496E+00	2.364E+00	3.325E-01	-0.509
	+	301.29		7.141E-01	8.097E-01	1.031E+00	1.123E-01	0.692
		81.07		-3.531E-01	2.672E-01	3.618E-01	3.979E-02	-0.976
U-231		83.78		8.702E-02	1.552E-01	2.342E-01	2.600E-02	0.372
		94.90		1.303E-01	2.525E-01	3.805E-01	3.715E-02	0.343
		122.32		-8.784E-01	1.774E+00	2.802E+00	2.068E-01	-0.313
		144.24		4.798E-01	6.990E-01	1.135E+00	8.320E-02	0.423
		154.21		-8.317E-02	3.982E-01	6.314E-01	4.376E-02	-0.132
PA-233	+	269.46		5.252E-01	2.577E-01	3.587E-01	2.366E-02	1.464
		323.87	*	2.289E-01	7.596E-01	1.130E+00	1.903E-01	0.203
	+	338.28		5.665E+00	1.898E+00	2.491E+00	2.754E-01	2.274
		445.03		4.983E-01	2.298E+00	3.790E+00	4.096E-01	0.131
		84.21		5.435E+00	7.830E+00	1.188E+01	1.321E+00	0.458
PA-234	+	92.29		1.013E+01	3.943E+00	5.168E+00	5.320E-01	1.959
		95.87	*	2.509E-02	1.385E+00	2.029E+00	1.945E-01	0.012
		108.00		-1.158E+00	2.554E+00	4.074E+00	3.207E-01	-0.284
	+	75.28		1.596E+01	5.235E+00	8.297E+00	1.391E+00	1.924
	+	86.59		5.287E+00	2.745E+00	3.441E+00	9.558E-01	1.537
PA-234	+	300.12		4.977E-01	5.659E-01	7.293E-01	1.005E-01	0.682
		311.98	*	3.680E-02	6.052E-02	1.041E-01	7.202E-03	0.354
		340.50		1.795E+00	8.103E-01	1.201E+00	2.787E-01	1.495
		398.62		1.567E+00	2.121E+00	3.577E+00	9.334E-01	0.438
		415.76		2.206E-01	1.515E+00	2.496E+00	5.212E-01	0.088
PA-234	+	63.00		2.231E+00	3.078E+00	3.768E+00	6.593E-01	0.592
		94.67		1.835E-01	1.854E-01	2.844E-01	3.770E-02	0.645
		98.44		5.261E-02	1.026E-01	1.622E-01	9.063E-02	0.324
		99.86		4.652E-01	4.924E-01	8.354E-01	7.454E-02	0.557

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		1.102E-02	1.879E-01	3.066E-01	3.480E-02	0.036
		131.20		1.221E-01	1.173E-01	1.795E-01	1.124E-02	0.680
		152.70		-3.030E-02	3.231E-01	5.155E-01	8.136E-02	-0.059
	+	186.00		3.661E+00	2.242E+00	2.529E+00	7.720E-01	1.447
		226.40		2.642E-01	4.036E-01	6.992E-01	8.158E-02	0.378
		227.20		1.658E-01	4.237E-01	7.277E-01	4.379E-02	0.228
		248.90		-1.218E-01	8.252E-01	1.375E+00	2.970E-01	-0.089
	+	293.70		4.695E+00	1.333E+00	1.636E+00	2.675E-01	2.870
		369.80		1.725E-01	7.744E-01	1.291E+00	2.726E-01	0.134
		568.70		2.164E-01	1.054E+00	1.711E+00	1.022E-01	0.126
		569.50		2.685E-03	2.876E-01	4.591E-01	2.739E-02	0.006
		574.00		-8.350E-01	1.421E+00	2.284E+00	1.353E-01	-0.366
		699.00		1.378E-01	7.735E-01	1.303E+00	2.337E-01	0.106
		706.10		5.902E-01	1.175E+00	1.977E+00	8.725E-01	0.299
		733.00		-3.100E-01	4.742E-01	6.261E-01	1.340E-01	-0.495
		742.81		-1.026E+00	1.598E+00	2.240E+00	1.500E+00	-0.458
	+	796.30		1.763E+00	1.068E+00	1.774E+00	4.748E-01	0.994
		805.60		-2.523E-01	1.112E+00	1.791E+00	5.452E-01	-0.141
		819.60		3.114E-01	1.443E+00	2.409E+00	9.139E-01	0.129
		826.30		-1.287E-04	8.864E-01	1.457E+00	6.512E-01	0.000
		831.60		-2.064E-01	7.342E-01	1.174E+00	3.498E-01	-0.176
		876.40		-2.912E-01	8.877E-01	1.316E+00	1.354E+00	-0.221
		880.51		-9.051E-02	2.629E-01	4.128E-01	3.992E-02	-0.219
		883.24		-6.545E-02	2.823E-01	4.441E-01	2.992E-01	-0.147
		899.00		3.955E-01	9.845E-01	1.641E+00	7.228E-01	0.241
		925.00		-7.202E-01	1.323E+00	2.035E+00	2.011E-01	-0.354
		926.50		5.081E-02	1.895E-01	3.165E-01	8.143E-02	0.161
		946.00	*	1.024E-01	3.573E-01	5.959E-01	1.148E-01	0.172
		949.00		7.755E-01	5.291E-01	9.638E-01	9.289E-02	0.805
		980.50		-5.181E-01	8.727E-01	1.170E+00	1.086E-01	-0.443
		1394.10		2.253E-01	1.146E+00	1.934E+00	1.259E+00	0.116
PA-234M		766.42		2.003E+01	1.642E+01	2.180E+01	1.101E+01	0.919
		1001.03	*	9.084E+00	5.066E+00	9.464E+00	9.768E-01	0.960
U-235		89.95		9.743E-01	1.675E+00	1.998E+00	6.305E-01	0.488
	+	93.35		2.704E+00	1.276E+00	1.348E+00	3.842E-01	2.007
		105.00		1.376E+00	1.179E+00	1.901E+00	5.653E-01	0.724
		143.76	*	2.426E-02	2.176E-01	3.444E-01	5.632E-02	0.070
		163.35		-7.590E-02	4.873E-01	7.587E-01	1.357E-01	-0.100
	+	185.71		1.356E-01	7.239E-02	9.419E-02	5.301E-03	1.439
		205.31		1.720E-01	5.354E-01	8.176E-01	1.471E-01	0.210
NP-236		94.67		1.420E-01	1.402E-01	2.161E-01	2.120E-02	0.657
		98.44		3.976E-02	7.439E-02	1.226E-01	1.121E-02	0.324
		111.00		8.337E-03	1.421E-01	2.319E-01	1.752E-02	0.036
		160.31	*	1.885E-02	8.092E-02	1.309E-01	7.293E-03	0.144
NP-239		99.55		5.952E-02	1.656E-01	2.749E-01	2.466E-02	0.217
		117.00	*	2.730E-02	1.946E-01	3.180E-01	2.225E-02	0.086
	+	209.75		1.395E+00	1.014E+00	1.419E+00	8.311E-02	0.983
		228.18		4.276E-02	2.247E-01	3.824E-01	2.305E-02	0.112
		277.60		3.936E-02	1.856E-01	3.132E-01	2.008E-02	0.126

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	334.30			2.134E-02	1.733E+00	2.122E+00	1.420E-01	0.010
AM-241	59.54	*		4.348E-02	2.607E-01	3.934E-01	5.052E-02	0.111
CM-243	99.55			6.125E-02	1.704E-01	2.829E-01	2.538E-02	0.217
	103.76	*		-6.168E-02	1.050E-01	1.668E-01	1.397E-02	-0.370
	117.00			2.809E-02	2.002E-01	3.272E-01	2.289E-02	0.086
+	209.75			1.376E+00	9.996E-01	1.399E+00	8.193E-02	0.983
	228.18			4.321E-02	2.271E-01	3.864E-01	2.329E-02	0.112
	277.60			3.968E-02	1.871E-01	3.158E-01	2.025E-02	0.126
AM-246	798.80			-2.196E-01	1.863E-01	2.252E-01	1.735E-02	-0.975
	1036.00			3.363E-01	3.620E-01	6.344E-01	5.426E-02	0.530
	1062.04			-1.828E-01	2.536E-01	3.750E-01	3.062E-02	-0.487
	1078.86	*		8.555E-02	1.680E-01	2.840E-01	2.243E-02	0.301
CM-247	278.00			5.308E-01	7.629E-01	1.317E+00	8.447E-02	0.403
	287.40			-3.626E-01	1.220E+00	1.999E+00	1.294E-01	-0.181
	402.60	*		-3.372E-04	3.607E-02	5.887E-02	3.997E-03	-0.006
CF-249	252.85			1.439E-01	8.635E-01	1.461E+00	9.112E-02	0.098
	333.44			-1.466E-01	2.813E-01	2.716E-01	1.817E-02	-0.540
	387.95	*		2.487E-03	4.153E-02	6.826E-02	4.638E-03	0.036
CF-251	176.60	*		1.542E-02	1.316E-01	2.105E-01	1.168E-02	0.073
	227.00			2.265E-01	3.789E-01	6.563E-01	3.949E-02	0.345
	285.00			-7.119E-01	1.685E+00	2.740E+00	1.770E-01	-0.260

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229012      *
* Acquisition date   : 22-JAN-2010 14:49:39 Detector SN#                   *
* Detector ID        : GAM10 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time: 0 02:00:00.00 Abundance limit : 75.000               *
* Elapsed real time: 0 02:00:01.03 Half life ratio : 8.000                *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G244229012 Analyst initials: MXR1                  *
* Batch Number      : 941239 Sample Quantity : 1.1622E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*                                     QC DATA                                *
*
* Standard Weight   : 0.00000                                              *
* CALIB. DATE/TIME : 16-MAR-2009 13:18:08 MS Isotope :                    *
* MSD DPM           : 0.000 MSD Isotope :                                *
* LCS DPM           : 0.000 LCS Isotope :                                *
* LCSD DPM          : 0.000 LCSD Isotope :                                *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.862E+01	3.895E+00	4.898E-01	0.000E+00
CD-109	2.752E+00	1.221E+00	1.579E+00	0.000E+00
SN-126	2.701E-01	1.198E-01	1.639E-01	0.000E+00
TL-208	4.389E-01	9.028E-02	5.475E-02	0.000E+00
BI-211	2.970E+00	4.971E-01	3.191E-01	0.000E+00
PB-212	1.462E+00	1.700E-01	1.167E-01	0.000E+00
PO-212	1.462E+00	1.700E-01	1.167E-01	0.000E+00
BI-214	1.008E+00	1.755E-01	1.103E-01	0.000E+00
PB-214	1.033E+00	1.808E-01	1.112E-01	0.000E+00
PO-214	1.033E+00	1.808E-01	1.112E-01	0.000E+00
PO-216	1.462E+00	1.700E-01	1.167E-01	0.000E+00
PO-218	1.033E+00	1.808E-01	1.112E-01	0.000E+00
RA-224	2.745E+00	8.864E-01	1.328E+00	0.000E+00
RA-226	1.008E+00	1.755E-01	1.103E-01	0.000E+00
AC-228	1.644E+00	3.739E-01	2.348E-01	0.000E+00
RA-228	1.644E+00	3.739E-01	2.348E-01	0.000E+00
TH-228	1.486E+00	1.727E-01	1.186E-01	0.000E+00
TH-230	1.008E+00	1.755E-01	1.103E-01	0.000E+00
TH-232	1.644E+00	3.739E-01	2.348E-01	0.000E+00
TH-234	1.914E+00	2.593E+00	3.001E+00	0.000E+00
U-234	1.008E+00	1.755E-01	1.103E-01	0.000E+00
NP-237	7.930E-01	3.867E-01	4.658E-01	0.000E+00
U-238	1.914E+00	2.593E+00	3.001E+00	0.000E+00
AM-243	3.047E-01	9.029E-02	1.076E-01	0.000E+00
ANH-511	2.028E-01	7.571E-02	4.917E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-2.321E-01	3.250E-01	5.078E-01	0.000E+00 NOT IDENT.
NA-22	-4.610E-02	5.088E-02	7.826E-02	0.000E+00 NOT IDENT.

NA-24	0.000E+00	2.587E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.844E-02	2.679E-02	5.106E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.933E-02	8.361E-02	0.000E+00	FAIL ABUN
SC-46	5.094E-04	4.335E-02	7.251E-02	0.000E+00	FAIL ABUN
V-48	2.514E-02	7.982E-02	1.363E-01	0.000E+00	NOT IDENT.
CR-51	-9.972E-02	3.761E-01	6.329E-01	0.000E+00	NOT IDENT.
MN-52	-9.126E-02	2.922E-01	4.678E-01	0.000E+00	NOT IDENT.
MN-54	2.296E-02	4.296E-02	7.509E-02	0.000E+00	NOT IDENT.
CO-56	8.033E-03	4.119E-02	7.034E-02	0.000E+00	NOT IDENT.
CO-57	-7.916E-03	2.519E-02	4.190E-02	0.000E+00	NOT IDENT.
CO-58	4.697E-03	4.181E-02	7.111E-02	0.000E+00	NOT IDENT.
FE-59	-5.734E-02	1.170E-01	1.829E-01	0.000E+00	NOT IDENT.
CO-60	-1.881E-02	4.105E-02	6.520E-02	0.000E+00	NOT IDENT.
ZN-65	-3.654E-02	1.296E-01	1.760E-01	0.000E+00	NOT IDENT.
GE-68	3.731E-01	1.451E+00	2.443E+00	0.000E+00	NOT IDENT.
AS-73	-4.370E-01	1.573E+00	2.660E+00	0.000E+00	NOT IDENT.
AS-74	1.020E-02	9.052E-02	1.575E-01	0.000E+00	NOT IDENT.
SE-75	-4.996E-02	4.544E-02	6.743E-02	0.000E+00	NOT IDENT.
BR-77	1.974E+00	1.350E+01	2.255E+01	0.000E+00	FAIL ABUN
SR-82	-8.684E-02	4.559E-01	6.515E-01	0.000E+00	NOT IDENT.
RB-83	1.115E-02	6.731E-02	1.126E-01	0.000E+00	NOT IDENT.
RB-84	7.608E-03	6.553E-02	1.110E-01	0.000E+00	NOT IDENT.
KR-85	1.315E+01	8.401E+00	1.386E+01	0.000E+00	NOT IDENT.
SR-85	6.813E-02	4.353E-02	7.181E-02	0.000E+00	NOT IDENT.
RB-86	1.476E-01	9.623E-01	1.604E+00	0.000E+00	NOT IDENT.
Y-88	4.904E-03	3.228E-02	5.474E-02	0.000E+00	NOT IDENT.
ZR-88	5.345E-03	3.016E-02	5.145E-02	0.000E+00	NOT IDENT.
Y-91	-7.136E+00	2.307E+01	3.831E+01	0.000E+00	NOT IDENT.
NB-94	-9.902E-03	3.538E-02	5.899E-02	0.000E+00	NOT IDENT.
NB-95	3.854E-02	4.740E-02	7.612E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.321E-01	2.280E-01	0.000E+00	NOT IDENT.
ZR-95	5.462E-03	7.906E-02	1.346E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.464E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	5.525E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	6.735E+00	1.533E+01	2.691E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	6.143E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.184E-02	3.267E-02	5.451E-02	0.000E+00	NOT IDENT.
RH-102	4.551E-03	2.779E-02	4.678E-02	0.000E+00	NOT IDENT.
RU-103	-6.942E-03	4.142E-02	6.762E-02	0.000E+00	FAIL ABUN
RH-106	1.428E-01	2.963E-01	5.286E-01	0.000E+00	FAIL ABUN
RU-106	1.428E-01	2.959E-01	5.286E-01	0.000E+00	FAIL ABUN
AG-108M	-9.193E-03	3.266E-02	5.349E-02	0.000E+00	NOT IDENT.
AG-110M	-2.230E-02	3.289E-02	5.303E-02	0.000E+00	NOT IDENT.
IN-111	-2.776E-01	1.459E+00	2.208E+00	0.000E+00	NOT IDENT.
IN-113M	-2.383E-02	4.576E-02	7.442E-02	0.000E+00	NOT IDENT.
SN-113	-2.383E-02	4.576E-02	7.442E-02	0.000E+00	NOT IDENT.
IN-114M	9.879E-03	2.001E-01	2.933E-01	0.000E+00	NOT IDENT.
CD-115	7.053E-02	1.407E+01	2.319E+01	0.000E+00	NOT IDENT.
SN-117M	-2.657E-03	5.896E-02	9.787E-02	0.000E+00	NOT IDENT.
SB-122	1.274E+00	2.954E+00	5.000E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.081E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.427E-03	2.909E-02	4.849E-02	0.000E+00	NOT IDENT.
I-124	-6.677E-02	7.964E-01	1.289E+00	0.000E+00	NOT IDENT.
SB-124	1.651E-02	8.212E-02	1.407E-01	0.000E+00	NOT IDENT.
SB-125	-6.554E-03	9.187E-02	1.531E-01	0.000E+00	FAIL ABUN
TE-125M	2.177E+00	9.430E+00	1.619E+01	0.000E+00	NOT IDENT.
I-126	-3.765E-02	1.840E-01	3.095E-01	0.000E+00	NOT IDENT.
SB-126	-1.121E-01	1.619E-01	2.415E-01	0.000E+00	FAIL ABUN
SB-127	9.761E-01	1.591E+00	2.846E+00	0.000E+00	NOT IDENT.
XE-127	-2.054E-02	4.406E-02	7.595E-02	0.000E+00	NOT IDENT.
I-131	2.402E-02	1.207E-01	2.073E-01	0.000E+00	NOT IDENT.
TE-132	1.514E-01	8.327E-01	1.467E+00	0.000E+00	NOT IDENT.
BA-133	2.900E-02	4.704E-02	7.311E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.303E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.082E-02	4.884E-02	9.153E-02	0.000E+00	FAIL ABUN
CS-135	2.325E-01	1.717E-01	2.844E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	7.488E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.389E-01	1.252E-01	2.278E-01	0.000E+00	FAIL ABUN
BA-137M	1.015E-02	3.437E-02	6.021E-02	0.000E+00	NOT IDENT.
CS-137	1.073E-02	3.634E-02	6.365E-02	0.000E+00	NOT IDENT.
CE-139	-8.789E-03	2.920E-02	4.769E-02	0.000E+00	NOT IDENT.
BA-140	-9.632E-02	2.765E-01	4.383E-01	0.000E+00	NOT IDENT.
LA-140	-8.992E-02	9.806E-02	1.367E-01	0.000E+00	FAIL ABUN
CE-141	7.314E-03	6.301E-02	1.059E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.341E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	2.169E-01	2.125E-01	3.363E-01	0.000E+00	NOT IDENT.
PM-144	2.639E-02	3.724E-02	6.666E-02	0.000E+00	NOT IDENT.
PR-144	1.789E+00	2.525E+00	4.520E+00	0.000E+00	NOT IDENT.

PM-146	2.259E-02	4.488E-02	7.745E-02	0.000E+00	NOT IDENT.
ND-147	-1.817E-01	5.792E-01	9.263E-01	0.000E+00	NOT IDENT.
PM-149	3.775E+01	1.178E+02	2.063E+02	0.000E+00	NOT IDENT.
EU-152	1.875E-02	1.005E-01	1.606E-01	0.000E+00	NOT IDENT.
GD-153	-2.540E-02	9.071E-02	1.350E-01	0.000E+00	NOT IDENT.
EU-154	-1.224E-01	1.416E-01	2.183E-01	0.000E+00	NOT IDENT.
EU-155	1.773E-01	1.105E-01	1.995E-01	0.000E+00	FAIL ABUN
TB-160	-4.569E-02	1.322E-01	2.125E-01	0.000E+00	FAIL ABUN
HO-166M	-4.518E-02	6.826E-02	1.103E-01	0.000E+00	FAIL ABUN
TM-171	3.590E+01	3.904E+01	6.353E+01	0.000E+00	NOT IDENT.
LU-176	8.232E-03	2.326E-02	4.071E-02	0.000E+00	FAIL ABUN
LU-177	2.182E+00	1.554E+00	2.239E+00	0.000E+00	FAIL ABUN
LU-177M	-1.759E-01	1.721E-01	2.665E-01	0.000E+00	FAIL ABUN
HF-181	3.908E-02	4.279E-02	7.590E-02	0.000E+00	NOT IDENT.
W-181	-4.695E-01	5.340E-01	7.911E-01	0.000E+00	NOT IDENT.
TA-182	1.073E-01	2.494E-01	4.370E-01	0.000E+00	FAIL ABUN
RE-183	-5.896E-02	1.132E-01	1.800E-01	0.000E+00	FAIL ABUN
RE-184	3.850E-02	2.265E-01	3.967E-01	0.000E+00	NOT IDENT.
OS-185	-7.328E-04	4.488E-02	7.688E-02	0.000E+00	NOT IDENT.
RE-188	1.325E-01	1.707E-01	2.945E-01	0.000E+00	NOT IDENT.
W-188	1.482E+00	8.410E+00	1.290E+01	0.000E+00	FAIL ABUN
IR-192	-2.830E-02	3.455E-02	5.615E-02	0.000E+00	FAIL ABUN
AU-195	5.715E-02	2.393E-01	4.070E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	8.118E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-7.590E+00	8.838E+00	1.400E+01	0.000E+00	NOT IDENT.
TL-202	8.500E-02	7.356E-02	1.326E-01	0.000E+00	NOT IDENT.
HG-203	3.472E-02	3.914E-02	7.056E-02	0.000E+00	NOT IDENT.
BI-207	1.256E-02	5.444E-02	9.176E-02	0.000E+00	FAIL ABUN
TL-207	2.289E-01	7.444E-01	1.144E+00	0.000E+00	FAIL ABUN
PO-209	-1.744E+00	8.637E+00	1.416E+01	0.000E+00	NOT IDENT.
BI-210	5.385E+00	8.685E+00	1.573E+01	0.000E+00	NOT IDENT.
PB-210	5.385E+00	8.685E+00	1.573E+01	0.000E+00	NOT IDENT.
PO-210	5.385E+00	8.682E+00	1.573E+01	0.000E+00	NOT IDENT.
PB-211	-3.821E-01	9.213E-01	1.453E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.727E-01	6.849E-01	0.000E+00	FAIL ABUN
PO-215	2.289E-01	7.444E-01	1.144E+00	0.000E+00	FAIL ABUN
RN-219	-6.225E-03	4.019E-01	6.755E-01	0.000E+00	FAIL ABUN
RN-220	5.511E+00	2.719E+01	4.540E+01	0.000E+00	NOT IDENT.
RA-223	2.289E-01	7.444E-01	1.144E+00	0.000E+00	FAIL ABUN
AC-227	3.564E-02	3.600E-01	6.280E-01	0.000E+00	FAIL ABUN
TH-227	3.564E-02	3.601E-01	6.280E-01	0.000E+00	FAIL ABUN
TH-229	1.175E-01	4.935E-01	8.210E-01	0.000E+00	FAIL ABUN
PA-231	-1.203E+00	1.467E+00	2.395E+00	0.000E+00	FAIL ABUN
TH-231	2.289E-01	7.444E-01	1.144E+00	0.000E+00	FAIL ABUN
U-231	2.509E-02	1.357E+00	2.078E+00	0.000E+00	FAIL ABUN
PA-233	3.680E-02	5.931E-02	1.053E-01	0.000E+00	FAIL ABUN
PA-234	1.024E-01	3.502E-01	5.964E-01	0.000E+00	FAIL ABUN
PA-234M	9.084E+00	4.964E+00	9.467E+00	0.000E+00	NOT IDENT.
U-235	2.426E-02	2.132E-01	3.513E-01	0.000E+00	FAIL ABUN
NP-236	1.885E-02	7.930E-02	1.333E-01	0.000E+00	NOT IDENT.
NP-239	2.730E-02	1.907E-01	3.250E-01	0.000E+00	FAIL ABUN
AM-241	4.348E-02	2.555E-01	4.047E-01	0.000E+00	NOT IDENT.
CM-243	-6.168E-02	1.029E-01	1.707E-01	0.000E+00	FAIL ABUN
AM-246	8.555E-02	1.646E-01	2.838E-01	0.000E+00	NOT IDENT.
CM-247	-3.372E-04	3.535E-02	5.943E-02	0.000E+00	NOT IDENT.
CF-249	2.487E-03	4.070E-02	6.894E-02	0.000E+00	NOT IDENT.
CF-251	1.542E-02	1.289E-01	2.143E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229012.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 14:49:39
Sample ID      : G244229012           Sample quantity  : 1.16220E+02 GRAM
Detector name   : GAM10              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:01.03  0.0%
Energy tolerance: 1.50000 keV         Analyst Initials : MXR1
Abundance limit : 75.00000           Sensitivity     : 5.00000
Batch ID       : 941239              Detector SN#    :
Matrix Spike ID:                     LCS ID           : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1412	10.67*	1.107E+00	3.862E+01	3.862E+01	10.29
CD-109	88.03	163	3.72*	5.253E+00	2.686E+00	2.752E+00	45.28
SN-126	64.28	51	9.60	2.269E+00	7.576E-01	7.576E-01	137.91
	86.94	163	8.90	5.253E+00	1.123E+00	1.123E+00	60.71
	87.57	163	37.00*	5.253E+00	2.701E-01	2.701E-01	45.28
TL-208	277.35	-----	6.80	4.610E+00	-----	Line Not Found	-----
	510.84	184	21.60	2.927E+00	9.391E-01	9.391E-01	38.98
	583.14	301	84.20*	2.626E+00	4.389E-01	4.389E-01	20.99
	860.37	61	12.46	1.839E+00	8.549E-01	8.549E-01	45.48
BI-211	72.87	-----	1.27	3.633E+00	-----	Line Not Found	-----
	351.07	462	12.94*	3.886E+00	2.970E+00	2.970E+00	17.08
PB-212	74.81	241	10.70	3.868E+00	1.880E+00	1.880E+00	31.65
	77.11	463	18.00	4.159E+00	1.997E+00	1.997E+00	19.19
	87.30	163	8.00	5.253E+00	1.249E+00	1.249E+00	46.37
	238.63	1033	44.60*	5.116E+00	1.462E+00	1.462E+00	11.86
	300.09	44	3.41	4.359E+00	9.633E-01	9.633E-01	113.20
PO-212	74.81	241	10.70	3.868E+00	1.880E+00	1.880E+00	31.65
	77.11	463	18.00	4.159E+00	1.997E+00	1.997E+00	19.19
	87.30	163	8.00	5.253E+00	1.249E+00	1.249E+00	46.37
	115.19	-----	0.60	6.657E+00	-----	Line Not Found	-----
	238.63	1033	44.60*	5.116E+00	1.462E+00	1.462E+00	11.86
	300.09	44	3.41	4.359E+00	9.633E-01	9.633E-01	113.20
BI-214	609.31	365	46.30*	2.530E+00	1.008E+00	1.008E+00	17.77
	1120.29	74	15.10	1.414E+00	1.125E+00	1.125E+00	60.84
	1764.49	71	15.80	9.763E-01	1.476E+00	1.476E+00	27.34
PB-214	74.81	241	6.21	3.868E+00	3.239E+00	3.239E+00	31.13
	77.11	463	10.50	4.159E+00	3.424E+00	3.424E+00	20.65
	87.30	163	4.67	5.253E+00	2.140E+00	2.140E+00	45.93
	241.98	170	7.49	5.070E+00	1.447E+00	1.448E+00	33.43
	295.21	257	19.20	4.412E+00	9.782E-01	9.782E-01	24.90
	351.92	462	37.20*	3.886E+00	1.033E+00	1.033E+00	17.85
PO-214	74.81	241	6.21	3.868E+00	3.239E+00	3.239E+00	31.13

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-216	77.11	463	10.50	4.159E+00	3.424E+00	3.424E+00	20.65
	87.30	163	4.67	5.253E+00	2.140E+00	2.140E+00	45.93
	241.98	170	7.49	5.070E+00	1.447E+00	1.448E+00	33.43
	295.21	257	19.20	4.412E+00	9.782E-01	9.782E-01	24.90
	351.92	462	37.20*	3.886E+00	1.033E+00	1.033E+00	17.85
	74.81	241	10.70	3.868E+00	1.880E+00	1.880E+00	31.65
	77.11	463	18.00	4.159E+00	1.997E+00	1.997E+00	19.19
	87.30	163	8.00	5.253E+00	1.249E+00	1.249E+00	46.37
	238.63	1033	44.60*	5.116E+00	1.462E+00	1.462E+00	11.86
	300.09	44	3.41	4.359E+00	9.633E-01	9.633E-01	113.20
PO-218	74.81	241	6.21	3.868E+00	3.239E+00	3.239E+00	31.13
	77.11	463	10.50	4.159E+00	3.424E+00	3.424E+00	20.65
	87.30	163	4.67	5.253E+00	2.140E+00	2.140E+00	45.93
	241.98	170	7.49	5.070E+00	1.447E+00	1.448E+00	33.43
	295.21	257	19.20	4.412E+00	9.782E-01	9.782E-01	24.90
RA-224	351.92	462	37.20*	3.886E+00	1.033E+00	1.033E+00	17.85
	240.98	170	3.95*	5.070E+00	2.745E+00	2.745E+00	32.95
RA-226	609.31	365	46.30*	2.530E+00	1.008E+00	1.008E+00	17.77
	1120.29	74	15.10	1.414E+00	1.125E+00	1.125E+00	60.84
	1764.49	71	15.80	9.763E-01	1.476E+00	1.476E+00	27.34
AC-228	338.32	192	11.40	4.000E+00	1.357E+00	1.357E+00	51.70
	911.07	245	27.70*	1.739E+00	1.644E+00	1.644E+00	23.22
RA-228	969.11	132	16.60	1.634E+00	1.576E+00	1.576E+00	51.90
	338.32	192	11.40	4.000E+00	1.357E+00	1.357E+00	51.70
	911.07	245	27.70*	1.739E+00	1.644E+00	1.644E+00	23.22
TH-228	969.11	132	16.60	1.634E+00	1.576E+00	1.576E+00	51.90
	74.81	241	10.70	3.868E+00	1.880E+00	1.910E+00	30.26
	77.11	463	18.00	4.159E+00	1.997E+00	2.030E+00	19.19
	87.30	163	8.00	5.253E+00	1.249E+00	1.269E+00	45.28
	238.63	1033	44.60*	5.116E+00	1.462E+00	1.486E+00	11.86
TH-230	300.09	44	3.41	4.359E+00	9.633E-01	9.789E-01	127.36
	609.31	365	46.30*	2.530E+00	1.008E+00	1.008E+00	17.77
	1120.29	74	15.10	1.414E+00	1.125E+00	1.125E+00	60.84
	1764.49	71	15.80	9.763E-01	1.476E+00	1.476E+00	27.34
TH-232	338.32	192	11.40	4.000E+00	1.357E+00	1.357E+00	32.33
	911.07	245	27.70*	1.739E+00	1.644E+00	1.644E+00	23.22
	969.11	132	16.60	1.634E+00	1.576E+00	1.576E+00	51.90
TH-234	63.29	51	3.80*	2.269E+00	1.914E+00	1.914E+00	138.25
	92.38	216	5.41	5.728E+00	2.250E+00	2.250E+00	42.06
U-234	609.31	365	46.30*	2.530E+00	1.008E+00	1.008E+00	17.77
	1120.29	74	15.10	1.414E+00	1.125E+00	1.125E+00	60.84
	1764.49	71	15.80	9.763E-01	1.476E+00	1.476E+00	27.34
NP-237	86.50	163	12.60*	5.253E+00	7.930E-01	7.930E-01	49.76
	95.87	-----	2.60	5.933E+00	-----	Line Not Found	-----
U-238	63.29	51	3.80*	2.269E+00	1.914E+00	1.914E+00	138.25
	92.38	216	5.41	5.728E+00	2.250E+00	2.250E+00	38.94
AM-243	74.67	241	66.00*	3.868E+00	3.047E-01	3.047E-01	30.24
	86.72	163	0.34	5.253E+00	2.974E+01	2.974E+01	45.28
	117.66	-----	0.55	6.694E+00	-----	Line Not Found	-----



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	142.18	-----	0.13	6.676E+00	-----	Line Not Found	-----
ANH-511	511.00	184	100.00*	2.927E+00	2.028E-01	2.028E-01	38.08

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 28 96.55%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.862E+01	3.862E+01	0.397E+01	10.29	
CD-109	464.00D	1.02	2.686E+00	2.752E+00	1.246E+00	45.28	
SN-126	1.00E+05Y	1.00	2.701E-01	2.701E-01	1.223E-01	45.28	
TL-208	1.41E+10Y	1.00	4.389E-01	4.389E-01	0.921E-01	20.99	
BI-211	7.04E+08Y	1.00	2.970E+00	2.970E+00	0.507E+00	17.08	
PB-212	1.41E+10Y	1.00	1.462E+00	1.462E+00	0.173E+00	11.86	
PO-212	1.41E+10Y	1.00	1.462E+00	1.462E+00	0.173E+00	11.86	
BI-214	1600.00Y	1.00	1.008E+00	1.008E+00	0.179E+00	17.77	
PB-214	1600.00Y	1.00	1.033E+00	1.033E+00	0.184E+00	17.85	
PO-214	1600.00Y	1.00	1.033E+00	1.033E+00	0.184E+00	17.85	
PO-216	1.41E+10Y	1.00	1.462E+00	1.462E+00	0.173E+00	11.86	
PO-218	1600.00Y	1.00	1.033E+00	1.033E+00	0.184E+00	17.85	
RA-224	1.41E+10Y	1.00	2.745E+00	2.745E+00	0.904E+00	32.95	
RA-226	1600.00Y	1.00	1.008E+00	1.008E+00	0.179E+00	17.77	
AC-228	1.41E+10Y	1.00	1.644E+00	1.644E+00	0.382E+00	23.22	
RA-228	1.41E+10Y	1.00	1.644E+00	1.644E+00	0.382E+00	23.22	
TH-228	1.91Y	1.02	1.462E+00	1.486E+00	0.176E+00	11.86	
TH-230	4.47E+09Y	1.00	1.008E+00	1.008E+00	0.179E+00	17.77	
TH-232	1.41E+10Y	1.00	1.644E+00	1.644E+00	0.382E+00	23.22	
TH-234	4.47E+09Y	1.00	1.914E+00	1.914E+00	2.646E+00	138.25	
U-234	4.47E+09Y	1.00	1.008E+00	1.008E+00	0.179E+00	17.77	
NP-237	2.14E+06Y	1.00	7.930E-01	7.930E-01	3.946E-01	49.76	
U-238	4.47E+09Y	1.00	1.914E+00	1.914E+00	2.646E+00	138.25	
AM-243	7380.00Y	1.00	3.047E-01	3.047E-01	0.921E-01	30.24	
ANH-511	1.00E+09Y	1.00	2.028E-01	2.028E-01	0.773E-01	38.08	
Total Activity :			7.077E+01	7.086E+01			

Grand Total Activity : 7.077E+01 7.086E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	129.63	142	402	2.72	259.30	253	12	1.97E-02	58.9	6.76E+00	T
0	185.76	136	305	1.24	371.47	367	10	1.88E-02	53.1	5.98E+00	T
0	209.21	78	240	0.88	418.33	415	8	1.08E-02	72.4	5.57E+00	T
0	270.28	104	163	1.83	540.39	536	9	1.44E-02	48.6	4.69E+00	T
0	328.09	68	143	1.64	655.92	652	10	9.38E-03	70.5	4.09E+00	T
0	463.10	97	87	1.62	925.78	919	12	1.35E-02	43.5	3.16E+00	T
0	727.37	76	68	1.20	1454.06	1449	12	1.06E-02	49.3	2.16E+00	T
0	771.74	86	121	5.43	1542.78	1532	25	1.19E-02	73.3	2.04E+00	T
0	795.35	42	30	1.61	1589.99	1586	8	5.87E-03	54.3	1.99E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229012.CNF;1
* Acquisition date   : 22-JAN-2010 14:49:39   Detector SN#      :
* Detector ID        : GAM10                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.03          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229012             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity  : 1.16220E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08.8MS Isotope      :
* MSD ID              :                               MSD Isotope :
* LCS ID              : 1032-A                       LCS Isotope  :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.862E+01	3.974E+00	4.915E-01	4.234E-02	78.568
CD-109	2.752E+00	1.246E+00	1.541E+00	1.747E-01	1.786
SN-126	2.701E-01	1.223E-01	1.599E-01	1.810E-02	1.689
TL-208	4.389E-01	9.212E-02	5.444E-02	3.658E-03	8.063
BI-211	2.970E+00	5.072E-01	3.156E-01	2.301E-02	9.410
PB-212	1.462E+00	1.734E-01	1.150E-01	8.723E-03	12.715
PO-212	1.462E+00	1.734E-01	1.150E-01	8.723E-03	12.715
BI-214	1.008E+00	1.791E-01	1.098E-01	8.352E-03	9.183
PB-214	1.033E+00	1.845E-01	1.100E-01	9.867E-03	9.391
PO-214	1.033E+00	1.845E-01	1.100E-01	9.867E-03	9.391
PO-216	1.462E+00	1.734E-01	1.150E-01	8.723E-03	12.715
PO-218	1.033E+00	1.845E-01	1.100E-01	9.867E-03	9.391
RA-224	2.745E+00	9.044E-01	1.308E+00	8.031E-02	2.098
RA-226	1.008E+00	1.791E-01	1.098E-01	8.352E-03	9.183
AC-228	1.644E+00	3.816E-01	2.345E-01	2.895E-02	7.007
RA-228	1.644E+00	3.816E-01	2.345E-01	2.895E-02	7.007
TH-228	1.486E+00	1.762E-01	1.169E-01	8.864E-03	12.715
TH-230	1.008E+00	1.791E-01	1.097E-01	8.352E-03	9.183

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.644E+00	3.816E-01	2.345E-01	2.895E-02	7.007
TH-234	1.914E+00	2.646E+00	2.919E+00	5.753E-01	0.656
U-234	1.008E+00	1.791E-01	1.097E-01	8.352E-03	9.183
NP-237	7.930E-01	3.946E-01	4.544E-01	1.068E-01	1.745
U-238	1.914E+00	2.646E+00	2.919E+00	5.753E-01	0.656
AM-243	3.047E-01	9.214E-02	1.048E-01	1.148E-02	2.907
ANH-511	2.028E-01	7.725E-02	4.883E-02	3.128E-03	4.155

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.321E-01		3.316E-01	5.039E-01	3.747E-02	-0.461
NA-22	-4.610E-02		5.192E-02	7.844E-02	6.076E-03	-0.588
NA-24	-2.481E-01		1.320E+00	Half-Life too short		
AL-26	1.844E-02		2.733E-02	5.136E-02	3.257E-03	0.359
TI-44	3.686E-01	+	7.074E-02	8.149E-02	8.917E-03	4.523
SC-46	5.094E-04		4.424E-02	7.240E-02	7.165E-03	0.007
V-48	2.514E-02		8.145E-02	1.363E-01	1.260E-02	0.184
CR-51	-9.972E-02		3.837E-01	6.255E-01	4.518E-02	-0.159
MN-52	-9.126E-02		2.981E-01	4.694E-01	3.967E-02	-0.194
MN-54	2.296E-02		4.384E-02	7.493E-02	6.402E-03	0.306
CO-56	8.033E-03		4.203E-02	7.020E-02	6.199E-03	0.114
CO-57	-7.916E-03		2.570E-02	4.101E-02	2.705E-03	-0.193
CO-58	4.697E-03		4.267E-02	7.094E-02	5.676E-03	0.066
FE-59	-5.734E-02		1.194E-01	1.830E-01	1.528E-02	-0.313
CO-60	-1.881E-02		4.189E-02	6.538E-02	5.681E-03	-0.288
ZN-65	-3.654E-02		1.322E-01	1.762E-01	1.283E-02	-0.207
GE-68	3.731E-01		1.481E+00	2.445E+00	1.937E-01	0.153
AS-73	-4.370E-01		1.606E+00	2.583E+00	3.418E-01	-0.169
AS-74	1.020E-02		9.236E-02	1.567E-01	8.950E-03	0.065
SE-75	-4.996E-02		4.637E-02	6.652E-02	4.243E-03	-0.751
BR-77	1.974E+00		1.378E+01	2.240E+01	1.421E+00	0.088
SR-82	-8.684E-02		4.652E-01	6.496E-01	4.684E-02	-0.134
RB-83	1.115E-02		6.869E-02	1.118E-01	7.097E-03	0.100
RB-84	7.608E-03		6.687E-02	1.108E-01	1.074E-02	0.069
KR-85	1.315E+01		8.572E+00	1.376E+01	8.790E-01	0.955
SR-85	6.813E-02		4.442E-02	7.131E-02	4.555E-03	0.955
RB-86	1.476E-01		9.819E-01	1.605E+00	1.273E-01	0.092
Y-88	4.904E-03		3.294E-02	5.506E-02	3.378E-03	0.089
ZR-88	5.345E-03		3.078E-02	5.096E-02	3.463E-03	0.105
Y-91	-7.136E+00		2.354E+01	3.838E+01	2.549E+00	-0.186
NB-94	-9.902E-03		3.610E-02	5.876E-02	3.345E-03	-0.169
NB-95	3.854E-02		4.837E-02	7.589E-02	5.296E-03	0.508
NB-95M	3.022E-01		1.348E-01	2.246E-01	1.742E-02	1.345
ZR-95	5.462E-03		8.067E-02	1.342E-01	1.054E-02	0.041
NB-97	-1.492E-01		1.257E-01	Half-Life too short		
ZR-97	7.044E+00		2.819E+00	Half-Life too short		

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MO-99	6.735E+00		1.564E+01	2.682E+01	3.771E+00	0.251
TC-99M	-4.319E+11		3.134E+11	Half-Life too short		
RH-101	2.184E-02		3.334E-02	5.361E-02	3.080E-03	0.407
RH-102	4.551E-03		2.835E-02	4.642E-02	3.062E-03	0.098
RU-103	-6.942E-03		4.227E-02	6.712E-02	8.709E-03	-0.103
RH-106	1.428E-01		3.023E-01	5.259E-01	6.079E-02	0.272
RU-106	1.428E-01		3.020E-01	5.259E-01	2.856E-02	0.272
AG-108M	-9.193E-03		3.333E-02	5.303E-02	3.802E-03	-0.173
AG-110M	-2.230E-02		3.356E-02	5.279E-02	2.860E-03	-0.422
IN-111	-2.776E-01		1.488E+00	2.176E+00	1.344E-01	-0.128
IN-113M	-2.383E-02		4.670E-02	7.370E-02	5.255E-03	-0.323
SN-113	-2.383E-02		4.670E-02	7.370E-02	5.255E-03	-0.323
IN-114M	9.879E-03		2.042E-01	2.884E-01	1.636E-02	0.034
CD-115	7.053E-02		1.436E+01	2.303E+01	1.450E+00	0.003
SN-117M	-2.657E-03		6.016E-02	9.605E-02	5.387E-03	-0.028
SB-122	1.274E+00		3.015E+00	4.970E+00	2.989E-01	0.256
I-123	1.021E+00		1.061E+01	Half-Life too short		
TE-123M	1.427E-03		2.968E-02	4.759E-02	2.703E-03	0.030
I-124	-6.677E-02		8.127E-01	1.282E+00	7.230E-02	-0.052
SB-124	1.651E-02		8.379E-02	1.414E-01	1.074E-02	0.117
SB-125	-6.554E-03		9.375E-02	1.517E-01	1.057E-02	-0.043
TE-125M	2.177E+00		9.623E+00	1.583E+01	1.520E+00	0.138
I-126	-3.765E-02		1.877E-01	3.081E-01	1.546E-02	-0.122
SB-126	-1.121E-01		1.652E-01	2.407E-01	1.454E-02	-0.466
SB-127	9.761E-01		1.623E+00	2.835E+00	2.702E-01	0.344
XE-127	-2.054E-02		4.496E-02	7.471E-02	4.327E-03	-0.275
I-131	2.402E-02		1.232E-01	2.051E-01	1.510E-02	0.117
TE-132	1.514E-01		8.497E-01	1.445E+00	2.118E-01	0.105
BA-133	2.900E-02		4.800E-02	7.233E-02	8.727E-03	0.401
I-133	-3.255E-03		6.648E-03	Half-Life too short		
CS-134	9.082E-02	+	4.983E-02	9.130E-02	7.038E-03	0.995
CS-135	2.325E-01		1.752E-01	2.806E-01	2.267E-02	0.829
I-135	-1.728E+10		3.820E+10	Half-Life too short		
CS-136	1.389E-01		1.278E-01	2.279E-01	1.995E-02	0.610
BA-137M	1.015E-02		3.508E-02	5.994E-02	2.958E-03	0.169
CS-137	1.073E-02		3.708E-02	6.337E-02	3.145E-03	0.169
CE-139	-8.789E-03		2.980E-02	4.682E-02	2.558E-03	-0.188
BA-140	-9.632E-02		2.821E-01	4.354E-01	1.419E-01	-0.221
LA-140	-8.992E-02		1.001E-01	1.373E-01	1.066E-02	-0.655
CE-141	7.314E-03		6.430E-02	1.039E-01	6.357E-03	0.070
CE-143	8.811E-04		1.704E-04	Half-Life too short		
CE-144	2.169E-01		2.168E-01	3.295E-01	4.734E-02	0.658
PM-144	2.639E-02		3.800E-02	6.640E-02	3.705E-03	0.398
PR-144	1.789E+00		2.577E+00	4.502E+00	2.510E-01	0.398
PM-146	2.259E-02		4.579E-02	7.681E-02	7.095E-03	0.294
ND-147	-1.817E-01		5.910E-01	9.201E-01	1.263E-01	-0.197
PM-149	3.775E+01		1.202E+02	2.037E+02	2.946E+01	0.185
EU-152	1.875E-02		1.025E-01	1.588E-01	1.170E-02	0.118

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-2.540E-02		9.256E-02	1.319E-01	1.228E-02	-0.193
EU-154	-1.224E-01		1.445E-01	2.188E-01	2.330E-02	-0.559
EU-155	1.773E-01		1.128E-01	1.950E-01	1.618E-02	0.909
TB-160	-4.569E-02		1.349E-01	2.122E-01	2.046E-02	-0.215
HO-166M	-4.518E-02		6.966E-02	1.099E-01	6.451E-03	-0.411
TM-171	3.590E+01		3.983E+01	6.182E+01	7.043E+00	0.581
LU-176	8.232E-03		2.373E-02	4.022E-02	2.645E-03	0.205
LU-177	2.182E+00	+	1.585E+00	2.203E+00	1.287E-01	0.990
LU-177M	-1.759E-01		1.756E-01	2.641E-01	1.790E-02	-0.666
HF-181	3.908E-02		4.366E-02	7.532E-02	4.944E-03	0.519
W-181	-4.695E-01		5.449E-01	7.696E-01	8.893E-02	-0.610
TA-182	1.073E-01		2.545E-01	4.378E-01	3.019E-02	0.245
RE-183	-5.896E-02		1.155E-01	1.767E-01	9.773E-03	-0.334
RE-184	3.850E-02		2.311E-01	3.911E-01	2.438E-02	0.098
OS-185	-7.328E-04		4.580E-02	7.652E-02	3.931E-03	-0.010
RE-188	1.325E-01		1.742E-01	2.890E-01	1.642E-02	0.459
W-188	1.482E+00		8.581E+00	1.274E+01	8.268E-01	0.116
IR-192	-2.830E-02		3.525E-02	5.549E-02	3.689E-03	-0.510
AU-195	5.715E-02		2.441E-01	3.976E-01	3.608E-02	0.144
TL-200	3.397E-04		4.142E-04	Half-Life too short		
TL-201	-7.590E+00		9.019E+00	1.375E+01	7.518E-01	-0.552
TL-202	8.500E-02		7.506E-02	1.315E-01	8.841E-03	0.646
HG-203	3.472E-02		3.994E-02	6.964E-02	4.699E-03	0.498
BI-207	1.256E-02		5.555E-02	9.179E-02	7.473E-03	0.137
TL-207	2.289E-01		7.596E-01	1.130E+00	1.903E-01	0.203
PO-209	-1.744E+00		8.813E+00	1.414E+01	1.426E+00	-0.123
BI-210	5.385E+00		8.862E+00	1.525E+01	1.496E+00	0.353
PB-210	5.385E+00		8.862E+00	1.525E+01	1.496E+00	0.353
PO-210	5.385E+00		8.860E+00	1.525E+01	1.369E+00	0.353
PB-211	-3.821E-01		9.402E-01	1.439E+00	8.986E-01	-0.265
BI-212	9.663E-01	+	4.824E-01	6.825E-01	5.460E-02	1.416
PO-215	2.289E-01		7.596E-01	1.130E+00	1.903E-01	0.203
RN-219	-6.225E-03		4.101E-01	6.692E-01	9.406E-02	-0.009
RN-220	5.511E+00		2.775E+01	4.511E+01	2.766E+00	0.122
RA-223	2.289E-01		7.596E-01	1.130E+00	1.903E-01	0.203
AC-227	3.564E-02		3.674E-01	6.192E-01	8.767E-02	0.058
TH-227	3.564E-02		3.674E-01	6.192E-01	1.057E-01	0.058
TH-229	1.175E-01		5.036E-01	8.073E-01	4.604E-02	0.146
PA-231	-1.203E+00		1.496E+00	2.364E+00	3.325E-01	-0.509
TH-231	2.289E-01		7.596E-01	1.130E+00	1.903E-01	0.203
U-231	2.509E-02		1.385E+00	2.029E+00	1.945E-01	0.012
PA-233	3.680E-02		6.052E-02	1.041E-01	7.202E-03	0.354
PA-234	1.024E-01		3.573E-01	5.959E-01	1.148E-01	0.172
PA-234M	9.084E+00		5.066E+00	9.464E+00	9.768E-01	0.960
U-235	2.426E-02		2.176E-01	3.444E-01	5.632E-02	0.070
NP-236	1.885E-02		8.092E-02	1.309E-01	7.293E-03	0.144
NP-239	2.730E-02		1.946E-01	3.180E-01	2.225E-02	0.086
AM-241	4.348E-02		2.607E-01	3.934E-01	5.052E-02	0.111

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-6.168E-02		1.050E-01	1.668E-01	1.397E-02	-0.370
AM-246	8.555E-02		1.680E-01	2.840E-01	2.243E-02	0.301
CM-247	-3.372E-04		3.607E-02	5.887E-02	3.997E-03	-0.006
CF-249	2.487E-03		4.153E-02	6.826E-02	4.638E-03	0.036
CF-251	1.542E-02		1.316E-01	2.105E-01	1.168E-02	0.073



## VAX/VMS Nuclide Identification Report Generated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229012
* Acquisition date   : 22-JAN-2010 14:49:39 Detector SN#      :
* Detector ID        : GAM10                               Sensitivity      : 5.000
* Geometry           : CAN                                 Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00                      Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.03                      Half life ratio  : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244229012                      Analyst initials: MXR1
* Batch Number       : 941239                          Sample Quantity : 1.1622E+02 GRAM
* Recovery           : 1.00000                          Carrier Weight  : 0.00000
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 16-MAR-2009 13:18:08 MS Isotope      :
* MSD DPM             : 0.000                            MSD Isotope      :
* LCS DPM             : 0.000                            LCS Isotope      :
* LCSD DPM            : 0.000                            LCSD Isotope     :
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.862E+01	3.895E+00	2.450E-01	1.987E+00
CD-109	2.752E+00	1.221E+00	7.901E-01	6.229E-01
SN-126	2.701E-01	1.198E-01	8.200E-02	6.114E-02
TL-208	4.389E-01	9.028E-02	2.739E-02	4.606E-02
BI-211	2.970E+00	4.971E-01	1.596E-01	2.536E-01
PB-212	1.462E+00	1.700E-01	5.838E-02	8.672E-02
PO-212	1.462E+00	1.700E-01	5.838E-02	8.672E-02
BI-214	1.008E+00	1.755E-01	5.520E-02	8.955E-02
PB-214	1.033E+00	1.808E-01	5.565E-02	9.224E-02
PO-214	1.033E+00	1.808E-01	5.565E-02	9.224E-02
PO-216	1.462E+00	1.700E-01	5.838E-02	8.672E-02
PO-218	1.033E+00	1.808E-01	5.565E-02	9.224E-02
RA-224	2.745E+00	8.864E-01	6.642E-01	4.522E-01
RA-226	1.008E+00	1.755E-01	5.520E-02	8.955E-02
AC-228	1.644E+00	3.739E-01	1.175E-01	1.908E-01
RA-228	1.644E+00	3.739E-01	1.175E-01	1.908E-01
TH-228	1.486E+00	1.727E-01	5.933E-02	8.812E-02
TH-230	1.008E+00	1.755E-01	5.520E-02	8.955E-02
TH-232	1.644E+00	3.739E-01	1.175E-01	1.908E-01
TH-234	1.914E+00	2.593E+00	1.501E+00	1.323E+00
U-234	1.008E+00	1.755E-01	5.520E-02	8.955E-02
NP-237	7.930E-01	3.867E-01	2.330E-01	1.973E-01
U-238	1.914E+00	2.593E+00	1.501E+00	1.323E+00
AM-243	3.047E-01	9.029E-02	5.383E-02	4.607E-02
ANH-511	2.028E-01	7.571E-02	2.460E-02	3.863E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-2.321E-01	3.250E-01	2.541E-01	1.658E-01 NOT IDENT.
NA-22	-4.610E-02	5.088E-02	3.915E-02	2.596E-02 NOT IDENT.

NA-24	-2.481E+05	2.587E+06	0.000E+00	1.320E+06	SHORT HLIF
AL-26	1.844E-02	2.679E-02	2.555E-02	1.367E-02	NOT IDENT.
TI-44	3.686E-01	6.933E-02	4.183E-02	3.537E-02	FAIL ABUN
SC-46	5.094E-04	4.335E-02	3.628E-02	2.212E-02	FAIL ABUN
V-48	2.514E-02	7.982E-02	6.820E-02	4.072E-02	NOT IDENT.
CR-51	-9.972E-02	3.761E-01	3.167E-01	1.919E-01	NOT IDENT.
MN-52	-9.126E-02	2.922E-01	2.340E-01	1.491E-01	NOT IDENT.
MN-54	2.296E-02	4.296E-02	3.757E-02	2.192E-02	NOT IDENT.
CO-56	8.033E-03	4.119E-02	3.519E-02	2.101E-02	NOT IDENT.
CO-57	-7.916E-03	2.519E-02	2.096E-02	1.285E-02	NOT IDENT.
CO-58	4.697E-03	4.181E-02	3.558E-02	2.133E-02	NOT IDENT.
FE-59	-5.734E-02	1.170E-01	9.150E-02	5.970E-02	NOT IDENT.
CO-60	-1.881E-02	4.105E-02	3.262E-02	2.095E-02	NOT IDENT.
ZN-65	-3.654E-02	1.296E-01	8.805E-02	6.612E-02	NOT IDENT.
GE-68	3.731E-01	1.451E+00	1.222E+00	7.404E-01	NOT IDENT.
AS-73	-4.370E-01	1.573E+00	1.331E+00	8.028E-01	NOT IDENT.
AS-74	1.020E-02	9.052E-02	7.882E-02	4.618E-02	NOT IDENT.
SE-75	-4.996E-02	4.544E-02	3.374E-02	2.319E-02	NOT IDENT.
BR-77	1.974E+00	1.350E+01	1.128E+01	6.890E+00	FAIL ABUN
SR-82	-8.684E-02	4.559E-01	3.259E-01	2.326E-01	NOT IDENT.
RB-83	1.115E-02	6.731E-02	5.634E-02	3.434E-02	NOT IDENT.
RB-84	7.608E-03	6.553E-02	5.551E-02	3.343E-02	NOT IDENT.
KR-85	1.315E+01	8.401E+00	6.934E+00	4.286E+00	NOT IDENT.
SR-85	6.813E-02	4.353E-02	3.593E-02	2.221E-02	NOT IDENT.
RB-86	1.476E-01	9.623E-01	8.026E-01	4.910E-01	NOT IDENT.
Y-88	4.904E-03	3.228E-02	2.738E-02	1.647E-02	NOT IDENT.
ZR-88	5.345E-03	3.016E-02	2.574E-02	1.539E-02	NOT IDENT.
Y-91	-7.136E+00	2.307E+01	1.917E+01	1.177E+01	NOT IDENT.
NB-94	-9.902E-03	3.538E-02	2.951E-02	1.805E-02	NOT IDENT.
NB-95	3.854E-02	4.740E-02	3.808E-02	2.418E-02	NOT IDENT.
NB-95M	3.022E-01	1.321E-01	1.141E-01	6.741E-02	NOT IDENT.
ZR-95	5.462E-03	7.906E-02	6.735E-02	4.033E-02	NOT IDENT.
NB-97	-1.492E+05	2.464E+05	0.000E+00	1.257E+05	SHORT HLIF
ZR-97	7.044E+06	5.525E+06	0.000E+00	2.819E+06	SHORT HLIF
MO-99	6.735E+00	1.533E+01	1.347E+01	7.822E+00	NOT IDENT.
TC-99M	-4.319E+17	6.143E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.184E-02	3.267E-02	2.727E-02	1.667E-02	NOT IDENT.
RH-102	4.551E-03	2.779E-02	2.340E-02	1.418E-02	NOT IDENT.
RU-103	-6.942E-03	4.142E-02	3.383E-02	2.113E-02	FAIL ABUN
RH-106	1.428E-01	2.963E-01	2.645E-01	1.512E-01	FAIL ABUN
RU-106	1.428E-01	2.959E-01	2.645E-01	1.510E-01	FAIL ABUN
AG-108M	-9.193E-03	3.266E-02	2.676E-02	1.666E-02	NOT IDENT.
AG-110M	-2.230E-02	3.289E-02	2.653E-02	1.678E-02	NOT IDENT.
IN-111	-2.776E-01	1.459E+00	1.105E+00	7.442E-01	NOT IDENT.
IN-113M	-2.383E-02	4.576E-02	3.723E-02	2.335E-02	NOT IDENT.
SN-113	-2.383E-02	4.576E-02	3.723E-02	2.335E-02	NOT IDENT.
IN-114M	9.879E-03	2.001E-01	1.468E-01	1.021E-01	NOT IDENT.
CD-115	7.053E-02	1.407E+01	1.160E+01	7.178E+00	NOT IDENT.
SN-117M	-2.657E-03	5.896E-02	4.896E-02	3.008E-02	NOT IDENT.
SB-122	1.274E+00	2.954E+00	2.502E+00	1.507E+00	NOT IDENT.
I-123	1.021E+06	2.081E+07	0.000E+00	1.061E+07	SHORT HLIF
TE-123M	1.427E-03	2.909E-02	2.426E-02	1.484E-02	NOT IDENT.
I-124	-6.677E-02	7.964E-01	6.447E-01	4.063E-01	NOT IDENT.
SB-124	1.651E-02	8.212E-02	7.038E-02	4.190E-02	NOT IDENT.
SB-125	-6.554E-03	9.187E-02	7.658E-02	4.687E-02	FAIL ABUN
TE-125M	2.177E+00	9.430E+00	8.098E+00	4.811E+00	NOT IDENT.
I-126	-3.765E-02	1.840E-01	1.548E-01	9.385E-02	NOT IDENT.
SB-126	-1.121E-01	1.619E-01	1.208E-01	8.260E-02	FAIL ABUN
SB-127	9.761E-01	1.591E+00	1.424E+00	8.115E-01	NOT IDENT.
XE-127	-2.054E-02	4.406E-02	3.800E-02	2.248E-02	NOT IDENT.
I-131	2.402E-02	1.207E-01	1.037E-01	6.159E-02	NOT IDENT.
TE-132	1.514E-01	8.327E-01	7.339E-01	4.249E-01	NOT IDENT.
BA-133	2.900E-02	4.704E-02	3.658E-02	2.400E-02	NOT IDENT.
I-133	-3.255E+03	1.303E+04	0.000E+00	6.648E+03	SHORT HLIF
CS-134	9.082E-02	4.884E-02	4.579E-02	2.492E-02	FAIL ABUN
CS-135	2.325E-01	1.717E-01	1.423E-01	8.759E-02	NOT IDENT.
I-135	-1.728E+16	7.488E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.389E-01	1.252E-01	1.140E-01	6.389E-02	FAIL ABUN
BA-137M	1.015E-02	3.437E-02	3.012E-02	1.754E-02	NOT IDENT.
CS-137	1.073E-02	3.634E-02	3.184E-02	1.854E-02	NOT IDENT.
CE-139	-8.789E-03	2.920E-02	2.386E-02	1.490E-02	NOT IDENT.
BA-140	-9.632E-02	2.765E-01	2.193E-01	1.410E-01	NOT IDENT.
LA-140	-8.992E-02	9.806E-02	6.840E-02	5.003E-02	FAIL ABUN
CE-141	7.314E-03	6.301E-02	5.300E-02	3.215E-02	NOT IDENT.
CE-143	8.811E+02	3.341E+02	0.000E+00	1.704E+02	SHORT HLIF
CE-144	2.169E-01	2.125E-01	1.682E-01	1.084E-01	NOT IDENT.
PM-144	2.639E-02	3.724E-02	3.335E-02	1.900E-02	NOT IDENT.
PR-144	1.789E+00	2.525E+00	2.261E+00	1.288E+00	NOT IDENT.

PM-146	2.259E-02	4.488E-02	3.875E-02	2.290E-02	NOT IDENT.
ND-147	-1.817E-01	5.792E-01	4.634E-01	2.955E-01	NOT IDENT.
PM-149	3.775E+01	1.178E+02	1.032E+02	6.008E+01	NOT IDENT.
EU-152	1.875E-02	1.005E-01	8.034E-02	5.125E-02	NOT IDENT.
GD-153	-2.540E-02	9.071E-02	6.754E-02	4.628E-02	NOT IDENT.
EU-154	-1.224E-01	1.416E-01	1.092E-01	7.223E-02	NOT IDENT.
EU-155	1.773E-01	1.105E-01	9.982E-02	5.639E-02	FAIL ABUN
TB-160	-4.569E-02	1.322E-01	1.063E-01	6.746E-02	FAIL ABUN
HO-166M	-4.518E-02	6.826E-02	5.520E-02	3.483E-02	FAIL ABUN
TM-171	3.590E+01	3.904E+01	3.178E+01	1.992E+01	NOT IDENT.
LU-176	8.232E-03	2.326E-02	2.037E-02	1.187E-02	FAIL ABUN
LU-177	2.182E+00	1.554E+00	1.120E+00	7.927E-01	FAIL ABUN
LU-177M	-1.759E-01	1.721E-01	1.333E-01	8.779E-02	FAIL ABUN
HF-181	3.908E-02	4.279E-02	3.797E-02	2.183E-02	NOT IDENT.
W-181	-4.695E-01	5.340E-01	3.958E-01	2.724E-01	NOT IDENT.
TA-182	1.073E-01	2.494E-01	2.186E-01	1.272E-01	FAIL ABUN
RE-183	-5.896E-02	1.132E-01	9.005E-02	5.777E-02	FAIL ABUN
RE-184	3.850E-02	2.265E-01	1.984E-01	1.155E-01	NOT IDENT.
OS-185	-7.328E-04	4.488E-02	3.846E-02	2.290E-02	NOT IDENT.
RE-188	1.325E-01	1.707E-01	1.474E-01	8.708E-02	NOT IDENT.
W-188	1.482E+00	8.410E+00	6.453E+00	4.291E+00	FAIL ABUN
IR-192	-2.830E-02	3.455E-02	2.809E-02	1.763E-02	FAIL ABUN
AU-195	5.715E-02	2.393E-01	2.036E-01	1.221E-01	FAIL ABUN
TL-200	3.397E+02	8.118E+02	0.000E+00	4.142E+02	SHORT HLIF
TL-201	-7.590E+00	8.838E+00	7.004E+00	4.509E+00	NOT IDENT.
TL-202	8.500E-02	7.356E-02	6.636E-02	3.753E-02	NOT IDENT.
HG-203	3.472E-02	3.914E-02	3.530E-02	1.997E-02	NOT IDENT.
BI-207	1.256E-02	5.444E-02	4.591E-02	2.778E-02	FAIL ABUN
TL-207	2.289E-01	7.444E-01	5.721E-01	3.798E-01	FAIL ABUN
PO-209	-1.744E+00	8.637E+00	7.082E+00	4.407E+00	NOT IDENT.
BI-210	5.385E+00	8.685E+00	7.869E+00	4.431E+00	NOT IDENT.
PB-210	5.385E+00	8.685E+00	7.869E+00	4.431E+00	NOT IDENT.
PO-210	5.385E+00	8.682E+00	7.869E+00	4.430E+00	NOT IDENT.
PB-211	-3.821E-01	9.213E-01	7.268E-01	4.701E-01	NOT IDENT.
BI-212	9.663E-01	4.727E-01	3.427E-01	2.412E-01	FAIL ABUN
PO-215	2.289E-01	7.444E-01	5.721E-01	3.798E-01	FAIL ABUN
RN-219	-6.225E-03	4.019E-01	3.380E-01	2.051E-01	FAIL ABUN
RN-220	5.511E+00	2.719E+01	2.271E+01	1.387E+01	NOT IDENT.
RA-223	2.289E-01	7.444E-01	5.721E-01	3.798E-01	FAIL ABUN
AC-227	3.564E-02	3.600E-01	3.142E-01	1.837E-01	FAIL ABUN
TH-227	3.564E-02	3.601E-01	3.142E-01	1.837E-01	FAIL ABUN
TH-229	1.175E-01	4.935E-01	4.107E-01	2.518E-01	FAIL ABUN
PA-231	-1.203E+00	1.467E+00	1.198E+00	7.482E-01	FAIL ABUN
TH-231	2.289E-01	7.444E-01	5.721E-01	3.798E-01	FAIL ABUN
U-231	2.509E-02	1.357E+00	1.040E+00	6.925E-01	FAIL ABUN
PA-233	3.680E-02	5.931E-02	5.270E-02	3.026E-02	FAIL ABUN
PA-234	1.024E-01	3.502E-01	2.984E-01	1.787E-01	FAIL ABUN
PA-234M	9.084E+00	4.964E+00	4.736E+00	2.533E+00	NOT IDENT.
U-235	2.426E-02	2.132E-01	1.758E-01	1.088E-01	FAIL ABUN
NP-236	1.885E-02	7.930E-02	6.671E-02	4.046E-02	NOT IDENT.
NP-239	2.730E-02	1.907E-01	1.626E-01	9.731E-02	FAIL ABUN
AM-241	4.348E-02	2.555E-01	2.025E-01	1.303E-01	NOT IDENT.
CM-243	-6.168E-02	1.029E-01	8.538E-02	5.252E-02	FAIL ABUN
AM-246	8.555E-02	1.646E-01	1.420E-01	8.398E-02	NOT IDENT.
CM-247	-3.372E-04	3.535E-02	2.973E-02	1.804E-02	NOT IDENT.
CF-249	2.487E-03	4.070E-02	3.449E-02	2.077E-02	NOT IDENT.
CF-251	1.542E-02	1.289E-01	1.072E-01	6.578E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON , SC 29417 *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	223.8001
46.50	223.8001
46.50	223.8001
48.70	256.3872
49.72	238.6556
51.35	225.7951
52.39	232.8958
52.97	227.6650
53.15	230.5581
53.44	234.4485
54.07	237.6163
56.28	252.9726
56.28	252.9746
57.37	0.0000
57.53	256.5630
57.53	256.5641
57.60	245.3267
57.98	245.5511
57.98	245.5511
59.32	263.3243
59.32	263.3243
59.40	263.3739
59.54	263.4612
59.72	256.4880
60.01	255.2447
61.10	265.8464
61.14	265.8707
61.30	265.9691
63.00	282.7152
63.29	282.9014
63.29	282.9014
63.58	283.0872
64.28	307.8782
65.12	317.0653
65.20	317.1214
65.20	317.1214
66.05	273.1526
66.72	266.3553
66.83	269.3004
66.91	269.3475
67.20	266.6362
67.20	266.6362
67.75	262.0490
67.85	262.1057
68.90	323.0710
68.90	323.0710
69.30	361.3784
69.67	368.6211
70.82	316.6465
70.82	316.6465
70.83	316.6532
72.80	303.3751
72.87	303.4196
72.87	303.4196
74.67	318.2085
74.81	318.2997
74.81	318.2997
74.81	318.2997
74.81	318.2997
74.81	318.2997
74.81	318.2997
74.81	318.2997
74.97	318.4025
75.28	318.6031
75.70	318.8734
77.11	319.7771
77.11	319.7771

77.11	319.7771
77.11	319.7771
77.11	319.7771
77.11	319.7771
77.11	319.7771
78.38	320.5846
79.62	285.3844
79.80	300.2765
79.80	300.2765
80.11	300.4593
80.18	300.4995
80.30	316.8562
80.30	316.8562
80.57	317.0228
81.00	354.3535
81.07	354.4009
81.07	354.4009
81.07	354.4009
81.07	354.4009
82.60	325.2023
83.37	285.9609
83.78	313.0149
83.78	313.0149
83.78	313.0149
83.78	313.0149
84.21	310.2845
84.90	325.6245
85.43	342.3941
86.29	393.8579
86.50	394.0124
86.54	394.0405
86.59	394.0766
86.72	434.6394
86.79	434.6925
86.94	434.8141
87.30	436.6043
87.30	436.6043
87.30	436.6043
87.30	436.6043
87.30	436.6043
87.30	436.6043
87.30	436.6043
87.57	436.8197
87.88	396.5156
88.03	396.6244
88.36	345.7528
88.47	345.8212
89.95	346.7513
91.11	347.4742
92.29	337.1021
92.38	337.1564
92.38	337.1564
93.35	337.7340
94.00	220.1827
94.67	250.8435
94.67	250.8460
94.90	250.9467
94.90	250.9467
94.90	250.9467
94.90	250.9467
95.87	242.2278
95.87	242.2278
96.73	292.9365
97.43	256.6258
98.44	245.8468
98.44	245.8468
98.88	256.2394
99.55	256.5292
99.55	256.5292
99.86	238.2571
100.00	238.3140
100.10	238.3555
103.18	265.2817
103.76	289.2067
105.00	231.0091
105.31	219.7765
108.00	277.7259
109.28	247.1395

111.00	247.8089
111.00	247.8089
111.76	253.3166
112.95	250.6519
115.19	237.8935
116.30	231.9967
117.00	240.6499
117.00	240.6499
117.66	246.1494
121.11	243.1899
121.62	230.6759
121.78	236.0222
122.06	241.4127
122.32	245.7413
122.32	245.7413
122.32	245.7413
122.32	245.7413
123.07	239.6503
127.23	254.4295
129.76	236.6087
131.20	218.8501
133.02	217.7909
133.54	188.8878
135.34	248.5899
136.00	242.9832
136.25	235.5036
136.48	231.2565
140.51	267.2833
140.51	0.0000
142.18	230.8549
142.65	249.5206
143.76	240.0655
144.24	221.6533
144.24	221.6533
144.24	221.6533
144.24	221.6533
145.22	219.7517
145.44	242.7809
147.16	237.8426
152.43	226.2082
152.70	237.3237
153.22	248.5245
154.21	243.3016
154.21	243.3016
154.21	243.3016
154.21	243.3016
155.03	221.4111
156.02	227.2259
158.56	246.8413
159.00	0.0000
159.00	242.5246
160.31	228.4270
161.27	234.2719
162.32	240.1559
162.64	235.7781
163.35	228.1511
163.89	215.9883
165.85	226.5904
167.43	249.4926
171.28	226.9142
171.86	207.8629
172.10	211.3109
176.55	218.0723
176.60	227.1708
181.06	202.0617
184.41	244.0668
185.71	226.0558
186.00	226.1279
190.27	204.1179
192.34	195.3272
193.63	197.9118
197.04	227.6678
198.01	187.2028
198.60	201.2807
200.40	195.8308
201.83	221.5140
202.84	218.2397
205.31	194.0153

208.36	221.4137
208.81	220.1044
209.75	217.4893
209.75	217.4893
210.97	205.0302
215.65	209.5393
216.55	209.7266
218.09	212.7135
222.10	200.1443
223.80	191.5228
226.40	192.8983
227.00	188.5197
227.08	185.8407
227.20	190.3523
228.16	198.6137
228.18	198.6171
228.18	198.6171
231.56	0.0000
235.69	160.7413
236.00	160.7888
236.00	160.7888
238.63	304.9332
238.63	304.9332
238.63	304.9332
238.63	304.9332
239.00	305.0358
240.98	305.5895
241.98	238.8690
241.98	238.8690
241.98	238.8690
244.69	178.1331
245.39	178.2448
247.94	171.1480
248.90	179.5391
249.79	167.7649
252.40	163.5587
252.85	164.5431
252.85	164.5431
254.15	0.0000
256.20	156.7291
256.20	156.7291
260.50	151.7631
260.90	139.7814
262.80	149.2817
264.65	172.1183
268.24	144.5717
268.79	141.6581
269.46	156.6566
269.46	156.6566
269.46	156.6566
269.46	156.6566
271.23	185.2795
273.65	182.6604
276.40	165.0698
277.35	180.2168
277.60	175.5607
277.60	175.5607
278.00	162.4700
278.60	155.0349
279.20	137.2493
279.53	151.3920
280.46	176.9155
281.68	158.2511
283.67	157.5639
284.30	151.9816
285.00	147.3450
285.90	133.2740
286.10	132.3502
286.10	132.3502
287.40	153.3062
288.45	0.0000
290.67	157.8840
290.80	148.7897
291.72	150.4191
293.26	0.0000
293.70	155.2213
295.21	171.4032
295.21	171.4032

295.21	171.4032
295.96	171.5048
296.50	171.5762
297.23	171.6751
298.57	171.8564
299.80	163.1016
299.80	163.1016
300.09	163.1380
300.09	163.1380
300.09	163.1380
300.09	163.1380
300.12	163.1406
301.29	157.6760
302.84	147.1383
303.76	142.6401
303.91	142.6583
304.40	125.8308
304.40	125.8308
304.84	124.3398
306.84	121.0704
308.46	135.6514
311.98	109.9696
316.51	148.0950
318.01	142.4466
319.02	140.6148
319.41	144.5347
320.08	137.8138
323.87	133.9173
323.87	133.9173
323.87	133.9173
323.87	133.9173
325.23	146.5216
328.77	135.7676
333.44	156.8066
334.20	133.3604
334.20	133.3604
334.30	133.3687
338.28	139.6491
338.28	139.6491
338.28	139.6491
338.28	139.6491
338.32	139.6534
338.32	139.6534
338.32	139.6534
340.50	105.5921
340.57	105.5970
344.27	115.8813
345.85	147.6494
350.59	0.0000
351.07	112.1327
351.92	112.2000
351.92	112.2000
351.92	112.2000
355.39	0.0000
356.01	97.1815
364.48	103.1509
366.43	104.2904
367.43	97.3360
367.94	0.0000
369.80	87.4394
374.96	110.9349
383.85	111.5811
387.95	115.9465
388.63	102.7692
391.69	123.3614
391.69	123.3614
392.90	102.0294
398.62	93.1842
400.65	108.6833
401.10	109.7397
401.81	104.6583
402.60	100.6034
404.84	106.9120
410.95	100.0949
411.60	104.2641
413.65	114.7313
414.70	83.7772
415.30	85.8774



415.76	81.7617
417.63	0.0000
418.52	91.2294
423.70	88.3955
427.08	92.7427
427.89	99.0443
432.53	95.1365
433.93	99.3995
439.47	77.6799
439.56	79.7840
439.89	82.9490
443.98	88.4105
444.90	88.4566
445.03	88.4643
445.03	88.4643
445.03	88.4643
445.03	88.4643
453.90	91.0338
463.38	85.1392
468.07	75.1201
473.00	79.1783
475.06	77.1262
475.35	82.4951
476.78	77.1987
477.59	95.4683
477.96	85.8325
482.03	72.0452
484.57	101.2175
487.03	87.3368
490.36	0.0000
492.35	87.5877
497.08	84.5567
507.63	0.0000
510.53	0.0000
510.84	90.6337
511.00	90.6413
511.85	90.6806
511.85	90.6806
513.99	82.2506
513.99	82.2506
520.41	71.3318
520.65	71.3397
527.90	69.4023
528.96	0.0000
529.64	79.3872
529.87	0.0000
531.02	75.0287
537.32	80.8017
543.00	86.5812
546.56	0.0000
549.76	77.9628
552.65	86.9954
555.20	67.0038
563.23	85.2054
563.90	87.4763
568.70	78.6859
569.32	80.9583
569.50	80.9648
569.67	80.9714
573.80	79.3289
574.00	79.3354
574.64	77.5575
578.91	66.2686
579.30	0.0000
583.14	64.2883
585.48	57.4098
591.81	62.7317
592.07	62.7401
593.00	69.1348
595.88	71.0493
600.56	78.5044
602.52	0.0000
602.71	79.9527
602.71	79.9527
603.60	80.7487
604.41	88.3995
604.70	88.4113
609.31	73.3223

609.31	73.3223
609.31	73.3223
609.31	73.3223
610.33	73.3555
612.46	64.2476
614.37	64.3040
618.01	60.9594
621.84	58.0689
621.84	58.0689
631.29	67.5696
633.02	64.8423
633.10	64.8457
634.78	74.1641
635.90	77.9112
636.97	87.2277
645.85	77.3201
646.12	76.3965
656.30	65.5054
657.75	71.1646
657.90	0.0000
661.65	64.7178
661.65	64.7178
664.57	0.0000
666.33	70.4846
666.33	70.4846
675.00	62.2553
677.61	54.7687
685.20	56.8374
692.80	83.6236
695.00	67.5315
696.49	74.2333
696.49	74.2333
697.00	70.4427
697.49	89.4974
698.33	79.0526
698.50	81.9163
699.00	79.0749
702.63	83.0090
706.10	74.5266
706.58	0.0000
706.67	67.8539
709.31	85.1475
711.68	92.8889
713.82	74.7589
717.42	71.0281
720.50	74.4793
721.93	0.0000
722.20	62.5085
722.78	54.5071
722.78	54.5071
722.89	54.5098
722.95	54.5112
723.30	46.5020
724.18	49.7254
727.18	61.6688
733.00	74.0443
735.90	67.6843
739.58	59.0669
742.81	73.6844
744.21	63.0544
747.13	75.7510
751.79	68.1047
752.31	69.0915
753.82	78.8682
755.35	74.0425
756.15	73.0920
756.87	61.4142
763.93	65.1644
765.79	55.4285
766.42	50.5503
766.84	55.4506
776.49	62.2015
778.00	62.2371
778.57	72.0801
778.89	77.0023
783.80	68.9387
785.46	62.0833
792.07	72.4435

795.84	61.3340
796.30	67.6093
798.80	87.4793
801.93	55.0822
805.60	68.5031
810.29	56.6869
810.76	58.6860
815.85	71.7486
817.79	59.8330
818.51	56.8567
819.60	64.8619
826.30	58.0156
828.27	0.0000
831.60	76.1651
831.96	84.1928
834.83	70.2324
836.80	0.0000
846.75	53.4011
848.13	51.4109
856.28	0.0000
856.80	52.2406
860.37	59.0554
867.32	56.5399
867.82	55.8245
871.10	52.8392
873.19	45.7592
874.81	43.7496
875.33	0.0000
876.40	48.8637
879.36	44.8368
880.27	42.8121
880.51	42.8152
881.50	38.7505
883.24	44.8959
884.67	44.9174
889.25	56.2340
896.60	65.5984
898.02	69.7315
899.00	56.4193
903.28	62.9203
911.07	56.6462
911.07	56.6462
911.07	56.6462
919.63	39.5930
920.93	42.6237
925.00	60.0122
925.24	54.8426
926.50	47.6183
935.52	53.9881
937.48	43.6334
944.10	62.4683
946.00	57.2975
949.00	43.7965
962.29	79.2874
964.01	57.6278
966.15	69.8991
968.20	110.1628
969.11	94.4517
969.11	94.4517
969.11	94.4517
977.42	45.5963
980.50	52.6611
983.50	46.3858
989.30	53.8625
996.32	63.5054
1001.03	32.8588
1001.68	32.8648
1004.76	76.4033
1021.30	0.0000
1024.50	0.0000
1034.80	56.7550
1036.00	47.1346
1037.82	57.8786
1038.57	69.6846
1038.76	0.0000
1045.16	47.2635
1046.59	51.5836
1048.07	38.7035

1050.47	64.5527
1050.47	64.5527
1062.04	55.0566
1063.62	42.1211
1076.63	54.2065
1077.35	52.0500
1078.86	48.8188
1085.78	68.4817
1099.22	70.9287
1112.02	56.1273
1112.84	73.5490
1115.52	73.0827
1120.29	65.8623
1120.29	65.8623
1120.29	65.8623
1120.29	65.8623
1120.51	65.8682
1121.28	65.8828
1124.00	0.0000
1129.67	63.0350
1131.51	0.0000
1147.95	0.0000
1167.94	71.3698
1173.22	64.9756
1175.09	62.2209
1177.93	89.2227
1189.05	92.2848
1204.90	76.7616
1205.75	0.0000
1213.00	84.4299
1221.42	76.1550
1230.97	65.0328
1235.34	85.8679
1236.41	0.0000
1238.25	61.3792
1246.25	60.5599
1260.41	0.0000
1271.85	48.5741
1274.45	58.1381
1274.54	59.0912
1291.56	55.5173
1298.22	0.0000
1312.09	30.7865
1325.50	33.7838
1325.50	33.7838
1332.49	33.8407
1333.61	33.8507
1360.21	26.2815
1362.66	0.0000
1365.15	23.3887
1368.21	32.1836
1368.53	0.0000
1376.25	21.4960
1384.27	25.4530
1394.10	18.6436
1395.20	26.5001
1407.95	24.6104
1434.06	26.7396
1436.60	16.8457
1457.56	0.0000
1460.81	14.9463
1489.15	19.0518
1509.49	14.1014
1596.49	25.6561
1620.62	14.4398
1678.03	0.0000
1691.02	12.5552
1691.02	12.5552
1706.46	0.0000
1750.46	0.0000
1764.49	9.5530
1764.49	9.5530
1764.49	9.5530
1764.49	9.5530
1770.23	7.2866
1771.40	49.9547
1791.20	0.0000
1808.65	5.3522

1836.01

8.6074

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229012

Total Uranium Activity	5.7053E+00	ug/g
Total Uranium Counting Unc.	7.7152E+00	ug/g
Total Uranium Tpu	3.9363E-06	ug/g
Total Uranium Mda	4.4676E+00	ug/g

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*****
*
*               GEL Laboratories LLC                      *
*               2040 SAVAGE ROAD                          *
*               CHARLESTON ,SC 29417                      *
*               GROSS GAMMA REPORT                        *
*
*****
*
*  BATCH ID      : 941239                                *
*  ANALYST       : MXR1                                    *
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00                *
*  ANALYSIS DATE: 22-JAN-2010 14:49:39.02                *
*
*  SAMPLE ID     : G244229012                            *
*  DETECTOR      : GAM10                                  *
*  COUNT TIME    : 0 02:00:00.00                         *
*  SAMPLE ALQT   : 116.220 GRAM                          *
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.490E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.536E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.642E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.274E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 18:50:37.19

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229013.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:50:05
Sample ID      : G244229013      Sample quantity   : 1.17310E+02 GRAM
Detector name   : GAM13          Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.55 0.0%
Energy tolerance: 1.50000 keV    Analyst Initials  : MXR1
Abundance limit : 75.00000       Sensitivity    : 5.00000
Batch ID       : 941239          Detector SN#    :
Matrix Spike ID :                 LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.61*	108	458	1.26	92.98	88	9	1.51E-02	39.1	
2	0	63.17*	96	676	1.16	126.11	122	9	1.33E-02	54.5	
3	3	74.75	532	572	1.17	149.27	143	15	7.39E-02	8.7	4.85E-01
4	3	76.99*	809	521	1.21	153.76	143	15	1.12E-01	6.3	
5	5	83.71*	104	427	1.45	167.19	164	27	1.44E-02	37.7	1.48E+00
6	5	86.99	334	534	1.44	173.77	164	27	4.64E-02	13.5	
7	5	89.92	185	460	1.27	179.62	164	27	2.57E-02	22.0	
8	5	92.48*	227	443	1.27	184.74	164	27	3.15E-02	21.1	
9	0	185.74*	132	397	1.23	371.31	366	11	1.83E-02	33.7	
10	0	208.87	83	219	1.39	417.57	415	7	1.15E-02	31.5	
11	6	238.46*	972	240	1.19	476.78	472	16	1.35E-01	4.3	2.10E+00
12	6	241.40	228	305	1.82	482.66	472	16	3.17E-02	20.2	
13	0	270.23	154	242	1.46	540.33	534	13	2.13E-02	22.6	
14	0	295.07*	239	286	1.56	590.03	583	13	3.32E-02	16.3	
15	0	300.05	80	156	1.31	599.98	596	9	1.11E-02	30.6	
16	0	328.09	76	157	1.29	656.08	651	9	1.05E-02	32.2	
17	0	338.33*	197	221	1.12	676.56	671	12	2.74E-02	17.1	
18	0	351.63*	427	197	1.32	703.17	698	11	5.93E-02	8.2	
19	0	463.10	80	143	1.31	926.18	921	12	1.11E-02	32.2	
20	0	510.55*	147	170	1.76	1021.11	1012	17	2.05E-02	24.7	
21	0	582.79*	316	129	1.47	1165.63	1158	14	4.39E-02	9.9	
22	0	608.82*	349	187	1.75	1217.72	1209	19	4.84E-02	11.0	
23	0	726.52	75	151	1.22	1453.19	1447	17	1.04E-02	39.2	
24	0	910.97*	158	134	1.56	1822.24	1815	16	2.20E-02	18.7	
25	2	964.02	57	66	2.42	1928.37	1921	23	7.88E-03	34.8	1.32E+00
26	2	968.58*	121	54	2.17	1937.49	1921	23	1.68E-02	16.5	
27	0	1120.27*	45	94	1.69	2241.00	2233	13	6.20E-03	48.2	
28	0	1460.23*	999	68	2.49	2921.24	2913	17	1.39E-01	3.7	
29	0	1763.81	57	21	2.41	3528.73	3520	17	7.86E-03	22.9	

Flag: "\*" = Peak area was modified by background subtraction



VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 18:50:40

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229013.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 16:50:05  
 Sample ID : G244229013 Sample quantity : 117.31 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA13 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.55 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.878E+01	2.779E+00	8.070E-01	4.934E-02	35.666
CD-109	+	88.03	*	4.063E+00	1.146E+00	1.064E+00	8.396E-02	3.818
SN-126	+	64.28		4.330E-01	4.772E-01	4.323E-01	6.732E-02	1.002
	+	86.94		1.658E+00	8.175E-01	4.327E-01	1.784E-01	3.831
	+	87.57	*	3.987E-01	1.125E-01	1.043E-01	8.249E-03	3.824
TL-208		277.35		5.696E-01	4.791E-01	7.916E-01	9.271E-02	0.720
	+	510.84		8.596E-01	4.355E-01	2.897E-01	3.148E-02	2.967
	+	583.14	*	5.317E-01	1.140E-01	7.992E-02	6.616E-03	6.652
		860.37		1.903E-01	4.310E-01	7.374E-01	6.218E-02	0.258
BI-210	+	46.50	*	1.175E+00	9.233E-01	8.425E-01	6.868E-02	1.395
PB-210	+	46.50	*	1.175E+00	9.233E-01	8.425E-01	6.868E-02	1.395
PO-210	+	46.50	*	1.175E+00	9.222E-01	8.425E-01	6.007E-02	1.395
BI-211		72.87		4.597E+00	2.192E+00	3.841E+00	3.359E-01	1.197
	+	351.07	*	3.017E+00	5.417E-01	4.496E-01	3.278E-02	6.710
PB-212	+	74.81		2.163E+00	4.666E-01	4.017E-01	5.110E-02	5.385
	+	77.11		1.958E+00	2.972E-01	2.401E-01	2.040E-02	8.155
	+	87.30		1.844E+00	5.520E-01	4.819E-01	6.149E-02	3.827
	+	238.63	*	1.480E+00	1.846E-01	1.045E-01	9.489E-03	14.164
	+	300.09		1.889E+00	1.170E+00	1.431E+00	1.362E-01	1.320
PO-212	+	74.81		2.163E+00	4.666E-01	4.017E-01	5.110E-02	5.385
	+	77.11		1.958E+00	2.972E-01	2.401E-01	2.040E-02	8.155
	+	87.30		1.844E+00	5.520E-01	4.819E-01	6.149E-02	3.827
		115.19		-1.062E+00	3.707E+00	5.989E+00	6.945E-01	-0.177
	+	238.63	*	1.480E+00	1.846E-01	1.045E-01	9.489E-03	14.164
	+	300.09		1.889E+00	1.170E+00	1.431E+00	1.362E-01	1.320
BI-214	+	609.31	*	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
	+	1120.29		7.346E-01	7.117E-01	7.077E-01	6.331E-02	1.038
	+	1764.49		1.276E+00	5.890E-01	4.087E-01	2.321E-02	3.121
PB-214	+	74.81		3.727E+00	7.755E-01	6.921E-01	7.871E-02	5.385
	+	77.11		3.357E+00	5.700E-01	4.116E-01	4.697E-02	8.155
	+	87.30		3.159E+00	9.239E-01	8.255E-01	9.127E-02	3.827
	+	241.98		2.088E+00	8.675E-01	5.947E-01	5.757E-02	3.510
	+	295.21		9.879E-01	3.362E-01	2.607E-01	2.554E-02	3.789
	+	351.92	*	1.050E+00	1.962E-01	1.568E-01	1.404E-02	6.694

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		3.727E+00	7.755E-01	6.921E-01	7.871E-02	5.385
	+	77.11		3.357E+00	5.700E-01	4.116E-01	4.697E-02	8.155
	+	87.30		3.159E+00	9.239E-01	8.255E-01	9.127E-02	3.827
	+	241.98		2.088E+00	8.675E-01	5.947E-01	5.757E-02	3.510
	+	295.21		9.879E-01	3.362E-01	2.607E-01	2.554E-02	3.789
PO-216	+	351.92	*	1.050E+00	1.962E-01	1.568E-01	1.404E-02	6.694
	+	74.81		2.163E+00	4.666E-01	4.017E-01	5.110E-02	5.385
	+	77.11		1.958E+00	2.972E-01	2.401E-01	2.040E-02	8.155
	+	87.30		1.844E+00	5.520E-01	4.819E-01	6.149E-02	3.827
	+	238.63	*	1.480E+00	1.846E-01	1.045E-01	9.489E-03	14.164
PO-218	+	300.09		1.889E+00	1.170E+00	1.431E+00	1.362E-01	1.320
	+	74.81		3.727E+00	7.755E-01	6.921E-01	7.871E-02	5.385
	+	77.11		3.357E+00	5.700E-01	4.116E-01	4.697E-02	8.155
	+	87.30		3.159E+00	9.239E-01	8.255E-01	9.127E-02	3.827
	+	241.98		2.088E+00	8.675E-01	5.947E-01	5.757E-02	3.510
RA-224	+	295.21		9.879E-01	3.362E-01	2.607E-01	2.554E-02	3.789
	+	351.92	*	1.050E+00	1.962E-01	1.568E-01	1.404E-02	6.694
	+	240.98	*	3.958E+00	1.630E+00	1.189E+00	9.388E-02	3.328
	+	609.31	*	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
	+	1120.29		7.346E-01	7.117E-01	7.077E-01	6.331E-02	1.038
AC-228	+	1764.49		1.276E+00	5.890E-01	4.087E-01	2.321E-02	3.121
	+	338.32		1.532E+00	8.174E-01	4.457E-01	1.825E-01	3.436
	+	911.07	*	1.197E+00	4.656E-01	3.053E-01	3.170E-02	3.920
	+	969.11		1.610E+00	6.451E-01	4.928E-01	1.125E-01	3.267
	+	338.32		1.532E+00	8.174E-01	4.457E-01	1.825E-01	3.436
RA-228	+	911.07	*	1.197E+00	4.656E-01	3.053E-01	3.170E-02	3.920
	+	969.11		1.610E+00	6.451E-01	4.928E-01	1.125E-01	3.267
	+	74.81		2.198E+00	4.281E-01	4.082E-01	3.552E-02	5.385
	+	77.11		1.990E+00	3.020E-01	2.440E-01	2.073E-02	8.155
	+	87.30		1.874E+00	5.287E-01	4.897E-01	3.881E-02	3.827
TH-228	+	238.63	*	1.504E+00	1.876E-01	1.062E-01	9.644E-03	14.164
	+	300.09		1.920E+00	1.634E+00	1.455E+00	8.600E-01	1.320
	+	609.31	*	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
	+	1120.29		7.346E-01	7.117E-01	7.077E-01	6.331E-02	1.038
	+	1764.49		1.276E+00	5.890E-01	4.087E-01	2.321E-02	3.121
TH-232	+	338.32		1.532E+00	5.350E-01	4.457E-01	3.104E-02	3.436
	+	911.07	*	1.197E+00	4.656E-01	3.053E-01	3.170E-02	3.920
	+	969.11		1.610E+00	6.451E-01	4.928E-01	1.125E-01	3.267
	+	63.29	*	1.094E+00	1.210E+00	1.086E+00	1.993E-01	1.007
	+	92.38		1.870E+00	8.577E-01	7.238E-01	1.303E-01	2.584
U-234	+	609.31	*	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
	+	1120.29		7.346E-01	7.117E-01	7.077E-01	6.331E-02	1.038
	+	1764.49		1.276E+00	5.890E-01	4.087E-01	2.321E-02	3.121
	+	86.50	*	1.171E+00	4.092E-01	3.052E-01	6.752E-02	3.836
	+	95.87		-5.884E-01	9.651E-01	1.368E+00	3.384E-01	-0.430
U-238	+	63.29	*	1.094E+00	1.210E+00	1.086E+00	1.993E-01	1.007
	+	92.38		1.870E+00	8.046E-01	7.238E-01	6.109E-02	2.584
	+	74.67	*	3.507E-01	6.819E-02	6.510E-02	5.623E-03	5.387
	+	86.72		4.391E+01	1.239E+01	1.145E+01	9.114E-01	3.833

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-2.084E+00	3.947E+00	6.287E+00	7.524E-01	-0.331
		142.18		-4.044E+00	2.170E+01	3.396E+01	3.598E+00	-0.119
ANH-511	+	511.00	*	1.857E-01	9.278E-02	6.259E-02	4.368E-03	2.967

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-5.666E-02	4.281E-01	7.098E-01	5.337E-02	-0.080
NA-22		1274.54	*	-3.308E-02	6.378E-02	1.013E-01	5.717E-03	-0.327
NA-24		1368.53	*	8.874E-01	6.378E-02	Half-Life too short		
AL-26		1129.67		-4.957E-01	2.424E+00	3.852E+00	2.283E-01	-0.129
		1808.65	*	-9.299E-03	4.073E-02	6.492E-02	3.663E-03	-0.143
TI-44		67.85		-5.943E-03	2.848E-02	4.561E-02	4.129E-03	-0.130
	+	78.38	*	3.613E-01	5.484E-02	5.918E-02	4.984E-03	6.106
SC-46		889.25	*	-3.170E-02	5.883E-02	9.316E-02	7.054E-03	-0.340
	+	1120.51		1.269E-01	1.226E-01	1.599E-01	9.617E-03	0.793
V-48		944.10		-1.517E+00	1.407E+00	2.100E+00	1.533E-01	-0.723
		983.50	*	-5.315E-02	1.116E-01	1.757E-01	1.243E-02	-0.302
		1312.09		-1.141E-01	1.142E-01	1.692E-01	9.590E-03	-0.675
CR-51		320.08	*	9.304E-02	4.614E-01	7.627E-01	5.936E-02	0.122
MN-52		744.21		2.975E-01	4.108E-01	6.954E-01	5.645E-02	0.428
		848.13		-3.301E+00	1.133E+01	1.841E+01	1.434E+00	-0.179
		935.52		1.080E-01	4.576E-01	7.670E-01	5.634E-02	0.141
		1246.25		5.765E+00	1.146E+01	1.984E+01	1.110E+00	0.291
		1333.61		-4.825E+00	8.501E+00	1.264E+01	7.191E-01	-0.382
		1434.06	*	1.478E-01	3.705E-01	6.379E-01	3.666E-02	0.232
MN-54		834.83	*	2.476E-03	5.579E-02	9.319E-02	7.313E-03	0.027
CO-56		846.75	*	6.364E-03	5.896E-02	9.883E-02	7.703E-03	0.064
		977.42		7.427E-01	4.306E+00	7.020E+00	4.992E-01	0.106
		1037.82		-1.893E-02	4.596E-01	7.472E-01	5.443E-02	-0.025
		1175.09		1.363E+00	3.153E+00	5.275E+00	2.901E-01	0.258
		1238.25		1.105E-01	1.260E-01	2.223E-01	1.326E-02	0.497
		1360.21		-1.113E+00	1.456E+00	2.202E+00	1.257E-01	-0.505
		1771.40		-4.311E-02	3.701E-01	5.093E-01	2.890E-02	-0.085
CO-57		122.06	*	1.347E-02	2.814E-02	4.673E-02	5.911E-03	0.288
		136.48		-1.925E-01	2.372E-01	3.681E-01	4.309E-02	-0.523
CO-58		810.76	*	-5.209E-03	5.212E-02	8.631E-02	6.874E-03	-0.060
FE-59		142.65		9.571E-01	3.404E+00	5.429E+00	5.725E-01	0.176
		192.34		-3.801E-01	1.039E+00	1.733E+00	2.250E-01	-0.219
		1099.22	*	6.085E-02	1.402E-01	2.355E-01	1.682E-02	0.258
		1291.56		2.228E-02	1.787E-01	3.000E-01	2.191E-02	0.074
CO-60		1173.22		-2.226E-02	6.283E-02	9.802E-02	5.388E-03	-0.227
		1332.49	*	-5.481E-02	5.842E-02	8.304E-02	4.723E-03	-0.660
ZN-65		1115.52	*	6.587E-02	1.543E-01	2.244E-01	1.362E-02	0.294
GE-68		1077.35	*	2.283E-01	1.799E+00	2.958E+00	1.890E-01	0.077
AS-73		53.44	*	2.106E-01	2.626E-01	4.373E-01	3.694E-02	0.482
AS-74		595.88	*	-5.301E-02	1.354E-01	2.160E-01	1.659E-02	-0.245
		634.78		9.284E-02	5.345E-01	8.827E-01	7.033E-02	0.105

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75		66.05		-5.650E-02	2.914E+00	4.428E+00	4.824E-01	-0.013
		96.73		-1.108E+00	8.653E-01	1.151E+00	1.597E-01	-0.963
		121.11		1.822E-02	1.506E-01	2.470E-01	3.560E-02	0.074
		136.00		-9.317E-03	4.432E-02	7.107E-02	8.028E-03	-0.131
		198.60		-3.907E-01	2.056E+00	3.334E+00	2.979E-01	-0.117
		264.65	*	2.630E-02	5.835E-02	8.769E-02	6.869E-03	0.300
		279.53		1.480E-02	1.330E-01	2.209E-01	1.777E-02	0.067
		303.91		1.810E+00	2.787E+00	4.199E+00	4.461E-01	0.431
		400.65		-3.781E-01	3.562E-01	5.116E-01	4.702E-02	-0.739
BR-77	+	87.88		1.203E+03	3.392E+02	4.180E+02	3.299E+01	2.877
		200.40		7.077E+01	2.427E+02	4.155E+02	3.292E+01	0.170
	+	239.00		3.260E+02	5.693E+01	5.693E+01	4.497E+00	5.726
		249.79		5.555E+01	1.081E+02	1.843E+02	1.449E+01	0.301
		281.68		-2.046E+02	1.556E+02	2.385E+02	1.829E+01	-0.858
		297.23		2.188E+02	1.382E+02	1.692E+02	1.273E+01	1.293
		303.76		1.809E+02	3.233E+02	4.848E+02	3.612E+01	0.373
		439.47		5.574E+01	2.677E+02	4.556E+02	2.879E+01	0.122
		484.57		1.386E+02	3.883E+02	6.633E+02	4.472E+01	0.209
		520.65	*	7.077E+00	1.925E+01	3.269E+01	2.309E+00	0.216
		574.64		-1.891E+01	4.027E+02	6.225E+02	4.677E+01	-0.030
		578.91		5.608E+01	1.821E+02	2.672E+02	2.016E+01	0.210
		585.48		1.311E+03	4.406E+02	7.459E+02	5.668E+01	1.758
		755.35		3.861E+02	3.685E+02	6.329E+02	5.125E+01	0.610
		817.79		-4.849E+01	2.509E+02	4.121E+02	3.262E+01	-0.118
SR-82		698.33		-2.678E+01	5.300E+01	8.254E+01	6.739E+00	-0.324
		776.49	*	-3.056E-01	5.544E-01	8.912E-01	7.173E-02	-0.343
		1395.20		-3.485E+00	1.537E+01	2.465E+01	1.412E+00	-0.141
RB-83		520.41	*	2.990E-02	9.282E-02	1.573E-01	1.110E-02	0.190
		529.64		-1.635E-02	1.394E-01	2.292E-01	1.636E-02	-0.071
		552.65		3.630E-03	2.599E-01	4.296E-01	3.151E-02	0.008
RB-84		881.50	*	-1.782E-02	1.051E-01	1.718E-01	1.308E-02	-0.104
KR-85		513.99	*	1.218E+01	1.085E+01	1.705E+01	1.195E+00	0.714
SR-85		513.99	*	6.318E-02	5.624E-02	8.843E-02	6.195E-03	0.714
RB-86		1076.63	*	6.570E-01	1.164E+00	1.986E+00	1.271E-01	0.331
Y-88		898.02		-3.643E-02	6.314E-02	9.966E-02	7.543E-03	-0.366
		1836.01	*	9.844E-03	3.964E-02	6.891E-02	3.881E-03	0.143
ZR-88		392.90	*	3.593E-02	3.893E-02	6.618E-02	3.876E-03	0.543
Y-91		1204.90	*	2.042E+01	2.820E+01	4.945E+01	2.741E+00	0.413
NB-94		702.63	*	2.378E-02	5.064E-02	8.445E-02	6.893E-03	0.282
		871.10		-2.292E-02	5.205E-02	8.340E-02	6.399E-03	-0.275
NB-95		765.79	*	1.487E-02	6.188E-02	1.054E-01	8.512E-03	0.141
NB-95M		235.69	*	2.724E-02	1.683E-01	2.487E-01	2.301E-02	0.110
ZR-95		724.18		7.071E-02	1.712E-01	2.470E-01	2.206E-02	0.286
		756.15	*	1.026E-01	1.145E-01	1.950E-01	1.759E-02	0.526
NB-97		657.90	*	1.584E-02	1.145E-01	Half-Life	too short	
		1024.50		4.306E+00	1.145E-01	Half-Life	too short	
ZR-97		254.15		-3.981E+00	1.145E-01	Half-Life	too short	
		355.39		-8.283E+00	1.145E-01	Half-Life	too short	
		507.63	*	1.452E+01	1.145E-01	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	602.52			-7.295E+00	1.145E-01	Half-Life	too short	
	1021.30			1.130E+01	1.145E-01	Half-Life	too short	
	1147.95			-2.172E+00	1.145E-01	Half-Life	too short	
	1362.66			-2.683E+01	1.145E-01	Half-Life	too short	
	1750.46			-1.995E+01	1.145E-01	Half-Life	too short	
MO-99	140.51			-2.687E+01	4.073E+01	6.274E+01	1.784E+01	-0.428
	181.06			-7.495E+00	2.831E+01	3.911E+01	7.022E+00	-0.192
	366.43			7.192E+01	1.377E+02	2.297E+02	1.478E+01	0.313
	739.58	*		-1.289E+01	2.467E+01	3.801E+01	5.668E+00	-0.339
	778.00			-2.001E+01	6.277E+01	1.027E+02	8.264E+00	-0.195
TC-99M	140.51	*		-5.951E+11	6.277E+01	Half-Life	too short	
RH-101	127.23			-5.113E-03	3.608E-02	5.832E-02	7.082E-03	-0.088
	198.01	*		-3.397E-03	3.735E-02	6.084E-02	4.817E-03	-0.056
	325.23			1.035E-01	3.053E-01	4.478E-01	3.210E-02	0.231
RH-102	418.52			-6.583E-02	3.943E-01	6.232E-01	3.810E-02	-0.106
	475.06	*		-7.986E-03	4.067E-02	6.511E-02	4.333E-03	-0.123
	631.29			5.387E-02	7.846E-02	1.340E-01	1.065E-02	0.402
	697.49			-1.142E-01	1.140E-01	1.699E-01	1.387E-02	-0.672
	766.84			1.039E-01	1.577E-01	2.750E-01	2.220E-02	0.378
	1046.59			3.959E-03	1.649E-01	2.694E-01	1.788E-02	0.015
	1112.84			-2.042E-01	4.073E-01	5.302E-01	3.225E-02	-0.385
RU-103	497.08	*		3.888E-03	5.179E-02	8.673E-02	1.142E-02	0.045
	610.33			1.166E+01	2.513E+00	3.412E+00	5.552E-01	3.417
RH-106	511.85	+		9.294E-01	4.644E-01	5.617E-01	3.924E-02	1.655
	621.84	*		-1.418E-01	4.334E-01	6.902E-01	8.896E-02	-0.205
	1050.47			2.056E+00	3.315E+00	5.685E+00	3.756E-01	0.362
RU-106	511.85	+		9.294E-01	4.644E-01	5.617E-01	3.924E-02	1.655
	621.84	*		-1.418E-01	4.332E-01	6.902E-01	5.435E-02	-0.205
	1050.47			2.056E+00	3.315E+00	5.685E+00	3.756E-01	0.362
AG-108M	433.93	*		1.707E-03	4.294E-02	7.251E-02	4.878E-03	0.024
	614.37			2.210E-03	6.174E-02	8.768E-02	7.182E-03	0.025
	722.95			-1.712E-02	7.111E-02	9.620E-02	8.181E-03	-0.178
AG-110M	657.75	*		1.960E-02	4.831E-02	8.087E-02	6.794E-03	0.242
	677.61			-1.688E-01	4.561E-01	7.187E-01	6.052E-02	-0.235
	706.67			-1.274E-01	3.120E-01	4.886E-01	4.109E-02	-0.261
	763.93			-1.733E-01	2.413E-01	3.851E-01	3.212E-02	-0.450
	884.67			2.374E-02	7.420E-02	1.259E-01	9.958E-03	0.189
	937.48			6.594E-02	1.747E-01	2.908E-01	2.239E-02	0.227
	1384.27			-2.035E-01	2.359E-01	3.510E-01	2.135E-02	-0.580
IN-111	171.28			-4.738E-03	1.557E+00	2.479E+00	1.946E-01	-0.002
	245.39	*		-7.486E-01	1.773E+00	2.527E+00	1.991E-01	-0.296
IN-113M	391.69	*		-4.518E-02	5.700E-02	8.663E-02	5.397E-03	-0.522
SN-113	391.69	*		-4.518E-02	5.700E-02	8.663E-02	5.397E-03	-0.522
IN-114M	190.27	*		2.585E-01	2.304E-01	3.465E-01	2.739E-02	0.746
CD-115	260.90			-3.426E+00	2.097E+02	3.479E+02	2.718E+01	-0.010
	492.35			5.742E+01	6.465E+01	1.137E+02	7.749E+00	0.505
	527.90	*		6.676E-01	1.963E+01	3.261E+01	2.324E+00	0.020
SN-117M	156.02			-3.859E+00	2.778E+00	4.126E+00	3.727E-01	-0.935
	158.56	*		6.255E-02	6.424E-02	1.073E-01	9.368E-03	0.583

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-122	563.90	*		2.323E+00	3.888E+00	6.645E+00	4.935E-01	0.350
	692.80			6.287E+01	8.401E+01	1.430E+02	1.167E+01	0.440
I-123	159.00	*		1.978E+01	8.401E+01	Half-Life too short		
	528.96			-5.744E+02	8.401E+01	Half-Life too short		
TE-123M	159.00	*		2.488E-02	3.158E-02	5.236E-02	4.572E-03	0.475
I-124	602.71	*		-3.093E-01	1.258E+00	1.741E+00	1.346E-01	-0.178
	722.78			-1.721E+00	8.837E+00	1.202E+01	9.790E-01	-0.143
	1325.50			3.847E+01	5.745E+01	1.014E+02	5.759E+00	0.379
	1376.25			4.816E+01	5.414E+01	9.667E+01	5.528E+00	0.498
	1509.49			2.584E+01	2.518E+01	4.628E+01	2.668E+00	0.558
	1691.02			5.077E+00	6.288E+00	1.148E+01	6.572E-01	0.442
SB-124	602.71			-1.521E-02	6.187E-02	8.557E-02	6.618E-03	-0.178
	645.85			4.252E-01	6.915E-01	1.177E+00	1.012E-01	0.361
	709.31			2.024E+00	3.995E+00	6.692E+00	5.460E-01	0.302
	713.82			5.909E-01	2.396E+00	3.938E+00	4.611E-01	0.150
	722.78			-1.227E-01	6.298E-01	8.564E-01	7.146E-02	-0.143
	968.20	+		1.678E+01	5.655E+00	8.941E+00	6.407E-01	1.877
	1045.16			-2.517E+00	4.051E+00	5.740E+00	3.816E-01	-0.439
	1325.50			2.928E+00	4.373E+00	7.715E+00	4.383E-01	0.379
	1368.21			1.015E+00	2.649E+00	4.541E+00	5.372E-01	0.224
	1436.60			-1.757E+00	5.081E+00	7.975E+00	4.584E-01	-0.220
	1691.02	*		8.535E-02	1.057E-01	1.929E-01	1.202E-02	0.442
SB-125	427.89	*		-5.393E-02	1.168E-01	1.916E-01	1.233E-02	-0.282
	463.38	+		9.040E-01	5.865E-01	7.227E-01	5.357E-02	1.251
	600.56			2.713E-01	2.635E-01	4.254E-01	3.582E-02	0.638
	635.90			1.172E-01	3.885E-01	6.472E-01	5.646E-02	0.181
TE-125M	109.28	*		2.948E-01	9.656E+00	1.588E+01	1.929E+00	0.019
I-126	388.63			9.062E-02	2.733E-01	4.488E-01	2.658E-02	0.202
	666.33	*		-5.802E-02	2.756E-01	4.407E-01	3.595E-02	-0.132
	753.82			1.374E+00	2.519E+00	4.197E+00	3.399E-01	0.327
SB-126	223.80			-4.013E-01	4.908E+00	8.213E+00	6.510E-01	-0.049
	278.60			1.951E+00	3.209E+00	5.449E+00	4.192E-01	0.358
	296.50	+		1.045E+01	3.496E+00	3.963E+00	2.984E-01	2.637
	414.70			-2.865E-02	1.057E-01	1.660E-01	1.008E-02	-0.173
	415.30			-1.934E+00	8.990E+00	1.417E+01	8.618E-01	-0.136
	555.20			1.355E+00	5.719E+00	9.590E+00	7.054E-01	0.141
	573.80			6.777E-01	1.462E+00	2.425E+00	1.820E-01	0.279
	593.00			-3.945E-01	1.399E+00	2.251E+00	1.724E-01	-0.175
	656.30			5.518E+00	4.864E+00	8.538E+00	6.932E-01	0.646
	666.33			-2.431E-02	1.155E-01	1.846E-01	1.506E-02	-0.132
	675.00			-1.334E-01	3.094E+00	5.002E+00	4.084E-01	-0.027
	695.00			-2.710E-03	1.197E-01	1.932E-01	1.578E-02	-0.014
	697.00			-4.958E-01	4.320E-01	6.367E-01	5.198E-02	-0.779
	720.50	*		2.252E-02	2.682E-01	3.760E-01	3.064E-02	0.060
	856.80			-5.328E-01	7.359E-01	1.154E+00	8.941E-02	-0.462
	989.30			1.348E-01	1.893E+00	3.122E+00	2.197E-01	0.043
	1034.80			7.898E+00	1.362E+01	2.331E+01	1.568E+00	0.339
	1213.00			-5.207E+00	7.139E+00	1.127E+01	6.259E-01	-0.462
SB-127	61.10			2.008E+01	3.466E+01	5.415E+01	6.585E+00	0.371

---- Non-Identified Nuclides ----

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	252.40			-2.283E+00	6.465E+00	1.046E+01	4.392E+00	-0.218
	290.80			3.300E+00	3.481E+01	5.064E+01	5.436E+00	0.065
	411.60			-1.698E+01	2.006E+01	3.008E+01	4.430E+00	-0.565
	444.90			-7.696E+00	1.639E+01	2.679E+01	3.064E+00	-0.287
	473.00			2.446E-01	2.743E+00	4.612E+00	5.509E-01	0.053
	543.00			2.526E+00	2.654E+01	4.417E+01	6.136E+00	0.057
	603.60			-1.131E+01	2.258E+01	3.038E+01	3.714E+00	-0.372
	685.20	*		-2.148E+00	2.330E+00	3.472E+00	3.949E-01	-0.619
	698.50			-7.869E+00	2.759E+01	4.366E+01	6.904E+00	-0.180
	722.20			2.211E+00	6.029E+01	8.409E+01	9.367E+00	0.026
	783.80			3.587E+00	6.328E+00	1.097E+01	1.352E+00	0.327
XE-127	57.60			-4.954E-01	2.357E+00	3.985E+00	3.683E-01	-0.124
	145.22			3.480E-01	8.195E-01	1.343E+00	1.379E-01	0.259
	172.10			5.498E-02	1.457E-01	2.360E-01	1.853E-02	0.233
	202.84	*		3.757E-03	5.174E-02	8.774E-02	6.954E-03	0.043
	374.96			-1.086E-03	2.587E-01	4.172E-01	2.605E-02	-0.003
I-131	80.18			3.753E+00	5.173E+00	6.484E+00	5.436E-01	0.579
	284.30			1.699E+00	2.005E+00	3.440E+00	2.806E-01	0.494
	364.48	*		-1.599E-01	1.680E-01	2.550E-01	1.809E-02	-0.627
	636.97			-1.322E+00	2.494E+00	3.906E+00	3.324E-01	-0.338
	722.89			-3.167E+00	1.315E+01	1.779E+01	1.461E+00	-0.178
TE-132	49.72			8.981E-01	5.515E+00	8.599E+00	9.014E-01	0.104
	111.76			-8.300E-01	4.134E+01	6.528E+01	8.586E+00	-0.013
	116.30			-1.319E+01	3.557E+01	5.715E+01	7.843E+00	-0.231
	228.16	*		6.861E-01	1.002E+00	1.720E+00	2.676E-01	0.399
BA-133	53.15			8.470E-01	1.100E+00	1.830E+00	1.536E-01	0.463
	79.62			9.242E-01	1.316E+00	1.641E+00	2.474E-01	0.563
	81.00			6.021E-02	1.017E-01	1.260E-01	1.977E-02	0.478
	276.40			5.295E-01	4.979E-01	7.708E-01	1.073E-01	0.687
	302.84			3.638E-02	1.908E-01	2.786E-01	3.501E-02	0.131
	356.01	*		-2.744E-02	6.753E-02	9.312E-02	1.118E-02	-0.295
	383.85			-2.610E-01	4.190E-01	6.477E-01	7.125E-02	-0.403
I-133	510.53	+		4.497E+00	4.190E-01	Half-Life	too short	
	529.87	*		-1.387E-03	4.190E-01	Half-Life	too short	
	706.58			-5.084E-01	4.190E-01	Half-Life	too short	
	856.28			-1.660E+00	4.190E-01	Half-Life	too short	
	875.33			-2.362E-02	4.190E-01	Half-Life	too short	
	1236.41			2.835E+00	4.190E-01	Half-Life	too short	
	1298.22			9.821E-01	4.190E-01	Half-Life	too short	
CS-134	475.35			3.836E-01	2.633E+00	4.303E+00	2.864E-01	0.089
	563.23			1.230E-01	5.178E-01	8.664E-01	6.512E-02	0.142
	569.32			-1.251E-01	2.860E-01	4.384E-01	3.334E-02	-0.285
	604.70			-3.374E-02	5.446E-02	7.244E-02	5.630E-03	-0.466
	795.84	*		4.735E-02	6.933E-02	1.209E-01	9.744E-03	0.392
	801.93			2.847E-02	6.029E-01	9.403E-01	7.546E-02	0.030
	1038.57			8.554E-01	5.561E+00	9.194E+00	6.158E-01	0.093
	1167.94			4.886E-01	3.459E+00	5.650E+00	3.136E-01	0.086
	1365.15			5.037E-01	1.773E+00	3.016E+00	1.897E-01	0.167
CS-135	268.24	*		3.458E-01	2.108E-01	3.363E-01	3.106E-02	1.028

## ---- Non-Identified Nuclides ----

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I-135	288.45			-5.412E+11	2.108E-01	Half-Life	too short	
	417.63			1.247E+11	2.108E-01	Half-Life	too short	
	546.56			-1.637E+11	2.108E-01	Half-Life	too short	
	836.80			5.939E+11	2.108E-01	Half-Life	too short	
	1038.76			9.324E+10	2.108E-01	Half-Life	too short	
	1124.00			7.524E+11	2.108E-01	Half-Life	too short	
	1131.51			6.528E+10	2.108E-01	Half-Life	too short	
	1260.41	*		-4.864E+10	2.108E-01	Half-Life	too short	
	1457.56			1.759E+13	2.108E-01	Half-Life	too short	
	1678.03			4.035E+10	2.108E-01	Half-Life	too short	
	1706.46			5.223E+10	2.108E-01	Half-Life	too short	
	1791.20			2.024E+11	2.108E-01	Half-Life	too short	
CS-136	66.91			1.763E-01	5.114E-01	7.875E-01	1.238E-01	0.224
	86.29	+		5.509E+00	1.641E+00	1.913E+00	2.377E-01	2.881
	153.22			9.220E-01	7.962E-01	1.335E+00	1.376E-01	0.691
	163.89			1.663E-01	1.363E+00	2.107E+00	1.934E-01	0.079
	176.55			2.318E-01	4.506E-01	7.332E-01	6.167E-02	0.316
	273.65			-5.632E-01	6.410E-01	8.716E-01	7.286E-02	-0.646
	340.57			2.513E-01	1.826E-01	2.854E-01	2.066E-02	0.880
	818.51			2.339E-02	1.076E-01	1.825E-01	1.446E-02	0.128
	1048.07	*		9.998E-02	1.663E-01	2.846E-01	2.020E-02	0.351
	1235.34			1.697E+00	8.814E-01	1.629E+00	1.607E-01	1.041
BA-137M	661.65	*		-3.458E-02	5.039E-02	7.752E-02	6.322E-03	-0.446
CS-137	661.65	*		-3.655E-02	5.326E-02	8.194E-02	6.697E-03	-0.446
CE-139	165.85	*		-3.085E-02	3.523E-02	5.374E-02	4.213E-03	-0.574
BA-140	162.64			2.330E-01	9.649E-01	1.501E+00	1.315E-01	0.155
	304.84			1.299E+00	1.864E+00	2.770E+00	7.670E-01	0.469
LA-140	423.70			1.043E+00	2.753E+00	4.472E+00	1.424E+00	0.233
	537.32	*		-7.215E-02	3.673E-01	5.986E-01	1.963E-01	-0.121
	328.77	+		7.682E-01	4.983E-01	7.012E-01	5.395E-02	1.096
	432.53			-8.060E-01	2.794E+00	4.628E+00	3.155E-01	-0.174
	487.03			-1.514E-01	1.870E-01	2.947E-01	2.190E-02	-0.514
	751.79			9.274E-01	2.861E+00	4.702E+00	4.269E-01	0.197
	815.85			-4.504E-01	4.695E-01	7.190E-01	6.466E-02	-0.626
	867.82			1.448E+00	2.157E+00	3.754E+00	3.078E-01	0.386
	919.63			-2.535E-01	4.585E+00	6.971E+00	6.765E-01	-0.036
	925.24			-3.178E-01	1.710E+00	2.777E+00	2.228E-01	-0.114
	1596.49	*		5.116E-02	1.329E-01	2.267E-01	1.307E-02	0.226
CE-141	145.44	*		1.719E-02	7.340E-02	1.195E-01	1.239E-02	0.144
CE-143	57.37			-1.660E-05	7.340E-02	Half-Life	too short	
	231.56			-2.286E-03	7.340E-02	Half-Life	too short	
	293.26	*		9.954E-04	7.340E-02	Half-Life	too short	
	350.59	+		4.132E-02	7.340E-02	Half-Life	too short	
	490.36			3.849E-03	7.340E-02	Half-Life	too short	
	664.57			1.755E-03	7.340E-02	Half-Life	too short	
	721.93			4.281E-04	7.340E-02	Half-Life	too short	
CE-144	80.11			1.596E+00	2.172E+00	2.725E+00	2.268E-01	0.586
	133.54	*		-5.303E-02	2.335E-01	3.744E-01	6.490E-02	-0.142
PM-144	476.78			3.550E-02	9.274E-02	1.536E-01	1.181E-02	0.231



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		618.01		2.338E-02	4.498E-02	7.237E-02	5.867E-03	0.323
		696.49	*	-4.726E-02	5.236E-02	7.889E-02	6.444E-03	-0.599
		778.57		-8.378E-01	3.255E+00	5.352E+00	4.307E-01	-0.157
PR-144		696.49	*	-3.204E+00	3.550E+00	5.349E+00	4.368E-01	-0.599
		1489.15		-1.184E+01	1.476E+01	2.105E+01	1.213E+00	-0.562
PM-146		453.90	*	1.905E-02	5.521E-02	9.456E-02	8.582E-03	0.202
		633.02		-2.511E-02	2.035E+00	3.318E+00	1.235E+00	-0.008
		735.90		1.361E-01	2.455E-01	3.849E-01	1.095E-01	0.353
		747.13		-4.688E-02	1.380E-01	2.155E-01	2.959E-02	-0.218
ND-147	+	91.11		8.185E-01	3.679E-01	5.912E-01	5.332E-02	1.384
		319.41		1.038E+00	4.228E+00	7.008E+00	5.084E-01	0.148
		439.89		-7.142E-01	8.603E+00	1.441E+01	9.116E-01	-0.050
		531.02	*	-2.475E-01	7.848E-01	1.271E+00	1.799E-01	-0.195
PM-149		285.90	*	4.095E+01	1.571E+02	2.623E+02	3.941E+01	0.156
EU-152		121.78		2.619E-02	8.149E-02	1.346E-01	1.821E-02	0.195
		244.69		5.897E-02	4.078E-01	6.046E-01	4.766E-02	0.098
		344.27	*	-2.601E-02	1.384E-01	1.935E-01	1.451E-02	-0.134
		443.98		-1.098E+00	1.319E+00	2.110E+00	1.342E-01	-0.520
		778.89		-4.561E-02	3.730E-01	6.194E-01	4.981E-02	-0.074
		867.32		6.894E-01	1.209E+00	2.091E+00	1.608E-01	0.330
	+	964.01		8.664E-01	6.059E-01	7.965E-01	5.727E-02	1.088
		1085.78		5.202E-02	5.648E-01	9.251E-01	5.848E-02	0.056
		1112.02		-3.143E-01	5.810E-01	7.591E-01	4.623E-02	-0.414
		1407.95		2.430E-01	2.778E-01	4.966E-01	2.848E-02	0.489
GD-153		69.67		-1.491E-01	1.156E+00	1.743E+00	1.558E-01	-0.086
	+	83.37		2.170E+01	1.647E+01	2.174E+01	1.770E+00	0.999
		97.43	*	-4.299E-02	8.588E-02	1.210E-01	1.101E-02	-0.355
		103.18		-2.354E-02	1.087E-01	1.776E-01	1.754E-02	-0.133
EU-154		123.07		3.410E-02	5.823E-02	9.689E-02	1.412E-02	0.352
		247.94		-1.172E-01	4.278E-01	7.036E-01	7.686E-02	-0.167
		591.81		-2.022E-01	8.887E-01	1.436E+00	1.575E-01	-0.141
		723.30		-6.013E-02	2.981E-01	4.050E-01	3.687E-02	-0.148
		756.87		1.905E-01	1.250E+00	2.028E+00	2.353E-01	0.094
		873.19		1.947E-01	4.368E-01	7.482E-01	8.671E-02	0.260
		996.32		3.009E-01	5.599E-01	9.519E-01	1.622E-01	0.316
		1004.76		-3.049E-01	3.328E-01	5.016E-01	5.244E-02	-0.608
		1274.45	*	-8.672E-02	1.786E-01	2.844E-01	2.627E-02	-0.305
EU-155		48.70		-4.559E-02	4.694E-01	7.235E-01	5.461E-02	-0.063
		60.01		3.820E-03	2.333E+00	3.571E+00	3.418E-01	0.001
	+	86.54		4.804E-01	1.357E-01	1.693E-01	1.365E-02	2.838
		105.31	*	4.609E-02	1.164E-01	1.901E-01	1.951E-02	0.242
TB-160	+	86.79		1.296E+00	3.657E-01	4.586E-01	3.647E-02	2.826
		197.04		-3.229E-01	6.356E-01	1.015E+00	8.037E-02	-0.318
		215.65		-4.963E-01	8.555E-01	1.403E+00	1.113E-01	-0.354
	+	298.57		2.778E-01	1.713E-01	2.425E-01	1.821E-02	1.145
		879.36	*	-1.160E-01	2.079E-01	3.290E-01	2.509E-02	-0.353
		962.29		1.010E+00	9.279E-01	1.427E+00	1.027E-01	0.708
		966.15		1.357E+00	3.699E-01	7.069E-01	5.074E-02	1.919
		1177.93		1.009E-01	5.166E-01	8.467E-01	4.660E-02	0.119

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1271.85		7.418E-02	1.058E+00	1.769E+00	9.954E-02	0.042
		80.57		2.122E-01	2.767E-01	3.478E-01	2.886E-02	0.610
	+	184.41		1.057E-01	7.183E-02	8.379E-02	6.611E-03	1.262
		280.46		-5.851E-02	1.041E-01	1.670E-01	1.282E-02	-0.350
		410.95		-1.214E-01	3.320E-01	5.189E-01	3.133E-02	-0.234
TM-171		711.68	*	-8.463E-02	9.069E-02	1.354E-01	1.105E-02	-0.625
		752.31		1.543E-01	4.351E-01	7.164E-01	5.805E-02	0.215
		810.29		-3.574E-02	7.734E-02	1.241E-01	9.860E-03	-0.288
		51.35		-2.595E+00	7.446E+00	1.259E+01	1.013E+00	-0.206
		52.39		-1.661E+00	4.579E+00	7.344E+00	6.057E-01	-0.226
LU-176		59.40		7.422E+00	1.203E+01	1.888E+01	1.811E+00	0.393
	+	66.72	*	6.557E+00	1.747E+01	2.696E+01	2.460E+00	0.243
		88.36		9.457E-01	2.668E-01	3.188E-01	2.528E-02	2.967
		201.83		-1.356E-02	3.112E-02	5.163E-02	4.091E-03	-0.263
		306.84	*	-8.341E-03	3.179E-02	4.958E-02	3.676E-03	-0.168
LU-177		401.10		-1.130E+01	9.348E+00	1.333E+01	7.918E-01	-0.848
		112.95		8.984E-02	1.995E+00	3.153E+00	3.552E-01	0.028
	+	208.36	*	2.495E+00	1.584E+00	2.428E+00	1.926E-01	1.028
		52.97		1.058E-01	4.984E-01	8.164E-01	6.823E-02	0.130
		54.07		1.615E-01	2.800E-01	4.631E-01	3.967E-02	0.349
LU-177M		61.30		8.709E-01	7.633E-01	1.215E+00	1.152E-01	0.717
		121.62		1.237E-01	4.190E-01	6.916E-01	8.695E-02	0.179
		147.16		-2.053E-01	7.403E-01	1.177E+00	1.182E-01	-0.174
		171.86		2.470E-02	5.830E-01	9.300E-01	7.303E-02	0.027
		218.09		4.346E-01	9.567E-01	1.640E+00	1.301E-01	0.265
HF-181	+	268.79		3.598E+00	1.647E+00	1.776E+00	1.378E-01	2.026
		319.02		1.624E-02	3.119E-01	5.114E-01	3.712E-02	0.032
		367.43		-1.505E-01	1.165E+00	1.867E+00	1.197E-01	-0.081
		413.65	*	-6.387E-02	2.345E-01	3.682E-01	2.233E-02	-0.173
		56.28		-2.543E-01	3.356E-01	5.558E-01	4.996E-02	-0.458
W-181		57.53		9.925E-03	1.950E-01	3.326E-01	3.070E-02	0.030
		65.20		-8.400E-02	5.654E-01	8.552E-01	7.888E-02	-0.098
		133.02		2.464E-03	7.542E-02	1.225E-01	1.415E-02	0.020
		136.25		-1.861E-01	5.204E-01	8.281E-01	9.295E-02	-0.225
		345.85		1.084E-01	2.746E-01	4.026E-01	2.751E-02	0.269
TA-182		482.03	*	-1.261E-02	5.605E-02	9.228E-02	6.200E-03	-0.137
		56.28		-9.816E-02	1.299E-01	2.152E-01	1.934E-02	-0.456
		57.53		3.773E-03	7.551E-02	1.288E-01	1.188E-02	0.029
		65.20	*	-3.227E-02	2.172E-01	3.285E-01	3.030E-02	-0.098
		67.75		-1.127E-02	6.830E-02	1.096E-01	9.927E-03	-0.103
RE-183		100.10		2.099E-02	1.781E-01	2.954E-01	2.794E-02	0.071
		152.43		2.051E-01	3.877E-01	6.367E-01	6.019E-02	0.322
		222.10		-2.483E-01	3.987E-01	6.507E-01	5.160E-02	-0.382
		1001.68		-1.629E+00	3.475E+00	5.247E+00	3.651E-01	-0.310
	+	1121.28		3.496E-01	3.379E-01	4.312E-01	2.589E-02	0.811
RE-183		1189.05		-3.807E-01	4.158E-01	6.425E-01	3.547E-02	-0.593
		1221.42	*	-2.937E-02	2.819E-01	4.671E-01	2.599E-02	-0.063
		1230.97		-6.541E-01	7.015E-01	1.090E+00	6.082E-02	-0.600
		57.98		-2.952E-03	7.749E-02	1.317E-01	1.227E-02	-0.022

## ---- Non-Identified Nuclides ----

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RE-184		59.32		2.933E-02	4.969E-02	7.796E-02	7.463E-03	0.376
		67.20		9.445E-03	1.272E-01	1.939E-01	1.763E-02	0.049
		162.32	*	-1.935E-02	1.361E-01	2.081E-01	1.723E-02	-0.093
	+	208.81		2.027E+00	1.287E+00	1.990E+00	1.578E-01	1.019
		291.72		-4.470E-01	1.283E+00	1.805E+00	1.368E-01	-0.248
		57.98		-1.081E-02	2.837E-01	4.823E-01	4.492E-02	-0.022
		59.32		1.073E-01	1.818E-01	2.853E-01	2.731E-02	0.376
		67.20		3.457E-02	4.656E-01	7.096E-01	6.454E-02	0.049
		161.27		-2.470E-02	4.082E-01	6.511E-01	5.472E-02	-0.038
		216.55		-3.723E-01	2.989E-01	4.728E-01	3.750E-02	-0.787
		252.85	*	-6.319E-02	2.798E-01	4.606E-01	3.616E-02	-0.137
		318.01		-5.923E-02	5.267E-01	8.555E-01	6.221E-02	-0.069
OS-185		792.07		1.636E+00	1.468E+00	2.623E+00	2.100E-01	0.624
		903.28		-5.185E-01	1.793E+00	2.466E+00	1.849E-01	-0.210
		920.93		9.722E-03	6.654E-01	1.076E+00	7.978E-02	0.009
		59.72		1.242E-02	1.386E-01	2.129E-01	2.042E-02	0.058
		61.14		5.758E-02	8.220E-02	1.291E-01	1.225E-02	0.446
		69.30		-7.381E-02	2.060E-01	3.076E-01	2.757E-02	-0.240
		592.07		-1.470E+00	3.614E+00	5.761E+00	4.407E-01	-0.255
		646.12	*	2.897E-02	5.905E-02	9.966E-02	8.021E-03	0.291
		717.42		7.576E-01	1.354E+00	2.271E+00	1.852E-01	0.334
		874.81		-8.921E-02	8.789E-01	1.446E+00	1.107E-01	-0.062
		880.27		-7.525E-01	1.169E+00	1.838E+00	1.401E-01	-0.410
		155.03	*	-3.725E-02	1.965E-01	3.124E-01	2.858E-02	-0.119
RE-188		477.96		-1.573E+00	4.120E+00	6.722E+00	4.491E-01	-0.234
		633.10		-1.652E-01	4.149E+00	6.750E+00	5.371E-01	-0.024
	+	63.58		4.445E+01	4.866E+01	6.197E+01	5.782E+00	0.717
W-188		227.08		-5.141E+00	1.493E+01	2.466E+01	1.954E+00	-0.209
	*	290.67		4.188E+00	9.822E+00	1.463E+01	1.110E+00	0.286
IR-192	+	295.96		7.610E-01	2.547E-01	3.054E-01	2.323E-02	2.492
		308.46		-9.154E-02	1.252E-01	1.896E-01	1.412E-02	-0.483
	*	316.51		-3.743E-02	4.123E-02	6.362E-02	4.654E-03	-0.588
		468.07		-1.925E-03	9.837E-02	1.431E-01	1.056E-02	-0.013
		604.41		-4.757E-01	7.437E-01	9.850E-01	1.227E-01	-0.483
		612.46		1.593E+00	1.122E+00	1.783E+00	1.640E-01	0.893
AU-195		65.12		1.501E-02	1.011E-01	1.548E-01	1.429E-02	0.097
		66.83		2.078E-02	5.810E-02	8.960E-02	8.170E-03	0.232
	+	75.70		1.139E+00	2.216E-01	3.616E-01	3.102E-02	3.151
	*	98.88		1.914E-01	2.270E-01	3.745E-01	3.481E-02	0.511
		129.76		4.011E+00	3.269E+00	5.517E+00	6.559E-01	0.727
TL-200		367.94	*	-1.008E-04	3.269E+00	Half-Life	too short	
		579.30		5.588E-03	3.269E+00	Half-Life	too short	
		828.27		2.818E-03	3.269E+00	Half-Life	too short	
		1205.75		4.775E-03	3.269E+00	Half-Life	too short	
TL-201		68.90		-1.020E+00	3.880E+00	6.195E+00	5.568E-01	-0.165
		70.82		1.628E+00	2.473E+00	3.839E+00	3.405E-01	0.424
		80.30		5.374E+00	6.531E+00	8.238E+00	6.848E-01	0.652
		135.34		8.103E-01	3.616E+01	5.861E+01	6.634E+00	0.014
	*	167.43		5.287E+00	1.031E+01	1.684E+01	1.320E+00	0.314

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TL-202		68.90		-7.622E-02	2.899E-01	4.629E-01	4.160E-02	-0.165
		70.82		1.213E-01	1.842E-01	2.860E-01	2.537E-02	0.424
		80.30		4.005E-01	4.868E-01	6.140E-01	5.104E-02	0.652
		439.56	*	-6.399E-03	1.016E-01	1.705E-01	1.077E-02	-0.038
HG-203		70.83		5.054E-01	7.651E-01	1.185E+00	1.631E-01	0.426
		72.87		9.292E-01	4.526E-01	7.763E-01	1.031E-01	1.197
	+	82.60		1.635E+00	1.253E+00	1.570E+00	2.116E-01	1.041
		279.20	*	2.336E-02	5.063E-02	8.544E-02	6.803E-03	0.273
BI-207		72.80		2.417E-01	1.265E-01	2.214E-01	1.937E-02	1.092
	+	74.97		6.295E-01	1.224E-01	1.773E-01	1.529E-02	3.550
	+	84.90		2.799E-01	2.123E-01	2.772E-01	2.234E-02	1.009
		569.67		-3.243E-02	4.377E-02	6.532E-02	4.881E-03	-0.497
		1063.62	*	8.930E-02	8.325E-02	1.463E-01	9.517E-03	0.610
		1770.23		-5.257E-02	6.974E-01	9.691E-01	5.499E-02	-0.054
TL-207		81.07		1.388E-01	2.242E-01	2.789E-01	2.307E-02	0.498
	+	83.78		1.845E-01	1.400E-01	1.854E-01	1.505E-02	0.995
		94.90		3.238E-01	2.286E-01	3.604E-01	3.160E-02	0.898
		122.32		1.066E+00	1.949E+00	3.243E+00	4.237E-01	0.329
		144.24		4.262E-01	8.452E-01	1.358E+00	1.526E-01	0.314
		154.21		1.752E-01	4.541E-01	7.408E-01	7.446E-02	0.237
	+	269.46		8.384E-01	3.840E-01	4.215E-01	3.354E-02	1.989
		323.87	*	-3.914E-01	9.481E-01	1.309E+00	2.232E-01	-0.299
	+	338.28		6.396E+00	2.304E+00	2.852E+00	3.198E-01	2.243
		445.03		-1.174E+00	3.127E+00	5.142E+00	5.452E-01	-0.228
PO-209		260.50		-2.021E+00	1.109E+01	1.824E+01	1.425E+00	-0.111
		262.80		-2.095E+00	3.117E+01	5.155E+01	4.021E+00	-0.041
		896.60	*	3.101E-01	1.079E+01	1.790E+01	1.348E+00	0.017
PB-211		404.84	*	4.950E-01	1.366E+00	2.179E+00	1.359E+00	0.227
		427.08		-1.139E+00	2.888E+00	4.345E+00	2.687E+00	-0.262
		831.96		-8.667E-01	1.805E+00	2.760E+00	1.727E+00	-0.314
BI-212	+	727.18	*	1.090E+00	8.611E-01	9.089E-01	8.725E-02	1.199
		785.46		1.714E+00	2.596E+00	4.528E+00	3.633E-01	0.379
		1620.62		3.895E-01	1.761E+00	2.949E+00	1.697E-01	0.132
PO-215		81.07		1.388E-01	2.242E-01	2.789E-01	2.307E-02	0.498
	+	83.78		1.845E-01	1.400E-01	1.854E-01	1.505E-02	0.995
		94.90		3.238E-01	2.286E-01	3.604E-01	3.160E-02	0.898
		122.32		1.066E+00	1.949E+00	3.243E+00	4.237E-01	0.329
		144.24		4.262E-01	8.452E-01	1.358E+00	1.526E-01	0.314
		154.21		1.752E-01	4.541E-01	7.408E-01	7.446E-02	0.237
	+	269.46		8.384E-01	3.840E-01	4.215E-01	3.354E-02	1.989
		323.87	*	-3.914E-01	9.481E-01	1.309E+00	2.232E-01	-0.299
	+	338.28		6.396E+00	2.304E+00	2.852E+00	3.198E-01	2.243
		445.03		-1.174E+00	3.127E+00	5.142E+00	5.452E-01	-0.228
RN-219	+	271.23		1.076E+00	4.960E-01	5.230E-01	5.018E-02	2.057
		401.81	*	-6.131E-01	5.835E-01	8.355E-01	1.142E-01	-0.734
RN-220		549.76	*	-1.729E+01	3.323E+01	5.274E+01	3.856E+00	-0.328
RA-223		81.07		1.388E-01	2.242E-01	2.789E-01	2.307E-02	0.498
	+	83.78		1.845E-01	1.400E-01	1.854E-01	1.505E-02	0.995
		94.90		3.238E-01	2.286E-01	3.604E-01	3.160E-02	0.898

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		1.066E+00	1.949E+00	3.243E+00	4.237E-01	0.329
		144.24		4.262E-01	8.452E-01	1.358E+00	1.526E-01	0.314
		154.21		1.752E-01	4.541E-01	7.408E-01	7.446E-02	0.237
	+	269.46		8.384E-01	3.840E-01	4.215E-01	3.354E-02	1.989
		323.87	*	-3.914E-01	9.481E-01	1.309E+00	2.232E-01	-0.299
	+	338.28		6.396E+00	2.304E+00	2.852E+00	3.198E-01	2.243
		445.03		-1.174E+00	3.127E+00	5.142E+00	5.452E-01	-0.228
		79.80		1.112E+00	1.679E+00	2.081E+00	4.451E-01	0.535
		236.00		5.361E-01	3.259E-01	5.124E-01	6.023E-02	1.046
		256.20	*	-7.242E-02	4.475E-01	7.381E-01	1.101E-01	-0.098
	+	286.10		5.275E-01	1.877E+00	3.137E+00	3.945E-01	0.168
		299.80		3.501E+00	2.224E+00	3.052E+00	5.176E-01	1.147
TH-227		304.40		2.321E+00	2.523E+00	3.831E+00	6.864E-01	0.606
		334.20		-1.852E+00	3.185E+00	4.297E+00	8.060E-01	-0.431
		79.80		1.112E+00	1.680E+00	2.081E+00	4.508E-01	0.535
		94.00		1.268E+01	3.474E+00	3.867E+00	8.426E-01	3.280
		236.00		5.361E-01	3.247E-01	5.124E-01	5.397E-02	1.046
		256.20	*	-7.242E-02	4.476E-01	7.381E-01	1.306E-01	-0.098
		286.10		5.275E-01	1.949E+00	3.137E+00	3.146E+00	0.168
	+	299.80		3.501E+00	2.224E+00	3.052E+00	5.176E-01	1.147
		304.40		2.321E+00	2.523E+00	3.831E+00	6.864E-01	0.606
		334.20		-1.852E+00	3.185E+00	4.297E+00	8.060E-01	-0.431
		85.43		4.497E-01	1.598E-01	2.827E-01	2.270E-02	1.590
	+	88.47		3.033E-01	1.359E-01	1.816E-01	1.443E-02	1.670
TH-229		100.00		3.151E-02	1.839E-01	3.057E-01	2.887E-02	0.103
		193.63	*	-8.290E-03	5.360E-01	9.085E-01	7.187E-02	-0.009
		210.97		5.594E-01	9.900E-01	1.517E+00	1.203E-01	0.369
		283.67	*	1.198E+00	1.849E+00	3.138E+00	4.598E-01	0.382
	+	301.29		1.401E+00	8.723E-01	1.180E+00	1.354E-01	1.187
	TH-231	81.07		1.388E-01	2.242E-01	2.789E-01	2.307E-02	0.498
	+	83.78		1.845E-01	1.400E-01	1.854E-01	1.505E-02	0.995
		94.90		3.238E-01	2.286E-01	3.604E-01	3.160E-02	0.898
		122.32		1.066E+00	1.949E+00	3.243E+00	4.237E-01	0.329
		144.24		4.262E-01	8.452E-01	1.358E+00	1.526E-01	0.314
		154.21		1.752E-01	4.541E-01	7.408E-01	7.446E-02	0.237
	+	269.46		8.384E-01	3.840E-01	4.215E-01	3.354E-02	1.989
U-231		323.87	*	-3.914E-01	9.481E-01	1.309E+00	2.232E-01	-0.299
	+	338.28		6.396E+00	2.304E+00	2.852E+00	3.198E-01	2.243
		445.03		-1.174E+00	3.127E+00	5.142E+00	5.452E-01	-0.228
	+	84.21		9.502E+00	7.210E+00	9.399E+00	7.608E-01	1.011
	+	92.29		8.534E+00	3.672E+00	5.616E+00	4.734E-01	1.520
		95.87	*	-7.974E-01	1.295E+00	1.854E+00	1.649E-01	-0.430
		108.00		-1.030E+00	2.576E+00	4.163E+00	4.392E-01	-0.247
	PA-233	75.28		1.837E+01	4.266E+00	5.493E+00	8.425E-01	3.344
	+	86.59		7.806E+00	2.963E+00	2.753E+00	7.327E-01	2.835
	+	300.12		9.762E-01	6.135E-01	8.394E-01	1.196E-01	1.163
		311.98	*	1.177E-02	7.475E-02	1.235E-01	9.434E-03	0.095
		340.50		1.264E+00	8.876E-01	1.326E+00	3.086E-01	0.954
		398.62		-1.718E+00	2.708E+00	4.101E+00	1.061E+00	-0.419

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		5.139E-01	2.194E+00	3.557E+00	7.353E-01	0.144
		63.00		1.275E+00	1.406E+00	1.791E+00	2.853E-01	0.712
		94.67		3.831E-01	1.737E-01	2.746E-01	3.428E-02	1.395
		98.44		6.834E-02	9.951E-02	1.516E-01	8.471E-02	0.451
		99.86		2.188E-01	4.625E-01	7.772E-01	7.325E-02	0.282
		111.00		-4.073E-02	1.922E-01	3.125E-01	4.335E-02	-0.130
		131.20		-8.431E-02	1.229E-01	1.930E-01	2.267E-02	-0.437
		152.70		1.964E-01	3.751E-01	6.139E-01	1.072E-01	0.320
	+	186.00		3.805E+00	2.827E+00	3.253E+00	1.009E+00	1.170
		226.40		-3.287E-01	4.688E-01	7.593E-01	9.688E-02	-0.433
		227.20		-2.050E-01	5.013E-01	8.255E-01	6.541E-02	-0.248
		248.90		-1.049E-01	9.773E-01	1.620E+00	3.586E-01	-0.065
	+	293.70		4.742E+00	1.739E+00	1.825E+00	3.065E-01	2.599
		369.80		7.959E-01	1.061E+00	1.774E+00	3.724E-01	0.449
		568.70		-9.158E-01	1.477E+00	2.238E+00	1.671E-01	-0.409
		569.50		-2.320E-01	3.918E-01	5.925E-01	4.427E-02	-0.392
		574.00		9.443E-01	1.979E+00	3.284E+00	2.466E-01	0.288
		699.00		1.087E-01	1.086E+00	1.767E+00	3.336E-01	0.061
		706.10		-1.875E-02	1.563E+00	2.522E+00	1.122E+00	-0.007
		733.00		-2.507E-01	6.884E-01	9.147E-01	2.013E-01	-0.274
		742.81		1.495E+00	2.293E+00	3.494E+00	2.347E+00	0.428
		796.30		4.939E-01	1.346E+00	2.294E+00	6.160E-01	0.215
		805.60		-1.174E-01	1.375E+00	2.282E+00	6.952E-01	-0.051
		819.60		1.448E+00	1.781E+00	3.011E+00	1.140E+00	0.481
		826.30		-7.142E-01	1.215E+00	1.862E+00	8.306E-01	-0.384
		831.60		-7.329E-01	9.199E-01	1.397E+00	4.138E-01	-0.525
		876.40		3.137E-02	1.244E+00	2.065E+00	2.121E+00	0.015
		880.51		-2.460E-01	4.213E-01	6.656E-01	5.073E-02	-0.370
		883.24		9.891E-02	4.226E-01	7.042E-01	4.725E-01	0.140
		899.00		-6.041E-01	1.322E+00	2.067E+00	8.994E-01	-0.292
		925.00		-2.817E-01	1.666E+00	2.710E+00	2.005E-01	-0.104
		926.50		-1.188E-01	2.553E-01	4.019E-01	1.000E-01	-0.296
		946.00	*	-2.393E-01	4.621E-01	7.261E-01	1.321E-01	-0.330
		949.00		4.826E-01	6.541E-01	1.137E+00	8.274E-02	0.424
		980.50		2.425E-01	1.065E+00	1.781E+00	1.263E-01	0.136
		1394.10		-2.637E-01	1.609E+00	2.586E+00	1.675E+00	-0.102
PA-234M		766.42		8.079E+00	1.686E+01	2.829E+01	1.433E+01	0.286
		1001.03	*	-7.418E-01	7.688E+00	1.194E+01	1.024E+00	-0.062
U-235	+	89.95		3.044E+00	1.635E+00	1.761E+00	5.410E-01	1.729
	+	93.35		2.248E+00	1.138E+00	1.431E+00	4.008E-01	1.571
		105.00		4.784E-01	1.148E+00	1.864E+00	5.650E-01	0.257
		143.76	*	4.828E-02	2.585E-01	4.104E-01	7.578E-02	0.118
		163.35		-8.659E-02	5.708E-01	8.707E-01	1.643E-01	-0.099
NP-236	+	185.71		1.409E-01	9.577E-02	1.210E-01	9.547E-03	1.165
		205.31		-9.723E-02	6.323E-01	9.182E-01	1.724E-01	-0.106
		94.67		2.936E-01	1.293E-01	2.086E-01	1.823E-02	1.407
		98.44		5.167E-02	6.962E-02	1.146E-01	1.058E-02	0.451
		111.00		-3.081E-02	1.454E-01	2.364E-01	2.596E-02	-0.130
		160.31	*	-5.704E-02	9.386E-02	1.457E-01	1.242E-02	-0.391

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		7.874E-02	1.597E-01	2.605E-01	2.444E-02	0.302
		117.00	*	-1.320E-01	1.977E-01	3.127E-01	3.711E-02	-0.422
	+	209.75		1.582E+00	1.005E+00	1.636E+00	1.297E-01	0.967
		228.18		1.605E-01	2.597E-01	4.467E-01	3.539E-02	0.359
		277.60		2.482E-01	2.291E-01	3.788E-01	2.917E-02	0.655
AM-241		334.30		-1.005E+00	1.798E+00	2.443E+00	1.717E-01	-0.411
		59.54	*	4.675E-02	7.040E-02	1.107E-01	1.126E-02	0.422
	CM-243	99.55		8.103E-02	1.643E-01	2.680E-01	2.515E-02	0.302
		103.76	*	1.093E-02	9.989E-02	1.653E-01	1.646E-02	0.066
		117.00		-1.358E-01	2.034E-01	3.217E-01	3.818E-02	-0.422
CM-243	+	209.75		1.560E+00	9.904E-01	1.612E+00	1.279E-01	0.967
		228.18		1.622E-01	2.625E-01	4.514E-01	3.576E-02	0.359
		277.60		2.503E-01	2.309E-01	3.819E-01	2.941E-02	0.655
	AM-246	798.80		-2.602E-01	2.076E-01	3.143E-01	2.509E-02	-0.828
		1036.00		-1.495E-01	4.475E-01	7.092E-01	4.763E-02	-0.211
AM-246		1062.04		9.145E-02	3.581E-01	5.948E-01	3.876E-02	0.154
		1078.86	*	-1.930E-02	1.996E-01	3.216E-01	2.052E-02	-0.060
	CM-247	278.00		6.882E-01	9.103E-01	1.556E+00	1.197E-01	0.442
		287.40		-1.958E-02	1.574E+00	2.505E+00	1.909E-01	-0.008
		402.60	*	1.698E-02	4.908E-02	8.038E-02	4.786E-03	0.211
CF-249		252.85		-2.360E-01	1.045E+00	1.721E+00	1.351E-01	-0.137
		333.44		-1.648E-01	2.577E-01	3.209E-01	2.260E-02	-0.514
		387.95	*	3.208E-02	5.088E-02	8.504E-02	5.050E-03	0.377
CF-251		176.60	*	7.627E-02	1.464E-01	2.384E-01	1.876E-02	0.320
		227.00		-1.492E-01	4.433E-01	7.324E-01	5.803E-02	-0.204
		285.00		7.351E-01	2.171E+00	3.640E+00	2.780E-01	0.202

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229013      *
* Acquisition date   : 22-JAN-2010 16:50:05 Detector SN#                   *
* Detector ID        : GAM13 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.55 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229013 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.1731E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*                                     *                                       *
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope :                   *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.878E+01	2.724E+00	8.043E-01	0.000E+00
CD-109	4.063E+00	1.123E+00	1.092E+00	0.000E+00
SN-126	3.987E-01	1.102E-01	1.071E-01	0.000E+00
TL-208	5.317E-01	1.118E-01	8.045E-02	0.000E+00
BI-210	1.175E+00	9.049E-01	8.705E-01	0.000E+00
PB-210	1.175E+00	9.049E-01	8.705E-01	0.000E+00
PO-210	1.175E+00	9.037E-01	8.705E-01	0.000E+00
BI-211	3.017E+00	5.308E-01	4.550E-01	0.000E+00
PB-212	1.480E+00	1.809E-01	1.061E-01	0.000E+00
PO-212	1.480E+00	1.809E-01	1.061E-01	0.000E+00
BI-214	1.110E+00	2.591E-01	1.385E-01	0.000E+00
PB-214	1.050E+00	1.923E-01	1.587E-01	0.000E+00
PO-214	1.050E+00	1.923E-01	1.587E-01	0.000E+00
PO-216	1.480E+00	1.809E-01	1.061E-01	0.000E+00
PO-218	1.050E+00	1.923E-01	1.587E-01	0.000E+00
RA-224	3.958E+00	1.597E+00	1.208E+00	0.000E+00
RA-226	1.110E+00	2.591E-01	1.385E-01	0.000E+00
AC-228	1.197E+00	4.563E-01	3.058E-01	0.000E+00
RA-228	1.197E+00	4.563E-01	3.058E-01	0.000E+00
TH-228	1.504E+00	1.838E-01	1.079E-01	0.000E+00
TH-230	1.110E+00	2.591E-01	1.385E-01	0.000E+00
TH-232	1.197E+00	4.563E-01	3.058E-01	0.000E+00
TH-234	1.094E+00	1.186E+00	1.118E+00	0.000E+00
U-234	1.110E+00	2.591E-01	1.385E-01	0.000E+00
NP-237	1.171E+00	4.011E-01	3.134E-01	0.000E+00
U-238	1.094E+00	1.186E+00	1.118E+00	0.000E+00
AM-243	3.507E-01	6.682E-02	6.694E-02	0.000E+00
ANH-511	1.857E-01	9.092E-02	6.309E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	-5.666E-02	4.196E-01	7.160E-01	0.000E+00	NOT IDENT.
NA-22	-3.308E-02	6.250E-02	1.011E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	3.698E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-9.299E-03	3.991E-02	6.456E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.374E-02	6.082E-02	0.000E+00	FAIL ABUN
SC-46	-3.170E-02	5.765E-02	9.335E-02	0.000E+00	FAIL ABUN
V-48	-5.315E-02	1.094E-01	1.759E-01	0.000E+00	NOT IDENT.
CR-51	9.304E-02	4.522E-01	7.726E-01	0.000E+00	NOT IDENT.
MN-52	1.478E-01	3.630E-01	6.359E-01	0.000E+00	NOT IDENT.
MN-54	2.476E-03	5.468E-02	9.344E-02	0.000E+00	NOT IDENT.
CO-56	6.364E-03	5.778E-02	9.909E-02	0.000E+00	NOT IDENT.
CO-57	1.347E-02	2.758E-02	4.782E-02	0.000E+00	NOT IDENT.
CO-58	-5.209E-03	5.108E-02	8.657E-02	0.000E+00	NOT IDENT.
FE-59	6.085E-02	1.374E-01	2.354E-01	0.000E+00	NOT IDENT.
CO-60	-5.481E-02	5.725E-02	8.285E-02	0.000E+00	NOT IDENT.
ZN-65	6.587E-02	1.512E-01	2.243E-01	0.000E+00	NOT IDENT.
GE-68	2.283E-01	1.763E+00	2.958E+00	0.000E+00	NOT IDENT.
AS-73	2.106E-01	2.574E-01	4.512E-01	0.000E+00	NOT IDENT.
AS-74	-5.301E-02	1.327E-01	2.174E-01	0.000E+00	NOT IDENT.
SE-75	2.630E-02	5.718E-02	8.900E-02	0.000E+00	NOT IDENT.
BR-77	7.077E+00	1.886E+01	3.295E+01	0.000E+00	FAIL ABUN
SR-82	-3.056E-01	5.433E-01	8.944E-01	0.000E+00	NOT IDENT.
RB-83	2.990E-02	9.097E-02	1.585E-01	0.000E+00	NOT IDENT.
RB-84	-1.782E-02	1.030E-01	1.721E-01	0.000E+00	NOT IDENT.
KR-85	1.218E+01	1.063E+01	1.719E+01	0.000E+00	NOT IDENT.
SR-85	6.318E-02	5.512E-02	8.914E-02	0.000E+00	NOT IDENT.
RB-86	6.570E-01	1.141E+00	1.986E+00	0.000E+00	NOT IDENT.
Y-88	9.844E-03	3.885E-02	6.851E-02	0.000E+00	NOT IDENT.
ZR-88	3.593E-02	3.815E-02	6.689E-02	0.000E+00	NOT IDENT.
Y-91	2.042E+01	2.763E+01	4.939E+01	0.000E+00	NOT IDENT.
NB-94	2.378E-02	4.963E-02	8.483E-02	0.000E+00	NOT IDENT.
NB-95	1.487E-02	6.065E-02	1.058E-01	0.000E+00	NOT IDENT.
NB-95M	2.724E-02	1.649E-01	2.527E-01	0.000E+00	NOT IDENT.
ZR-95	1.026E-01	1.122E-01	1.957E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.895E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	7.951E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-1.289E+01	2.417E+01	3.817E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	8.876E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.397E-03	3.660E-02	6.193E-02	0.000E+00	NOT IDENT.
RH-102	-7.986E-03	3.986E-02	6.569E-02	0.000E+00	NOT IDENT.
RU-103	3.888E-03	5.076E-02	8.745E-02	0.000E+00	NOT IDENT.
RH-106	-1.418E-01	4.248E-01	6.942E-01	0.000E+00	FAIL ABUN
RU-106	-1.418E-01	4.245E-01	6.942E-01	0.000E+00	FAIL ABUN
AG-108M	1.707E-03	4.209E-02	7.322E-02	0.000E+00	NOT IDENT.
AG-110M	1.960E-02	4.734E-02	8.130E-02	0.000E+00	NOT IDENT.
IN-111	-7.486E-01	1.737E+00	2.566E+00	0.000E+00	NOT IDENT.
IN-113M	-4.518E-02	5.586E-02	8.756E-02	0.000E+00	NOT IDENT.
SN-113	-4.518E-02	5.586E-02	8.756E-02	0.000E+00	NOT IDENT.
IN-114M	2.585E-01	2.258E-01	3.529E-01	0.000E+00	NOT IDENT.
CD-115	6.676E-01	1.923E+01	3.286E+01	0.000E+00	NOT IDENT.
SN-117M	6.255E-02	6.295E-02	1.095E-01	0.000E+00	NOT IDENT.
SB-122	2.323E+00	3.811E+00	6.691E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.460E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	2.488E-02	3.095E-02	5.343E-02	0.000E+00	NOT IDENT.
I-124	-3.093E-01	1.233E+00	1.751E+00	0.000E+00	NOT IDENT.
SB-124	8.535E-02	1.036E-01	1.920E-01	0.000E+00	FAIL ABUN
SB-125	-5.393E-02	1.144E-01	1.935E-01	0.000E+00	FAIL ABUN
TE-125M	2.948E-01	9.463E+00	1.627E+01	0.000E+00	NOT IDENT.
I-126	-5.802E-02	2.701E-01	4.429E-01	0.000E+00	NOT IDENT.
SB-126	2.252E-02	2.629E-01	3.776E-01	0.000E+00	FAIL ABUN
SB-127	-2.148E+00	2.284E+00	3.489E+00	0.000E+00	NOT IDENT.
XE-127	3.757E-03	5.070E-02	8.931E-02	0.000E+00	NOT IDENT.
I-131	-1.599E-01	1.646E-01	2.580E-01	0.000E+00	NOT IDENT.
TE-132	6.861E-01	9.819E-01	1.749E+00	0.000E+00	NOT IDENT.
BA-133	-2.744E-02	6.618E-02	9.422E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.843E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	4.735E-02	6.794E-02	1.213E-01	0.000E+00	NOT IDENT.
CS-135	0.000E+00	2.066E-01	3.412E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.204E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	9.998E-02	1.630E-01	2.847E-01	0.000E+00	FAIL ABUN
BA-137M	-3.458E-02	4.938E-02	7.792E-02	0.000E+00	NOT IDENT.
CS-137	-3.655E-02	5.220E-02	8.237E-02	0.000E+00	NOT IDENT.
CE-139	-3.085E-02	3.452E-02	5.481E-02	0.000E+00	NOT IDENT.
BA-140	-7.215E-02	3.599E-01	6.030E-01	0.000E+00	NOT IDENT.
LA-140	5.116E-02	1.303E-01	2.258E-01	0.000E+00	FAIL ABUN
CE-141	1.719E-02	7.194E-02	1.220E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.032E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	-5.303E-02	2.288E-01	3.828E-01	0.000E+00	NOT IDENT.
PM-144	-4.726E-02	5.131E-02	7.926E-02	0.000E+00	NOT IDENT.
PR-144	-3.204E+00	3.479E+00	5.374E+00	0.000E+00	NOT IDENT.
PM-146	1.905E-02	5.411E-02	9.543E-02	0.000E+00	NOT IDENT.
ND-147	-2.475E-01	7.691E-01	1.280E+00	0.000E+00	FAIL ABUN
PM-149	4.095E+01	1.540E+02	2.661E+02	0.000E+00	NOT IDENT.
EU-152	-2.601E-02	1.356E-01	1.959E-01	0.000E+00	FAIL ABUN
GD-153	-4.299E-02	8.416E-02	1.241E-01	0.000E+00	FAIL ABUN
EU-154	-8.672E-02	1.751E-01	2.839E-01	0.000E+00	NOT IDENT.
EU-155	4.609E-02	1.141E-01	1.948E-01	0.000E+00	FAIL ABUN
TB-160	-1.160E-01	2.037E-01	3.297E-01	0.000E+00	FAIL ABUN
HO-166M	-8.463E-02	8.888E-02	1.360E-01	0.000E+00	FAIL ABUN
TM-171	6.557E+00	1.712E+01	2.776E+01	0.000E+00	NOT IDENT.
LU-176	-8.341E-03	3.115E-02	5.025E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.553E+00	2.471E+00	0.000E+00	FAIL ABUN
LU-177M	-6.387E-02	2.298E-01	3.720E-01	0.000E+00	FAIL ABUN
HF-181	-1.261E-02	5.493E-02	9.308E-02	0.000E+00	NOT IDENT.
W-181	-3.227E-02	2.129E-01	3.383E-01	0.000E+00	NOT IDENT.
TA-182	-2.937E-02	2.763E-01	4.665E-01	0.000E+00	FAIL ABUN
RE-183	-1.935E-02	1.334E-01	2.123E-01	0.000E+00	FAIL ABUN
RE-184	-6.319E-02	2.742E-01	4.678E-01	0.000E+00	NOT IDENT.
OS-185	2.897E-02	5.787E-02	1.002E-01	0.000E+00	NOT IDENT.
RE-188	-3.725E-02	1.926E-01	3.188E-01	0.000E+00	NOT IDENT.
W-188	4.188E+00	9.626E+00	1.484E+01	0.000E+00	FAIL ABUN
IR-192	-3.743E-02	4.041E-02	6.446E-02	0.000E+00	FAIL ABUN
AU-195	1.914E-01	2.224E-01	3.840E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.138E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	5.287E+00	1.011E+01	1.718E+01	0.000E+00	NOT IDENT.
TL-202	-6.399E-03	9.961E-02	1.721E-01	0.000E+00	NOT IDENT.
HG-203	2.336E-02	4.962E-02	8.667E-02	0.000E+00	FAIL ABUN
BI-207	8.930E-02	8.159E-02	1.464E-01	0.000E+00	FAIL ABUN
TL-207	-3.914E-01	9.291E-01	1.325E+00	0.000E+00	FAIL ABUN
PO-209	3.101E-01	1.058E+01	1.793E+01	0.000E+00	NOT IDENT.
PB-211	4.950E-01	1.339E+00	2.202E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	8.439E-01	9.128E-01	0.000E+00	FAIL ABUN
PO-215	-3.914E-01	9.291E-01	1.325E+00	0.000E+00	FAIL ABUN
RN-219	-6.131E-01	5.718E-01	8.443E-01	0.000E+00	FAIL ABUN
RN-220	-1.729E+01	3.256E+01	5.312E+01	0.000E+00	NOT IDENT.
RA-223	-3.914E-01	9.291E-01	1.325E+00	0.000E+00	FAIL ABUN
AC-227	-7.242E-02	4.386E-01	7.494E-01	0.000E+00	FAIL ABUN
TH-227	-7.242E-02	4.386E-01	7.494E-01	0.000E+00	FAIL ABUN
TH-229	-8.290E-03	5.252E-01	9.251E-01	0.000E+00	FAIL ABUN
PA-231	1.198E+00	1.812E+00	3.182E+00	0.000E+00	FAIL ABUN
TH-231	-3.914E-01	9.291E-01	1.325E+00	0.000E+00	FAIL ABUN
U-231	-7.974E-01	1.269E+00	1.902E+00	0.000E+00	FAIL ABUN
PA-233	1.177E-02	7.325E-02	1.252E-01	0.000E+00	FAIL ABUN
PA-234	-2.393E-01	4.529E-01	7.271E-01	0.000E+00	FAIL ABUN
PA-234M	-7.418E-01	7.534E+00	1.195E+01	0.000E+00	NOT IDENT.
U-235	4.828E-02	2.534E-01	4.192E-01	0.000E+00	FAIL ABUN
NP-236	-5.704E-02	9.199E-02	1.487E-01	0.000E+00	NOT IDENT.
NP-239	-1.320E-01	1.938E-01	3.201E-01	0.000E+00	FAIL ABUN
AM-241	4.675E-02	6.899E-02	1.141E-01	0.000E+00	NOT IDENT.
CM-243	1.093E-02	9.789E-02	1.694E-01	0.000E+00	FAIL ABUN
AM-246	-1.930E-02	1.956E-01	3.216E-01	0.000E+00	NOT IDENT.
CM-247	1.698E-02	4.810E-02	8.123E-02	0.000E+00	NOT IDENT.
CF-249	3.208E-02	4.986E-02	8.597E-02	0.000E+00	NOT IDENT.
CF-251	7.627E-02	1.435E-01	2.430E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229013.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:50:05
Sample ID          : G244229013      Sample quantity   : 1.17310E+02 GRAM
Detector name      : GAM13            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.55  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 941239            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	999	10.67*	1.041E+00	2.878E+01	2.878E+01	9.66
CD-109	88.03	334	3.72*	7.249E+00	3.966E+00	4.063E+00	28.21
SN-126	64.28	96	9.60	7.391E+00	4.330E-01	4.330E-01	110.19
	86.94	334	8.90	7.249E+00	1.658E+00	1.658E+00	49.32
	87.57	334	37.00*	7.249E+00	3.987E-01	3.987E-01	28.21
TL-208	277.35	-----	6.80	4.225E+00	-----	Line Not Found	-----
	510.84	147	21.60	2.538E+00	8.596E-01	8.596E-01	50.66
	583.14	316	84.20*	2.257E+00	5.317E-01	5.317E-01	21.45
	860.37	-----	12.46	1.606E+00	-----	Line Not Found	-----
BI-210	46.50	108	4.05*	7.298E+00	1.173E+00	1.175E+00	78.58
PB-210	46.50	108	4.05*	7.298E+00	1.173E+00	1.175E+00	78.58
PO-210	46.50	108	4.05*	7.298E+00	1.173E+00	1.175E+00	78.48
BI-211	72.87	-----	1.27	7.369E+00	-----	Line Not Found	-----
	351.07	427	12.94*	3.499E+00	3.017E+00	3.017E+00	17.95
PB-212	74.81	532	10.70	7.359E+00	2.163E+00	2.163E+00	21.57
	77.11	809	18.00	7.344E+00	1.958E+00	1.958E+00	15.18
	87.30	334	8.00	7.249E+00	1.844E+00	1.844E+00	29.93
	238.63	972	44.60*	4.716E+00	1.480E+00	1.480E+00	12.47
	300.09	80	3.41	3.977E+00	1.889E+00	1.889E+00	61.95
PO-212	74.81	532	10.70	7.359E+00	2.163E+00	2.163E+00	21.57
	77.11	809	18.00	7.344E+00	1.958E+00	1.958E+00	15.18
	87.30	334	8.00	7.249E+00	1.844E+00	1.844E+00	29.93
	115.19	-----	0.60	6.822E+00	-----	Line Not Found	-----
	238.63	972	44.60*	4.716E+00	1.480E+00	1.480E+00	12.47
	300.09	80	3.41	3.977E+00	1.889E+00	1.889E+00	61.95
BI-214	609.31	349	46.30*	2.172E+00	1.110E+00	1.110E+00	23.81
	1120.29	45	15.10	1.287E+00	7.346E-01	7.346E-01	96.88
	1764.49	57	15.80	8.990E-01	1.276E+00	1.276E+00	46.18
PB-214	74.81	532	6.21	7.359E+00	3.727E+00	3.727E+00	20.81
	77.11	809	10.50	7.344E+00	3.357E+00	3.357E+00	16.98
	87.30	334	4.67	7.249E+00	3.159E+00	3.159E+00	29.25
	241.98	228	7.49	4.675E+00	2.088E+00	2.088E+00	41.56

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	239	19.20	4.029E+00	9.879E-01	9.879E-01	34.03
	351.92	427	37.20*	3.499E+00	1.049E+00	1.050E+00	18.70
	74.81	532	6.21	7.359E+00	3.727E+00	3.727E+00	20.81
	77.11	809	10.50	7.344E+00	3.357E+00	3.357E+00	16.98
	87.30	334	4.67	7.249E+00	3.159E+00	3.159E+00	29.25
PO-216	241.98	228	7.49	4.675E+00	2.088E+00	2.088E+00	41.56
	295.21	239	19.20	4.029E+00	9.879E-01	9.879E-01	34.03
	351.92	427	37.20*	3.499E+00	1.049E+00	1.050E+00	18.70
	74.81	532	10.70	7.359E+00	2.163E+00	2.163E+00	21.57
	77.11	809	18.00	7.344E+00	1.958E+00	1.958E+00	15.18
PO-218	87.30	334	8.00	7.249E+00	1.844E+00	1.844E+00	29.93
	238.63	972	44.60*	4.716E+00	1.480E+00	1.480E+00	12.47
	300.09	80	3.41	3.977E+00	1.889E+00	1.889E+00	61.95
	74.81	532	6.21	7.359E+00	3.727E+00	3.727E+00	20.81
	77.11	809	10.50	7.344E+00	3.357E+00	3.357E+00	16.98
RA-224	87.30	334	4.67	7.249E+00	3.159E+00	3.159E+00	29.25
	241.98	228	7.49	4.675E+00	2.088E+00	2.088E+00	41.56
	295.21	239	19.20	4.029E+00	9.879E-01	9.879E-01	34.03
	351.92	427	37.20*	3.499E+00	1.049E+00	1.050E+00	18.70
	240.98	228	3.95*	4.675E+00	3.958E+00	3.958E+00	41.18
RA-226	609.31	349	46.30*	2.172E+00	1.110E+00	1.110E+00	23.81
	1120.29	45	15.10	1.287E+00	7.346E-01	7.346E-01	96.88
	1764.49	57	15.80	8.990E-01	1.276E+00	1.276E+00	46.18
	338.32	197	11.40	3.612E+00	1.532E+00	1.532E+00	53.37
	911.07	158	27.70*	1.529E+00	1.197E+00	1.197E+00	38.91
AC-228	969.11	121	16.60	1.452E+00	1.610E+00	1.610E+00	40.08
	338.32	197	11.40	3.612E+00	1.532E+00	1.532E+00	53.37
	911.07	158	27.70*	1.529E+00	1.197E+00	1.197E+00	38.91
	969.11	121	16.60	1.452E+00	1.610E+00	1.610E+00	40.08
	74.81	532	10.70	7.359E+00	2.163E+00	2.198E+00	19.48
TH-228	77.11	809	18.00	7.344E+00	1.958E+00	1.990E+00	15.18
	87.30	334	8.00	7.249E+00	1.844E+00	1.874E+00	28.21
	238.63	972	44.60*	4.716E+00	1.480E+00	1.504E+00	12.48
	300.09	80	3.41	3.977E+00	1.889E+00	1.920E+00	85.10
	609.31	349	46.30*	2.172E+00	1.110E+00	1.110E+00	23.81
TH-230	1120.29	45	15.10	1.287E+00	7.346E-01	7.346E-01	96.88
	1764.49	57	15.80	8.990E-01	1.276E+00	1.276E+00	46.18
	338.32	197	11.40	3.612E+00	1.532E+00	1.532E+00	34.93
	911.07	158	27.70*	1.529E+00	1.197E+00	1.197E+00	38.91
	969.11	121	16.60	1.452E+00	1.610E+00	1.610E+00	40.08
TH-232	63.29	96	3.80*	7.391E+00	1.094E+00	1.094E+00	110.61
	92.38	227	5.41	7.181E+00	1.870E+00	1.870E+00	45.87
	609.31	349	46.30*	2.172E+00	1.110E+00	1.110E+00	23.81
	1120.29	45	15.10	1.287E+00	7.346E-01	7.346E-01	96.88
	1764.49	57	15.80	8.990E-01	1.276E+00	1.276E+00	46.18
NP-237	86.50	334	12.60*	7.249E+00	1.171E+00	1.171E+00	34.95
	95.87	-----	2.60	7.135E+00	-----	Line Not Found	-----
	63.29	96	3.80*	7.391E+00	1.094E+00	1.094E+00	110.61
	92.38	227	5.41	7.181E+00	1.870E+00	1.870E+00	43.03

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	532	66.00*	7.359E+00	3.507E-01	3.507E-01	19.44
	86.72	334	0.34	7.249E+00	4.391E+01	4.391E+01	28.21
	117.66	-----	0.55	6.778E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.323E+00	-----	Line Not Found	-----
ANH-511	511.00	147	100.00*	2.538E+00	1.857E-01	1.857E-01	49.97

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 29 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.878E+01	2.878E+01	0.278E+01	9.66	
CD-109	464.00D	1.02	3.966E+00	4.063E+00	1.146E+00	28.21	
SN-126	1.00E+05Y	1.00	3.987E-01	3.987E-01	1.125E-01	28.21	
TL-208	1.41E+10Y	1.00	5.317E-01	5.317E-01	1.140E-01	21.45	
BI-210	22.26Y	1.00	1.173E+00	1.175E+00	0.923E+00	78.58	
PB-210	22.26Y	1.00	1.173E+00	1.175E+00	0.923E+00	78.58	
PO-210	22.26Y	1.00	1.173E+00	1.175E+00	0.922E+00	78.48	
BI-211	7.04E+08Y	1.00	3.017E+00	3.017E+00	0.542E+00	17.95	
PB-212	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.185E+00	12.47	
PO-212	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.185E+00	12.47	
BI-214	1600.00Y	1.00	1.110E+00	1.110E+00	0.264E+00	23.81	
PB-214	1600.00Y	1.00	1.049E+00	1.050E+00	0.196E+00	18.70	
PO-214	1600.00Y	1.00	1.049E+00	1.050E+00	0.196E+00	18.70	
PO-216	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.185E+00	12.47	
PO-218	1600.00Y	1.00	1.049E+00	1.050E+00	0.196E+00	18.70	
RA-224	1.41E+10Y	1.00	3.958E+00	3.958E+00	1.630E+00	41.18	
RA-226	1600.00Y	1.00	1.110E+00	1.110E+00	0.264E+00	23.81	
AC-228	1.41E+10Y	1.00	1.197E+00	1.197E+00	0.466E+00	38.91	
RA-228	1.41E+10Y	1.00	1.197E+00	1.197E+00	0.466E+00	38.91	
TH-228	1.91Y	1.02	1.480E+00	1.504E+00	0.188E+00	12.48	
TH-230	4.47E+09Y	1.00	1.110E+00	1.110E+00	0.264E+00	23.81	
TH-232	1.41E+10Y	1.00	1.197E+00	1.197E+00	0.466E+00	38.91	
TH-234	4.47E+09Y	1.00	1.094E+00	1.094E+00	1.210E+00	110.61	
U-234	4.47E+09Y	1.00	1.110E+00	1.110E+00	0.264E+00	23.81	
NP-237	2.14E+06Y	1.00	1.171E+00	1.171E+00	0.409E+00	34.95	
U-238	4.47E+09Y	1.00	1.094E+00	1.094E+00	1.210E+00	110.61	
AM-243	7380.00Y	1.00	3.507E-01	3.507E-01	0.682E-01	19.44	
ANH-511	1.00E+09Y	1.00	1.857E-01	1.857E-01	0.928E-01	49.97	
Total Activity :			6.517E+01	6.529E+01			

Grand Total Activity : 6.517E+01 6.529E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229013

Page : 5  
Acquisition date : 22-JAN-2010 16:50:05

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	83.71	104	427	1.45	167.19	164	27	1.44E-02	75.4	7.28E+00	T
5	89.92	185	460	1.27	179.62	164	27	2.57E-02	44.1	7.21E+00	T
0	185.74	132	397	1.23	371.31	366	11	1.83E-02	67.5	5.53E+00	T
0	208.87	83	219	1.39	417.57	415	7	1.15E-02	63.0	5.15E+00	T
0	270.23	154	242	1.46	540.33	534	13	2.13E-02	45.1	4.31E+00	T
0	328.09	76	157	1.29	656.08	651	9	1.05E-02	64.4	3.70E+00	T
0	463.10	80	143	1.31	926.18	921	12	1.11E-02	64.5	2.77E+00	T
0	726.52	75	151	1.22	1453.19	1447	17	1.04E-02	78.5	1.86E+00	T
2	964.02	57	66	2.42	1928.37	1921	23	7.88E-03	69.6	1.46E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229013.CNF;1
* Acquisition date   : 22-JAN-2010 16:50:05   Detector SN#      :
* Detector ID        : GAM13                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.55          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229013             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity : 1.17310E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22.03MS Isotope      :
* MSD ID              :                      MSD Isotope      :
* LCS ID              : 1032-A                LCS Isotope     :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.878E+01	2.779E+00	8.070E-01	4.934E-02	35.666
CD-109	4.063E+00	1.146E+00	1.064E+00	8.396E-02	3.818
SN-126	3.987E-01	1.125E-01	1.043E-01	8.249E-03	3.824
TL-208	5.317E-01	1.140E-01	7.992E-02	6.616E-03	6.652
BI-210	1.175E+00	9.233E-01	8.425E-01	6.868E-02	1.395
PB-210	1.175E+00	9.233E-01	8.425E-01	6.868E-02	1.395
PO-210	1.175E+00	9.222E-01	8.425E-01	6.007E-02	1.395
BI-211	3.017E+00	5.417E-01	4.496E-01	3.278E-02	6.710
PB-212	1.480E+00	1.846E-01	1.045E-01	9.489E-03	14.164
PO-212	1.480E+00	1.846E-01	1.045E-01	9.489E-03	14.164
BI-214	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
PB-214	1.050E+00	1.962E-01	1.568E-01	1.404E-02	6.694
PO-214	1.050E+00	1.962E-01	1.568E-01	1.404E-02	6.694
PO-216	1.480E+00	1.846E-01	1.045E-01	9.489E-03	14.164
PO-218	1.050E+00	1.962E-01	1.568E-01	1.404E-02	6.694
RA-224	3.958E+00	1.630E+00	1.189E+00	9.388E-02	3.328
RA-226	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
AC-228	1.197E+00	4.656E-01	3.053E-01	3.170E-02	3.920



---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.197E+00	4.656E-01	3.053E-01	3.170E-02	3.920
TH-228	1.504E+00	1.876E-01	1.062E-01	9.644E-03	14.164
TH-230	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
TH-232	1.197E+00	4.656E-01	3.053E-01	3.170E-02	3.920
TH-234	1.094E+00	1.210E+00	1.086E+00	1.993E-01	1.007
U-234	1.110E+00	2.644E-01	1.377E-01	1.287E-02	8.064
NP-237	1.171E+00	4.092E-01	3.052E-01	6.752E-02	3.836
U-238	1.094E+00	1.210E+00	1.086E+00	1.993E-01	1.007
AM-243	3.507E-01	6.819E-02	6.510E-02	5.623E-03	5.387
ANH-511	1.857E-01	9.278E-02	6.259E-02	4.368E-03	2.967

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-5.666E-02		4.281E-01	7.098E-01	5.337E-02	-0.080
NA-22	-3.308E-02		6.378E-02	1.013E-01	5.717E-03	-0.327
NA-24	8.874E-01		1.887E+00	Half-Life	too short	
AL-26	-9.299E-03		4.073E-02	6.492E-02	3.663E-03	-0.143
TI-44	3.613E-01	+	5.484E-02	5.918E-02	4.984E-03	6.106
SC-46	-3.170E-02		5.883E-02	9.316E-02	7.054E-03	-0.340
V-48	-5.315E-02		1.116E-01	1.757E-01	1.243E-02	-0.302
CR-51	9.304E-02		4.614E-01	7.627E-01	5.936E-02	0.122
MN-52	1.478E-01		3.705E-01	6.379E-01	3.666E-02	0.232
MN-54	2.476E-03		5.579E-02	9.319E-02	7.313E-03	0.027
CO-56	6.364E-03		5.896E-02	9.883E-02	7.703E-03	0.064
CO-57	1.347E-02		2.814E-02	4.673E-02	5.911E-03	0.288
CO-58	-5.209E-03		5.212E-02	8.631E-02	6.874E-03	-0.060
FE-59	6.085E-02		1.402E-01	2.355E-01	1.682E-02	0.258
CO-60	-5.481E-02		5.842E-02	8.304E-02	4.723E-03	-0.660
ZN-65	6.587E-02		1.543E-01	2.244E-01	1.362E-02	0.294
GE-68	2.283E-01		1.799E+00	2.958E+00	1.890E-01	0.077
AS-73	2.106E-01		2.626E-01	4.373E-01	3.694E-02	0.482
AS-74	-5.301E-02		1.354E-01	2.160E-01	1.659E-02	-0.245
SE-75	2.630E-02		5.835E-02	8.769E-02	6.869E-03	0.300
BR-77	7.077E+00		1.925E+01	3.269E+01	2.309E+00	0.216
SR-82	-3.056E-01		5.544E-01	8.912E-01	7.173E-02	-0.343
RB-83	2.990E-02		9.282E-02	1.573E-01	1.110E-02	0.190
RB-84	-1.782E-02		1.051E-01	1.718E-01	1.308E-02	-0.104
KR-85	1.218E+01		1.085E+01	1.705E+01	1.195E+00	0.714
SR-85	6.318E-02		5.624E-02	8.843E-02	6.195E-03	0.714
RB-86	6.570E-01		1.164E+00	1.986E+00	1.271E-01	0.331
Y-88	9.844E-03		3.964E-02	6.891E-02	3.881E-03	0.143
ZR-88	3.593E-02		3.893E-02	6.618E-02	3.876E-03	0.543
Y-91	2.042E+01		2.820E+01	4.945E+01	2.741E+00	0.413
NB-94	2.378E-02		5.064E-02	8.445E-02	6.893E-03	0.282
NB-95	1.487E-02		6.188E-02	1.054E-01	8.512E-03	0.141
NB-95M	2.724E-02		1.683E-01	2.487E-01	2.301E-02	0.110

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	1.026E-01		1.145E-01	1.950E-01	1.759E-02	0.526
NB-97	1.584E-02		1.987E-01	Half-Life too short		
ZR-97	1.452E+01		4.056E+00	Half-Life too short		
MO-99	-1.289E+01		2.467E+01	3.801E+01	5.668E+00	-0.339
TC-99M	-5.951E+11		4.529E+11	Half-Life too short		
RH-101	-3.397E-03		3.735E-02	6.084E-02	4.817E-03	-0.056
RH-102	-7.986E-03		4.067E-02	6.511E-02	4.333E-03	-0.123
RU-103	3.888E-03		5.179E-02	8.673E-02	1.142E-02	0.045
RH-106	-1.418E-01		4.334E-01	6.902E-01	8.896E-02	-0.205
RU-106	-1.418E-01		4.332E-01	6.902E-01	5.435E-02	-0.205
AG-108M	1.707E-03		4.294E-02	7.251E-02	4.878E-03	0.024
AG-110M	1.960E-02		4.831E-02	8.087E-02	6.794E-03	0.242
IN-111	-7.486E-01		1.773E+00	2.527E+00	1.991E-01	-0.296
IN-113M	-4.518E-02		5.700E-02	8.663E-02	5.397E-03	-0.522
SN-113	-4.518E-02		5.700E-02	8.663E-02	5.397E-03	-0.522
IN-114M	2.585E-01		2.304E-01	3.465E-01	2.739E-02	0.746
CD-115	6.676E-01		1.963E+01	3.261E+01	2.324E+00	0.020
SN-117M	6.255E-02		6.424E-02	1.073E-01	9.368E-03	0.583
SB-122	2.323E+00		3.888E+00	6.645E+00	4.935E-01	0.350
I-123	1.978E+01		1.255E+01	Half-Life too short		
TE-123M	2.488E-02		3.158E-02	5.236E-02	4.572E-03	0.475
I-124	-3.093E-01		1.258E+00	1.741E+00	1.346E-01	-0.178
SB-124	8.535E-02		1.057E-01	1.929E-01	1.202E-02	0.442
SB-125	-5.393E-02		1.168E-01	1.916E-01	1.233E-02	-0.282
TE-125M	2.948E-01		9.656E+00	1.588E+01	1.929E+00	0.019
I-126	-5.802E-02		2.756E-01	4.407E-01	3.595E-02	-0.132
SB-126	2.252E-02		2.682E-01	3.760E-01	3.064E-02	0.060
SB-127	-2.148E+00		2.330E+00	3.472E+00	3.949E-01	-0.619
XE-127	3.757E-03		5.174E-02	8.774E-02	6.954E-03	0.043
I-131	-1.599E-01		1.680E-01	2.550E-01	1.809E-02	-0.627
TE-132	6.861E-01		1.002E+00	1.720E+00	2.676E-01	0.399
BA-133	-2.744E-02		6.753E-02	9.312E-02	1.118E-02	-0.295
I-133	-1.387E-03		9.403E-03	Half-Life too short		
CS-134	4.735E-02		6.933E-02	1.209E-01	9.744E-03	0.392
CS-135	3.458E-01		2.108E-01	3.363E-01	3.106E-02	1.028
I-135	-4.864E+10		6.144E+10	Half-Life too short		
CS-136	9.998E-02		1.663E-01	2.846E-01	2.020E-02	0.351
BA-137M	-3.458E-02		5.039E-02	7.752E-02	6.322E-03	-0.446
CS-137	-3.655E-02		5.326E-02	8.194E-02	6.697E-03	-0.446
CE-139	-3.085E-02		3.523E-02	5.374E-02	4.213E-03	-0.574
BA-140	-7.215E-02		3.673E-01	5.986E-01	1.963E-01	-0.121
LA-140	5.116E-02		1.329E-01	2.267E-01	1.307E-02	0.226
CE-141	1.719E-02		7.340E-02	1.195E-01	1.239E-02	0.144
CE-143	9.954E-04		2.057E-04	Half-Life too short		
CE-144	-5.303E-02		2.335E-01	3.744E-01	6.490E-02	-0.142
PM-144	-4.726E-02		5.236E-02	7.889E-02	6.444E-03	-0.599
PR-144	-3.204E+00		3.550E+00	5.349E+00	4.368E-01	-0.599
PM-146	1.905E-02		5.521E-02	9.456E-02	8.582E-03	0.202

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-2.475E-01		7.848E-01	1.271E+00	1.799E-01	-0.195
PM-149	4.095E+01		1.571E+02	2.623E+02	3.941E+01	0.156
EU-152	-2.601E-02		1.384E-01	1.935E-01	1.451E-02	-0.134
GD-153	-4.299E-02		8.588E-02	1.210E-01	1.101E-02	-0.355
EU-154	-8.672E-02		1.786E-01	2.844E-01	2.627E-02	-0.305
EU-155	4.609E-02		1.164E-01	1.901E-01	1.951E-02	0.242
TB-160	-1.160E-01		2.079E-01	3.290E-01	2.509E-02	-0.353
HO-166M	-8.463E-02		9.069E-02	1.354E-01	1.105E-02	-0.625
TM-171	6.557E+00		1.747E+01	2.696E+01	2.460E+00	0.243
LU-176	-8.341E-03		3.179E-02	4.958E-02	3.676E-03	-0.168
LU-177	2.495E+00	+	1.584E+00	2.428E+00	1.926E-01	1.028
LU-177M	-6.387E-02		2.345E-01	3.682E-01	2.233E-02	-0.173
HF-181	-1.261E-02		5.605E-02	9.228E-02	6.200E-03	-0.137
W-181	-3.227E-02		2.172E-01	3.285E-01	3.030E-02	-0.098
TA-182	-2.937E-02		2.819E-01	4.671E-01	2.599E-02	-0.063
RE-183	-1.935E-02		1.361E-01	2.081E-01	1.723E-02	-0.093
RE-184	-6.319E-02		2.798E-01	4.606E-01	3.616E-02	-0.137
OS-185	2.897E-02		5.905E-02	9.966E-02	8.021E-03	0.291
RE-188	-3.725E-02		1.965E-01	3.124E-01	2.858E-02	-0.119
W-188	4.188E+00		9.822E+00	1.463E+01	1.110E+00	0.286
IR-192	-3.743E-02		4.123E-02	6.362E-02	4.654E-03	-0.588
AU-195	1.914E-01		2.270E-01	3.745E-01	3.481E-02	0.511
TL-200	-1.008E-04		5.805E-04	Half-Life too short		
TL-201	5.287E+00		1.031E+01	1.684E+01	1.320E+00	0.314
TL-202	-6.399E-03		1.016E-01	1.705E-01	1.077E-02	-0.038
HG-203	2.336E-02		5.063E-02	8.544E-02	6.803E-03	0.273
BI-207	8.930E-02		8.325E-02	1.463E-01	9.517E-03	0.610
TL-207	-3.914E-01		9.481E-01	1.309E+00	2.232E-01	-0.299
PO-209	3.101E-01		1.079E+01	1.790E+01	1.348E+00	0.017
PB-211	4.950E-01		1.366E+00	2.179E+00	1.359E+00	0.227
BI-212	1.090E+00	+	8.611E-01	9.089E-01	8.725E-02	1.199
PO-215	-3.914E-01		9.481E-01	1.309E+00	2.232E-01	-0.299
RN-219	-6.131E-01		5.835E-01	8.355E-01	1.142E-01	-0.734
RN-220	-1.729E+01		3.323E+01	5.274E+01	3.856E+00	-0.328
RA-223	-3.914E-01		9.481E-01	1.309E+00	2.232E-01	-0.299
AC-227	-7.242E-02		4.475E-01	7.381E-01	1.101E-01	-0.098
TH-227	-7.242E-02		4.476E-01	7.381E-01	1.306E-01	-0.098
TH-229	-8.290E-03		5.360E-01	9.085E-01	7.187E-02	-0.009
PA-231	1.198E+00		1.849E+00	3.138E+00	4.598E-01	0.382
TH-231	-3.914E-01		9.481E-01	1.309E+00	2.232E-01	-0.299
U-231	-7.974E-01		1.295E+00	1.854E+00	1.649E-01	-0.430
PA-233	1.177E-02		7.475E-02	1.235E-01	9.434E-03	0.095
PA-234	-2.393E-01		4.621E-01	7.261E-01	1.321E-01	-0.330
PA-234M	-7.418E-01		7.688E+00	1.194E+01	1.024E+00	-0.062
U-235	4.828E-02		2.585E-01	4.104E-01	7.578E-02	0.118
NP-236	-5.704E-02		9.386E-02	1.457E-01	1.242E-02	-0.391
NP-239	-1.320E-01		1.977E-01	3.127E-01	3.711E-02	-0.422
AM-241	4.675E-02		7.040E-02	1.107E-01	1.126E-02	0.422

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.093E-02		9.989E-02	1.653E-01	1.646E-02	0.066
AM-246	-1.930E-02		1.996E-01	3.216E-01	2.052E-02	-0.060
CM-247	1.698E-02		4.908E-02	8.038E-02	4.786E-03	0.211
CF-249	3.208E-02		5.088E-02	8.504E-02	5.050E-03	0.377
CF-251	7.627E-02		1.464E-01	2.384E-01	1.876E-02	0.320

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229013          *
* Acquisition date   : 22-JAN-2010 16:50:05 Detector SN# :                 *
* Detector ID        : GAM13                                           Sensitivity : 5.000          *
* Geometry           : CAN                                           Energy tolerance: 1.500       *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.55                               Half life ratio : 8.000       *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID           *
* Sample ID         : G244229013 Analyst initials: MXR1                 *
* Batch Number      : 941239 Sample Quantity : 1.1731E+02 GRAM          *
* Recovery          : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 2-FEB-2009 10:41:22 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
*****

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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.878E+01	2.724E+00	4.024E-01	1.390E+00
CD-109	4.063E+00	1.123E+00	5.465E-01	5.731E-01
SN-126	3.987E-01	1.102E-01	5.356E-02	5.624E-02
TL-208	5.317E-01	1.118E-01	4.025E-02	5.702E-02
BI-210	1.175E+00	9.049E-01	4.355E-01	4.617E-01
PB-210	1.175E+00	9.049E-01	4.355E-01	4.617E-01
PO-210	1.175E+00	9.037E-01	4.355E-01	4.611E-01
BI-211	3.017E+00	5.308E-01	2.277E-01	2.708E-01
PB-212	1.480E+00	1.809E-01	5.310E-02	9.229E-02
PO-212	1.480E+00	1.809E-01	5.310E-02	9.229E-02
BI-214	1.110E+00	2.591E-01	6.929E-02	1.322E-01
PB-214	1.050E+00	1.923E-01	7.938E-02	9.811E-02
PO-214	1.050E+00	1.923E-01	7.938E-02	9.811E-02
PO-216	1.480E+00	1.809E-01	5.310E-02	9.229E-02
PO-218	1.050E+00	1.923E-01	7.938E-02	9.811E-02
RA-224	3.958E+00	1.597E+00	6.045E-01	8.150E-01
RA-226	1.110E+00	2.591E-01	6.929E-02	1.322E-01
AC-228	1.197E+00	4.563E-01	1.530E-01	2.328E-01
RA-228	1.197E+00	4.563E-01	1.530E-01	2.328E-01
TH-228	1.504E+00	1.838E-01	5.396E-02	9.379E-02
TH-230	1.110E+00	2.591E-01	6.929E-02	1.322E-01
TH-232	1.197E+00	4.563E-01	1.530E-01	2.328E-01
TH-234	1.094E+00	1.186E+00	5.596E-01	6.050E-01
U-234	1.110E+00	2.591E-01	6.929E-02	1.322E-01
NP-237	1.171E+00	4.011E-01	1.568E-01	2.046E-01
U-238	1.094E+00	1.186E+00	5.596E-01	6.050E-01
AM-243	3.507E-01	6.682E-02	3.349E-02	3.409E-02
ANH-511	1.857E-01	9.092E-02	3.157E-02	4.639E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
---------	-------------------------------------	---------------	--------------------	-----

BE-7	-5.666E-02	4.196E-01	3.582E-01	2.141E-01	NOT IDENT.
NA-22	-3.308E-02	6.250E-02	5.058E-02	3.189E-02	NOT IDENT.
NA-24	8.874E+05	3.698E+06	0.000E+00	1.887E+06	SHORT HLIF
AL-26	-9.299E-03	3.991E-02	3.230E-02	2.036E-02	NOT IDENT.
TI-44	3.613E-01	5.374E-02	3.043E-02	2.742E-02	FAIL ABUN
SC-46	-3.170E-02	5.765E-02	4.670E-02	2.941E-02	FAIL ABUN
V-48	-5.315E-02	1.094E-01	8.800E-02	5.582E-02	NOT IDENT.
CR-51	9.304E-02	4.522E-01	3.865E-01	2.307E-01	NOT IDENT.
MN-52	1.478E-01	3.630E-01	3.182E-01	1.852E-01	NOT IDENT.
MN-54	2.476E-03	5.468E-02	4.675E-02	2.790E-02	NOT IDENT.
CO-56	6.364E-03	5.778E-02	4.957E-02	2.948E-02	NOT IDENT.
CO-57	1.347E-02	2.758E-02	2.392E-02	1.407E-02	NOT IDENT.
CO-58	-5.209E-03	5.108E-02	4.331E-02	2.606E-02	NOT IDENT.
FE-59	6.085E-02	1.374E-01	1.178E-01	7.009E-02	NOT IDENT.
CO-60	-5.481E-02	5.725E-02	4.145E-02	2.921E-02	NOT IDENT.
ZN-65	6.587E-02	1.512E-01	1.122E-01	7.713E-02	NOT IDENT.
GE-68	2.283E-01	1.763E+00	1.480E+00	8.996E-01	NOT IDENT.
AS-73	2.106E-01	2.574E-01	2.258E-01	1.313E-01	NOT IDENT.
AS-74	-5.301E-02	1.327E-01	1.088E-01	6.770E-02	NOT IDENT.
SE-75	2.630E-02	5.718E-02	4.453E-02	2.917E-02	NOT IDENT.
BR-77	7.077E+00	1.886E+01	1.648E+01	9.624E+00	FAIL ABUN
SR-82	-3.056E-01	5.433E-01	4.475E-01	2.772E-01	NOT IDENT.
RB-83	2.990E-02	9.097E-02	7.929E-02	4.641E-02	NOT IDENT.
RB-84	-1.782E-02	1.030E-01	8.612E-02	5.254E-02	NOT IDENT.
KR-85	1.218E+01	1.063E+01	8.599E+00	5.423E+00	NOT IDENT.
SR-85	6.318E-02	5.512E-02	4.459E-02	2.812E-02	NOT IDENT.
RB-86	6.570E-01	1.141E+00	9.936E-01	5.822E-01	NOT IDENT.
Y-88	9.844E-03	3.885E-02	3.428E-02	1.982E-02	NOT IDENT.
ZR-88	3.593E-02	3.815E-02	3.347E-02	1.946E-02	NOT IDENT.
Y-91	2.042E+01	2.763E+01	2.471E+01	1.410E+01	NOT IDENT.
NB-94	2.378E-02	4.963E-02	4.244E-02	2.532E-02	NOT IDENT.
NB-95	1.487E-02	6.065E-02	5.293E-02	3.094E-02	NOT IDENT.
NB-95M	2.724E-02	1.649E-01	1.264E-01	8.413E-02	NOT IDENT.
ZR-95	1.026E-01	1.122E-01	9.791E-02	5.725E-02	NOT IDENT.
NB-97	1.584E+04	3.895E+05	0.000E+00	1.987E+05	SHORT HLIF
ZR-97	1.452E+07	7.951E+06	0.000E+00	4.056E+06	SHORT HLIF
MO-99	-1.289E+01	2.417E+01	1.910E+01	1.233E+01	NOT IDENT.
TC-99M	-5.951E+17	8.876E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.397E-03	3.660E-02	3.099E-02	1.867E-02	NOT IDENT.
RH-102	-7.986E-03	3.986E-02	3.286E-02	2.034E-02	NOT IDENT.
RU-103	3.888E-03	5.076E-02	4.375E-02	2.590E-02	NOT IDENT.
RH-106	-1.418E-01	4.248E-01	3.473E-01	2.167E-01	FAIL ABUN
RU-106	-1.418E-01	4.245E-01	3.473E-01	2.166E-01	FAIL ABUN
AG-108M	1.707E-03	4.209E-02	3.663E-02	2.147E-02	NOT IDENT.
AG-110M	1.960E-02	4.734E-02	4.067E-02	2.415E-02	NOT IDENT.
IN-111	-7.486E-01	1.737E+00	1.284E+00	8.864E-01	NOT IDENT.
IN-113M	-4.518E-02	5.586E-02	4.381E-02	2.850E-02	NOT IDENT.
SN-113	-4.518E-02	5.586E-02	4.381E-02	2.850E-02	NOT IDENT.
IN-114M	2.585E-01	2.258E-01	1.766E-01	1.152E-01	NOT IDENT.
CD-115	6.676E-01	1.923E+01	1.644E+01	9.814E+00	NOT IDENT.
SN-117M	6.255E-02	6.295E-02	5.477E-02	3.212E-02	NOT IDENT.
SB-122	2.323E+00	3.811E+00	3.347E+00	1.944E+00	NOT IDENT.
I-123	1.978E+07	2.460E+07	0.000E+00	1.255E+07	SHORT HLIF
TE-123M	2.488E-02	3.095E-02	2.673E-02	1.579E-02	NOT IDENT.
I-124	-3.093E-01	1.233E+00	8.762E-01	6.292E-01	NOT IDENT.
SB-124	8.535E-02	1.036E-01	9.605E-02	5.286E-02	FAIL ABUN
SB-125	-5.393E-02	1.144E-01	9.679E-02	5.839E-02	FAIL ABUN
TE-125M	2.948E-01	9.463E+00	8.137E+00	4.828E+00	NOT IDENT.
I-126	-5.802E-02	2.701E-01	2.216E-01	1.378E-01	NOT IDENT.
SB-126	2.252E-02	2.629E-01	1.889E-01	1.341E-01	FAIL ABUN
SB-127	-2.148E+00	2.284E+00	1.745E+00	1.165E+00	NOT IDENT.
XE-127	3.757E-03	5.070E-02	4.468E-02	2.587E-02	NOT IDENT.
I-131	-1.599E-01	1.646E-01	1.291E-01	8.399E-02	NOT IDENT.
TE-132	6.861E-01	9.819E-01	8.749E-01	5.010E-01	NOT IDENT.
BA-133	-2.744E-02	6.618E-02	4.714E-02	3.376E-02	NOT IDENT.
I-133	-1.387E+03	1.843E+04	0.000E+00	9.403E+03	SHORT HLIF
CS-134	4.735E-02	6.794E-02	6.068E-02	3.466E-02	NOT IDENT.
CS-135	3.458E-01	2.066E-01	1.707E-01	1.054E-01	NOT IDENT.
I-135	-4.864E+16	1.204E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	9.998E-02	1.630E-01	1.424E-01	8.315E-02	FAIL ABUN
BA-137M	-3.458E-02	4.938E-02	3.898E-02	2.519E-02	NOT IDENT.
CS-137	-3.655E-02	5.220E-02	4.121E-02	2.663E-02	NOT IDENT.
CE-139	-3.085E-02	3.452E-02	2.742E-02	1.761E-02	NOT IDENT.
BA-140	-7.215E-02	3.599E-01	3.017E-01	1.836E-01	NOT IDENT.
LA-140	5.116E-02	1.303E-01	1.129E-01	6.646E-02	FAIL ABUN
CE-141	1.719E-02	7.194E-02	6.104E-02	3.670E-02	NOT IDENT.
CE-143	9.954E+02	4.032E+02	0.000E+00	2.057E+02	SHORT HLIF

CE-144	-5.303E-02	2.288E-01	1.915E-01	1.167E-01	NOT IDENT.
PM-144	-4.726E-02	5.131E-02	3.966E-02	2.618E-02	NOT IDENT.
PR-144	-3.204E+00	3.479E+00	2.689E+00	1.775E+00	NOT IDENT.
PM-146	1.905E-02	5.411E-02	4.775E-02	2.761E-02	NOT IDENT.
ND-147	-2.475E-01	7.691E-01	6.405E-01	3.924E-01	FAIL ABUN
PM-149	4.095E+01	1.540E+02	1.331E+02	7.857E+01	NOT IDENT.
EU-152	-2.601E-02	1.356E-01	9.801E-02	6.918E-02	FAIL ABUN
GD-153	-4.299E-02	8.416E-02	6.210E-02	4.294E-02	FAIL ABUN
EU-154	-8.672E-02	1.751E-01	1.420E-01	8.932E-02	NOT IDENT.
EU-155	4.609E-02	1.141E-01	9.746E-02	5.821E-02	FAIL ABUN
TB-160	-1.160E-01	2.037E-01	1.649E-01	1.039E-01	FAIL ABUN
HO-166M	-8.463E-02	8.888E-02	6.806E-02	4.535E-02	FAIL ABUN
TM-171	6.557E+00	1.712E+01	1.389E+01	8.734E+00	NOT IDENT.
LU-176	-8.341E-03	3.115E-02	2.514E-02	1.589E-02	FAIL ABUN
LU-177	2.495E+00	1.553E+00	1.236E+00	7.922E-01	FAIL ABUN
LU-177M	-6.387E-02	2.298E-01	1.861E-01	1.172E-01	FAIL ABUN
HF-181	-1.261E-02	5.493E-02	4.657E-02	2.803E-02	NOT IDENT.
W-181	-3.227E-02	2.129E-01	1.693E-01	1.086E-01	NOT IDENT.
TA-182	-2.937E-02	2.763E-01	2.334E-01	1.410E-01	FAIL ABUN
RE-183	-1.935E-02	1.334E-01	1.062E-01	6.805E-02	FAIL ABUN
RE-184	-6.319E-02	2.742E-01	2.340E-01	1.399E-01	NOT IDENT.
OS-185	2.897E-02	5.787E-02	5.013E-02	2.953E-02	NOT IDENT.
RE-188	-3.725E-02	1.926E-01	1.595E-01	9.824E-02	NOT IDENT.
W-188	4.188E+00	9.626E+00	7.423E+00	4.911E+00	FAIL ABUN
IR-192	-3.743E-02	4.041E-02	3.225E-02	2.062E-02	FAIL ABUN
AU-195	1.914E-01	2.224E-01	1.921E-01	1.135E-01	FAIL ABUN
TL-200	-1.008E+02	1.138E+03	0.000E+00	5.805E+02	SHORT HLIF
TL-201	5.287E+00	1.011E+01	8.593E+00	5.157E+00	NOT IDENT.
TL-202	-6.399E-03	9.961E-02	8.611E-02	5.082E-02	NOT IDENT.
HG-203	2.336E-02	4.962E-02	4.336E-02	2.532E-02	FAIL ABUN
BI-207	8.930E-02	8.159E-02	7.322E-02	4.163E-02	FAIL ABUN
TL-207	-3.914E-01	9.291E-01	6.631E-01	4.740E-01	FAIL ABUN
PO-209	3.101E-01	1.058E+01	8.972E+00	5.397E+00	NOT IDENT.
PB-211	4.950E-01	1.339E+00	1.102E+00	6.832E-01	NOT IDENT.
BI-212	1.090E+00	8.439E-01	4.566E-01	4.306E-01	FAIL ABUN
PO-215	-3.914E-01	9.291E-01	6.631E-01	4.740E-01	FAIL ABUN
RN-219	-6.131E-01	5.718E-01	4.224E-01	2.918E-01	FAIL ABUN
RN-220	-1.729E+01	3.256E+01	2.658E+01	1.661E+01	NOT IDENT.
RA-223	-3.914E-01	9.291E-01	6.631E-01	4.740E-01	FAIL ABUN
AC-227	-7.242E-02	4.386E-01	3.749E-01	2.238E-01	FAIL ABUN
TH-227	-7.242E-02	4.386E-01	3.749E-01	2.238E-01	FAIL ABUN
TH-229	-8.290E-03	5.252E-01	4.628E-01	2.680E-01	FAIL ABUN
PA-231	1.198E+00	1.812E+00	1.592E+00	9.246E-01	FAIL ABUN
TH-231	-3.914E-01	9.291E-01	6.631E-01	4.740E-01	FAIL ABUN
U-231	-7.974E-01	1.269E+00	9.514E-01	6.474E-01	FAIL ABUN
PA-233	1.177E-02	7.325E-02	6.262E-02	3.737E-02	FAIL ABUN
PA-234	-2.393E-01	4.529E-01	3.638E-01	2.311E-01	FAIL ABUN
PA-234M	-7.418E-01	7.534E+00	5.979E+00	3.844E+00	NOT IDENT.
U-235	4.828E-02	2.534E-01	2.097E-01	1.293E-01	FAIL ABUN
NP-236	-5.704E-02	9.199E-02	7.439E-02	4.693E-02	NOT IDENT.
NP-239	-1.320E-01	1.938E-01	1.601E-01	9.886E-02	FAIL ABUN
AM-241	4.675E-02	6.899E-02	5.708E-02	3.520E-02	NOT IDENT.
CM-243	1.093E-02	9.789E-02	8.475E-02	4.995E-02	FAIL ABUN
AM-246	-1.930E-02	1.956E-01	1.609E-01	9.980E-02	NOT IDENT.
CM-247	1.698E-02	4.810E-02	4.064E-02	2.454E-02	NOT IDENT.
CF-249	3.208E-02	4.986E-02	4.301E-02	2.544E-02	NOT IDENT.
CF-251	7.627E-02	1.435E-01	1.216E-01	7.322E-02	NOT IDENT.

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*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
46.50	279.2742
46.50	279.2742
46.50	279.2742
48.70	269.3586
49.72	298.1748
51.35	330.9713
52.39	335.7363
52.97	328.0062
53.15	302.7271
53.44	303.0702
54.07	309.7865
56.28	368.3448
56.28	368.3491
57.37	0.0000
57.53	357.1003
57.53	357.1034
57.60	371.8955
57.98	363.7563
57.98	363.7563
59.32	349.8740
59.32	349.8740
59.40	349.9752
59.54	350.1521
59.72	381.7574
60.01	382.1562
61.10	384.9582
61.14	385.0129
61.30	385.2309
63.00	419.7158
63.29	420.1371
63.29	420.1371
63.58	420.5583
64.28	425.1123
65.12	430.3250
65.20	430.4414
65.20	430.4414
66.05	418.3108
66.72	409.8685
66.83	410.0226
66.91	410.1299
67.20	425.2819
67.20	425.2819
67.75	445.1385
67.85	445.2875
68.90	451.1359
68.90	451.1359
69.30	463.3373
69.67	458.4862
70.82	437.0997
70.82	437.0997
70.83	437.1144
72.80	448.9452
72.87	449.0430
72.87	449.0430
74.67	451.5506
74.81	451.7436
74.81	451.7436
74.81	451.7436
74.81	451.7436
74.81	451.7436
74.81	451.7436
74.81	451.7436
74.97	451.9668
75.28	452.3931
75.70	452.9723
77.11	454.9031
77.11	454.9031



77.11	454.9031
77.11	454.9031
77.11	454.9031
77.11	454.9031
77.11	454.9031
78.38	443.1956
79.62	368.1240
79.80	368.3174
79.80	368.3174
80.11	368.6497
80.18	368.7263
80.30	360.4701
80.30	360.4701
80.57	360.7536
81.00	369.6024
81.07	369.6779
81.07	369.6779
81.07	369.6779
81.07	369.6779
82.60	410.6852
83.37	348.6201
83.78	349.0277
83.78	349.0277
83.78	349.0277
83.78	349.0277
84.21	349.4504
84.90	350.1259
85.43	350.6430
86.29	351.4789
86.50	351.6827
86.54	351.7205
86.59	351.7695
86.72	351.8941
86.79	351.9601
86.94	352.1073
87.30	352.4545
87.30	352.4545
87.30	352.4545
87.30	352.4545
87.30	352.4545
87.30	352.4545
87.30	352.4545
87.57	352.7149
87.88	353.0131
88.03	353.1565
88.36	353.4735
88.47	353.5792
89.95	354.9888
91.11	356.0870
92.29	357.1966
92.38	357.2815
92.38	357.2815
93.35	358.1872
94.00	281.4237
94.67	294.9859
94.67	294.9906
94.90	295.1640
94.90	295.1640
94.90	295.1640
94.90	295.1640
95.87	325.0507
95.87	325.0507
96.73	354.9819
97.43	313.1680
98.44	284.6208
98.44	284.6208
98.88	277.1013
99.55	292.2752
99.55	292.2752
99.86	304.2780
100.00	316.1663
100.10	316.2465
103.18	326.5474
103.76	315.1129
105.00	308.1000
105.31	308.3271
108.00	324.2999
109.28	295.1484

111.00	302.3651
111.00	302.3651
111.76	292.7922
112.95	280.4222
115.19	286.9197
116.30	273.3462
117.00	281.9395
117.00	281.9395
117.66	276.2100
121.11	281.3716
121.62	279.6149
121.78	279.7100
122.06	274.7130
122.32	274.8645
122.32	274.8645
122.32	274.8645
122.32	274.8645
123.07	279.4414
127.23	311.1101
129.76	280.1919
131.20	333.6329
133.02	290.4866
133.54	298.1878
135.34	276.9673
136.00	284.7636
136.25	284.9027
136.48	300.9840
140.51	322.6295
140.51	0.0000
142.18	293.5478
142.65	283.0466
143.76	280.4051
144.24	276.3386
144.24	276.3386
144.24	276.3386
144.24	276.3386
145.22	288.7394
145.44	284.5314
147.16	286.5237
152.43	265.1774
152.70	269.6906
153.22	246.8971
154.21	268.2178
154.21	268.2178
154.21	268.2178
154.21	268.2178
155.03	274.1143
156.02	307.6765
158.56	223.7568
159.00	0.0000
159.00	226.1444
160.31	291.0987
161.27	262.6455
162.32	263.1185
162.64	246.5297
163.35	254.6445
163.89	244.8178
165.85	289.3708
167.43	245.1546
171.28	264.8282
171.86	269.6118
172.10	257.2500
176.55	237.4193
176.60	236.2968
181.06	246.5951
184.41	265.2193
185.71	275.5942
186.00	275.7177
190.27	202.8903
192.34	248.2619
193.63	229.4045
197.04	239.3973
198.01	235.3132
198.60	239.0577
200.40	232.5822
201.83	249.9655
202.84	236.0743
205.31	220.2809

208.36	224.1053
208.81	249.7614
209.75	244.6925
209.75	244.6925
210.97	260.9697
215.65	253.0438
216.55	258.8031
218.09	219.3072
222.10	248.8553
223.80	235.6631
226.40	253.9574
227.00	243.1071
227.08	243.1333
227.20	246.8539
228.16	214.8858
228.18	217.6579
228.18	217.6579
231.56	0.0000
235.69	262.2426
236.00	262.3457
236.00	262.3457
238.63	217.7922
238.63	217.7922
238.63	217.7922
238.63	217.7922
239.00	217.8935
240.98	218.4366
241.98	195.2428
241.98	195.2428
241.98	195.2428
244.69	191.3806
245.39	209.6436
247.94	214.6517
248.90	213.0095
249.79	197.1281
252.40	220.5692
252.85	213.0796
252.85	213.0796
254.15	0.0000
256.20	202.4741
256.20	202.4741
260.50	191.0292
260.90	185.3549
262.80	190.5798
264.65	177.4863
268.24	170.4731
268.79	182.2139
269.46	182.3516
269.46	182.3516
269.46	182.3516
269.46	182.3516
271.23	182.7217
273.65	221.4278
276.40	177.2715
277.35	180.0693
277.60	181.0988
277.60	181.0988
278.00	193.9123
278.60	197.9622
279.20	196.1334
279.53	200.1277
280.46	213.1028
281.68	234.0379
283.67	171.4804
284.30	171.5972
285.00	187.5212
285.90	182.7643
286.10	182.8038
286.10	182.8038
287.40	192.2520
288.45	0.0000
290.67	166.8285
290.80	179.5654
291.72	192.4686
293.26	0.0000
293.70	183.3121
295.21	183.6069
295.21	183.6069

295.21	183.6069
295.96	175.7637
296.50	175.8630
297.23	176.0000
298.57	176.2498
299.80	176.4753
299.80	176.4753
300.09	170.1098
300.09	170.1098
300.09	170.1098
300.09	170.1098
300.12	170.1150
301.29	181.5725
302.84	164.1612
303.76	153.0414
303.91	151.4534
304.40	148.3073
304.40	148.3073
304.84	156.4386
306.84	173.7322
308.46	182.1149
311.98	147.2302
316.51	166.2657
318.01	149.1479
319.02	154.4123
319.41	148.3343
320.08	153.5500
323.87	180.8447
323.87	180.8447
323.87	180.8447
323.87	180.8447
325.23	158.0391
328.77	122.2427
333.44	178.3854
334.20	171.0439
334.20	171.0439
334.30	171.0615
338.28	152.1219
338.28	152.1219
338.28	152.1219
338.28	152.1219
338.32	152.1286
338.32	152.1286
338.32	152.1286
340.50	143.6721
340.57	143.6826
344.27	157.5946
345.85	144.3964
350.59	0.0000
351.07	187.6964
351.92	187.8430
351.92	187.8430
351.92	187.8430
355.39	0.0000
356.01	159.3135
364.48	169.7139
366.43	125.1016
367.43	144.4757
367.94	0.0000
369.80	119.0401
374.96	141.1264
383.85	173.6987
387.95	126.3723
388.63	128.6250
391.69	146.4439
391.69	146.4439
392.90	114.8678
398.62	142.8976
400.65	158.5503
401.10	165.2195
401.81	164.2147
402.60	137.8536
404.84	160.2045
410.95	156.5617
411.60	159.9763
413.65	142.4355
414.70	139.2155
415.30	143.7393

415.76	130.4164
417.63	0.0000
418.52	144.1093
423.70	128.9977
427.08	140.5888
427.89	136.8501
432.53	132.8276
433.93	133.8757
439.47	139.8990
439.56	148.0849
439.89	148.1227
443.98	157.6999
444.90	151.4243
445.03	148.7017
445.03	148.7017
445.03	148.7017
445.03	148.7017
453.90	113.8781
463.38	125.7751
468.07	119.0921
473.00	124.7940
475.06	125.9116
475.35	117.5405
476.78	112.0591
477.59	121.4672
477.96	127.1065
482.03	117.1646
484.57	97.6562
487.03	121.3406
490.36	0.0000
492.35	92.5234
497.08	100.4050
507.63	0.0000
510.53	0.0000
510.84	113.7807
511.00	113.7930
511.85	113.8591
511.85	113.8591
513.99	114.9807
513.99	114.9807
520.41	103.9263
520.65	104.9045
527.90	99.6052
528.96	0.0000
529.64	104.5591
529.87	0.0000
531.02	105.6230
537.32	108.0028
543.00	99.6069
546.56	0.0000
549.76	100.0377
552.65	96.2893
555.20	100.3813
563.23	117.7013
563.90	109.8320
568.70	114.1296
569.32	106.2294
569.50	106.2424
569.67	106.2529
573.80	88.4918
574.00	88.5026
574.64	100.8495
578.91	101.5277
579.30	0.0000
583.14	104.1244
585.48	113.6266
591.81	113.7228
592.07	113.7394
593.00	111.7886
595.88	116.0164
600.56	89.6007
602.52	0.0000
602.71	113.1061
602.71	113.1061
603.60	121.6113
604.41	126.7365
604.70	126.7578
609.31	86.4277

609.31	86.4277
609.31	86.4277
609.31	86.4277
610.33	86.4796
612.46	91.6787
614.37	107.0764
618.01	84.3067
621.84	97.2938
621.84	97.2938
631.29	90.6082
633.02	105.1252
633.10	105.1302
634.78	98.0082
635.90	94.9738
636.97	111.5569
645.85	79.9289
646.12	83.0547
656.30	75.1676
657.75	87.7652
657.90	0.0000
661.65	108.8928
661.65	108.8928
664.57	0.0000
666.33	106.0180
666.33	106.0180
675.00	100.1837
677.61	105.6006
685.20	101.7844
692.80	91.5451
695.00	102.3047
696.49	124.7810
696.49	124.7810
697.00	128.0156
697.49	121.6455
698.33	119.5633
698.50	114.2335
699.00	112.1290
702.63	103.7801
706.10	107.1802
706.58	0.0000
706.67	111.4978
709.31	86.9564
711.68	113.9345
713.82	90.3841
717.42	91.6282
720.50	102.5657
721.93	0.0000
722.20	97.2510
722.78	104.4854
722.78	104.4854
722.89	106.2917
722.95	106.2965
723.30	106.3133
724.18	113.5723
727.18	97.4927
733.00	112.2615
735.90	91.1170
739.58	115.5312
742.81	85.1487
744.21	84.1154
747.13	98.4551
751.79	98.6792
752.31	99.8001
753.82	100.9709
755.35	93.3568
756.15	92.2954
756.87	106.6147
763.93	116.7190
765.79	103.9443
766.42	102.1362
766.84	102.1565
776.49	96.1522
778.00	90.6687
778.57	91.6181
778.89	88.8555
783.80	87.2051
785.46	90.0573
792.07	83.8165

795.84	92.3593
796.30	96.1099
798.80	114.9046
801.93	75.7776
805.60	80.5900
810.29	75.1286
810.76	71.3876
815.85	85.6735
817.79	76.3264
818.51	70.6955
819.60	63.1846
826.30	87.9689
828.27	0.0000
831.60	96.7083
831.96	91.9834
834.83	97.7968
836.80	0.0000
846.75	84.9476
848.13	86.9103
856.28	0.0000
856.80	97.7832
860.37	86.4111
867.32	72.2244
867.82	71.2780
871.10	90.6685
873.19	72.4060
874.81	82.1172
875.33	0.0000
876.40	80.2391
879.36	86.1481
880.27	89.0857
880.51	89.0950
881.50	80.4113
883.24	73.6838
884.67	76.6389
889.25	86.5067
896.60	76.0481
898.02	90.7257
899.00	93.6895
903.28	92.1795
911.07	75.5227
911.07	75.5227
911.07	75.5227
919.63	73.4894
920.93	71.9771
925.00	72.0064
925.24	73.0003
926.50	78.9583
935.52	88.1616
937.48	78.3169
944.10	91.4460
946.00	88.5292
949.00	66.7260
962.29	78.9454
964.01	77.1379
966.15	77.2021
968.20	77.2632
969.11	63.6686
969.11	63.6686
969.11	63.6686
977.42	65.9140
980.50	68.5575
983.50	81.7597
989.30	65.7551
996.32	73.0313
1001.03	78.2407
1001.68	87.4085
1004.76	95.6504
1021.30	0.0000
1024.50	0.0000
1034.80	61.7383
1036.00	77.2064
1037.82	71.0776
1038.57	65.9453
1038.76	0.0000
1045.16	79.5316
1046.59	68.2048
1048.07	63.0726

1050.47	61.0574
1050.47	61.0574
1062.04	77.9388
1063.62	69.6635
1076.63	59.5420
1077.35	66.8698
1078.86	65.8608
1085.78	64.9744
1099.22	71.5970
1112.02	85.2104
1112.84	90.6738
1115.52	76.2363
1120.29	85.4531
1120.29	85.4531
1120.29	85.4531
1120.29	85.4531
1120.51	89.0962
1121.28	89.1201
1124.00	0.0000
1129.67	73.4136
1131.51	0.0000
1147.95	0.0000
1167.94	66.8160
1173.22	74.4889
1175.09	64.8120
1177.93	70.2791
1189.05	82.7794
1204.90	80.4000
1205.75	0.0000
1213.00	96.5409
1221.42	88.3414
1230.97	108.4061
1235.34	66.0767
1236.41	0.0000
1238.25	82.1997
1246.25	66.3013
1260.41	0.0000
1271.85	66.8262
1274.45	72.6124
1274.54	72.6151
1291.56	57.6249
1298.22	0.0000
1312.09	57.9785
1325.50	39.7759
1325.50	39.7759
1332.49	55.4136
1333.61	50.5691
1360.21	50.9608
1362.66	0.0000
1365.15	39.2564
1368.21	41.2544
1368.53	0.0000
1376.25	42.3341
1384.27	51.3126
1394.10	36.6116
1395.20	37.6130
1407.95	37.7482
1434.06	30.0167
1436.60	34.0427
1457.56	0.0000
1460.81	36.2838
1489.15	28.4355
1509.49	22.4627
1596.49	28.1875
1620.62	24.1551
1678.03	0.0000
1691.02	13.8869
1691.02	13.8869
1706.46	0.0000
1750.46	0.0000
1764.49	15.2129
1764.49	15.2129
1764.49	15.2129
1764.49	15.2129
1770.23	16.9249
1771.40	18.6228
1791.20	0.0000
1808.65	17.2853



1836.01

10.6274

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229013

Total Uranium Activity	3.2770E+00	ug/g
Total Uranium Counting Unc.	3.5300E+00	ug/g
Total Uranium Tpu	1.8010E-06	ug/g
Total Uranium Mda	1.6676E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941239          SAMPLE ID   : G244229013
*  ANALYST       : MXR1            DETECTOR    : GAM13
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 16:50:05.99  SAMPLE ALQT: 117.310 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.467E+00
GROSS GAMMA ERROR  (pCi/GRAM ) : 1.498E+00
GROSS GAMMA MDA    (pCi/GRAM ) : 3.012E+00
GROSS GAMMA DLC    (pCi/GRAM ) : 1.461E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 18:51:37.52

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229014.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:50:37
Sample ID          : G244229014      Sample quantity   : 1.40370E+02 GRAM
Detector name      : GAM15           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.34  0.0%
Energy tolerance  : 1.50000 keV      Analyst Initials : MXR1
Abundance limit   : 75.00000         Sensitivity      : 5.00000
Batch ID          : 941239           Detector SN#     :
Matrix Spike ID   :                  LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.37*	60	318	1.80	125.24	122	8	8.35E-03	54.5	
2	2	74.03	276	441	1.58	148.55	142	17	3.83E-02	15.6	2.06E+00
3	2	76.49*	440	396	1.41	153.46	142	17	6.12E-02	9.8	
4	0	89.06	85	865	3.38	178.60	168	13	1.17E-02	72.7	
5	0	92.64*	175	521	1.61	185.75	181	11	2.43E-02	28.2	
6	0	128.30	50	391	1.40	257.04	253	9	6.95E-03	72.7	
7	0	185.40*	171	369	1.76	371.19	366	11	2.37E-02	24.1	
8	0	208.86	112	301	1.26	418.08	414	10	1.56E-02	30.5	
9	2	238.03*	1093	250	1.32	476.41	471	16	1.52E-01	4.1	1.66E+00
10	2	241.01	261	254	1.84	482.36	471	16	3.63E-02	13.9	
11	0	269.63	139	230	1.79	539.57	535	12	1.94E-02	23.3	
12	0	294.68*	301	236	1.44	589.66	585	12	4.19E-02	11.9	
13	0	300.15	131	172	1.23	600.60	596	12	1.82E-02	22.1	
14	0	327.18	61	176	1.49	654.63	651	10	8.52E-03	42.4	
15	0	337.93	258	192	1.46	676.12	670	13	3.58E-02	12.8	
16	0	351.21*	596	200	1.60	702.67	694	17	8.28E-02	7.0	
17	0	463.09	45	138	1.40	926.34	919	11	6.25E-03	53.0	
18	0	510.32*	118	150	2.12	1020.77	1012	19	1.63E-02	30.0	
19	0	582.49*	330	179	1.64	1165.06	1157	17	4.59E-02	11.0	
20	0	608.67*	380	135	1.63	1217.42	1211	14	5.28E-02	8.5	
21	0	727.18*	116	80	1.48	1454.37	1448	14	1.61E-02	19.8	
22	0	769.37	55	104	5.14	1538.72	1531	17	7.67E-03	44.7	
23	0	794.89*	38	45	1.71	1589.75	1584	10	5.33E-03	37.3	
24	0	860.31*	45	75	1.97	1720.55	1710	15	6.25E-03	45.0	
25	0	910.66*	225	72	2.17	1821.23	1815	14	3.12E-02	10.7	
26	0	968.70*	112	125	1.72	1937.27	1927	15	1.56E-02	23.8	
27	0	1000.80*	61	34	1.38	2001.45	1994	15	8.41E-03	25.3	
28	0	1119.83*	81	68	2.26	2239.47	2234	12	1.13E-02	23.7	
29	0	1460.16*	1216	34	2.18	2920.05	2910	18	1.69E-01	3.1	
30	0	1764.02*	79	5	2.20	3527.74	3518	19	1.10E-02	13.9	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 18:51:40

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229014.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 16:50:37  
 Sample ID : G244229014 Sample quantity : 140.37 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA15 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.34 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.051E+01	2.999E+00	6.360E-01	4.861E-02	47.978
CD-109	+	88.03	*	1.354E+00	1.973E+00	1.652E+00	1.910E-01	0.820
CS-135	+	268.24	*	6.030E-01	2.853E-01	2.759E-01	2.358E-02	2.186
TL-208		277.35		7.045E-01	4.767E-01	7.984E-01	8.946E-02	0.882
	+	510.84		5.917E-01	3.597E-01	2.261E-01	2.276E-02	2.617
	+	583.14	*	4.701E-01	1.081E-01	6.701E-02	4.267E-03	7.014
	+	860.37		5.992E-01	5.417E-01	5.341E-01	4.591E-02	1.122
BI-211	+	72.87		1.856E+01	6.136E+00	6.334E+00	7.063E-01	2.930
	+	351.07	*	3.842E+00	5.964E-01	3.572E-01	2.455E-02	10.756
PB-212	+	74.81		2.203E+00	7.568E-01	6.994E-01	1.015E-01	3.150
	+	77.11		1.917E+00	4.327E-01	3.833E-01	4.256E-02	5.002
		87.30		1.176E+00	5.929E-01	8.798E-01	1.342E-01	1.337
	+	238.63	*	1.553E+00	1.811E-01	1.070E-01	8.857E-03	14.514
	+	300.09		2.865E+00	1.290E+00	1.288E+00	1.155E-01	2.224
PO-212	+	74.81		2.203E+00	7.568E-01	6.994E-01	1.015E-01	3.150
	+	77.11		1.917E+00	4.327E-01	3.833E-01	4.256E-02	5.002
		87.30		1.176E+00	5.929E-01	8.798E-01	1.342E-01	1.337
		115.19		1.468E+00	4.268E+00	7.055E+00	5.398E-01	0.208
	+	238.63	*	1.553E+00	1.811E-01	1.070E-01	8.857E-03	14.514
	+	300.09		2.865E+00	1.290E+00	1.288E+00	1.155E-01	2.224
BI-214	+	609.31	*	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
	+	1120.29		1.140E+00	5.515E-01	4.992E-01	4.605E-02	2.284
	+	1764.49		1.523E+00	4.345E-01	3.327E-01	2.070E-02	4.578
PB-214	+	74.81		3.796E+00	1.286E+00	1.205E+00	1.609E-01	3.150
	+	77.11		3.287E+00	7.829E-01	6.571E-01	8.849E-02	5.002
		87.30		2.015E+00	1.008E+00	1.507E+00	2.089E-01	1.337
	+	241.98		2.229E+00	6.492E-01	6.556E-01	5.860E-02	3.400
	+	295.21		1.157E+00	2.954E-01	2.490E-01	2.303E-02	4.645
	+	351.92	*	1.337E+00	2.189E-01	1.245E-01	1.073E-02	10.736
PO-214	+	74.81		3.796E+00	1.286E+00	1.205E+00	1.609E-01	3.150
	+	77.11		3.287E+00	7.829E-01	6.571E-01	8.849E-02	5.002
		87.30		2.015E+00	1.008E+00	1.507E+00	2.089E-01	1.337
	+	241.98		2.229E+00	6.492E-01	6.556E-01	5.860E-02	3.400
	+	295.21		1.157E+00	2.954E-01	2.490E-01	2.303E-02	4.645

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	351.92	*	1.337E+00	2.189E-01	1.245E-01	1.073E-02	10.736
	+	74.81		2.203E+00	7.568E-01	6.994E-01	1.015E-01	3.150
	+	77.11		1.917E+00	4.327E-01	3.833E-01	4.256E-02	5.002
	+	87.30		1.176E+00	5.929E-01	8.798E-01	1.342E-01	1.337
PO-218	+	238.63	*	1.553E+00	1.811E-01	1.070E-01	8.857E-03	14.514
	+	300.09		2.865E+00	1.290E+00	1.288E+00	1.155E-01	2.224
	+	74.81		3.796E+00	1.286E+00	1.205E+00	1.609E-01	3.150
	+	77.11		3.287E+00	7.829E-01	6.571E-01	8.849E-02	5.002
	+	87.30		2.015E+00	1.008E+00	1.507E+00	2.089E-01	1.337
	+	241.98		2.229E+00	6.492E-01	6.556E-01	5.860E-02	3.400
	+	295.21		1.157E+00	2.954E-01	2.490E-01	2.303E-02	4.645
	+	351.92	*	1.337E+00	2.189E-01	1.245E-01	1.073E-02	10.736
RA-224	+	240.98	*	4.227E+00	1.208E+00	1.222E+00	8.503E-02	3.460
RA-226	+	609.31	*	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
	+	1120.29		1.140E+00	5.515E-01	4.992E-01	4.605E-02	2.284
AC-228	+	1764.49		1.523E+00	4.345E-01	3.327E-01	2.070E-02	4.578
	+	338.32		1.838E+00	8.851E-01	4.442E-01	1.815E-01	4.137
	+	911.07	*	1.416E+00	3.419E-01	2.545E-01	2.829E-02	5.564
RA-228	+	969.11		1.248E+00	6.608E-01	4.054E-01	9.375E-02	3.078
	+	338.32		1.838E+00	8.851E-01	4.442E-01	1.815E-01	4.137
	+	911.07	*	1.416E+00	3.419E-01	2.545E-01	2.829E-02	5.564
TH-228	+	969.11		1.248E+00	6.608E-01	4.054E-01	9.375E-02	3.078
	+	74.81		2.239E+00	7.405E-01	7.108E-01	7.937E-02	3.150
	+	77.11		1.948E+00	4.397E-01	3.895E-01	4.326E-02	5.002
TH-230	+	87.30		1.196E+00	5.906E-01	8.941E-01	1.030E-01	1.337
	+	238.63	*	1.578E+00	1.840E-01	1.087E-01	9.001E-03	14.514
	+	300.09		2.911E+00	2.146E+00	1.309E+00	7.728E-01	2.224
	+	609.31	*	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
	+	1120.29		1.140E+00	5.515E-01	4.992E-01	4.605E-02	2.284
TH-232	+	1764.49		1.523E+00	4.345E-01	3.327E-01	2.070E-02	4.578
	+	338.32		1.838E+00	4.834E-01	4.442E-01	2.859E-02	4.137
	+	911.07	*	1.416E+00	3.419E-01	2.545E-01	2.829E-02	5.564
TH-234	+	969.11		1.248E+00	6.608E-01	4.054E-01	9.375E-02	3.078
	+	63.29	*	2.495E+00	2.763E+00	3.572E+00	7.049E-01	0.699
U-234	+	92.38		1.783E+00	1.060E+00	9.100E-01	1.735E-01	1.960
	+	609.31	*	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
	+	1120.29		1.140E+00	5.515E-01	4.992E-01	4.605E-02	2.284
U-238	+	1764.49		1.523E+00	4.345E-01	3.327E-01	2.070E-02	4.578
	+	63.29	*	2.495E+00	2.763E+00	3.572E+00	7.049E-01	0.699
	+	92.38		1.783E+00	1.022E+00	9.100E-01	9.573E-02	1.960
AM-243	+	74.67	*	3.572E-01	1.181E-01	1.139E-01	1.266E-02	3.135
		86.72		2.203E+01	1.366E+01	2.058E+01	2.362E+00	1.070
		117.66		-3.114E+00	4.624E+00	7.340E+00	5.483E-01	-0.424
ANH-511		142.18		1.083E+01	2.147E+01	3.497E+01	2.382E+00	0.310
	+	511.00	*	1.278E-01	7.695E-02	4.885E-02	2.759E-03	2.616

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	7.125E-02	3.633E-01	6.017E-01	4.009E-02	0.118

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	1274.54	*		5.869E-03	5.352E-02	8.755E-02	6.009E-03	0.067
NA-24	1368.53	*		-1.693E-01	5.352E-02	Half-Life	too short	
AL-26	1129.67			-4.343E-01	1.857E+00	2.962E+00	1.866E-01	-0.147
	1808.65	*		-2.147E-02	2.820E-02	3.785E-02	2.265E-03	-0.567
TI-44	67.85			2.239E-02	9.007E-02	1.124E-01	1.282E-02	0.199
	78.38	*		1.999E-01	5.820E-02	8.904E-02	9.900E-03	2.245
SC-46	889.25	*		-4.689E-02	4.232E-02	6.233E-02	5.228E-03	-0.752
	+ 1120.51			1.969E-01	9.436E-02	1.395E-01	8.955E-03	1.412
V-48	944.10			1.354E-01	9.549E-01	1.596E+00	1.312E-01	0.085
	983.50	*		-4.490E-03	8.179E-02	1.339E-01	1.058E-02	-0.034
	1312.09			1.208E-02	9.079E-02	1.490E-01	1.088E-02	0.081
CR-51	320.08	*		1.272E-01	4.399E-01	7.427E-01	5.355E-02	0.171
MN-52	744.21			-2.104E-01	2.786E-01	4.355E-01	2.672E-02	-0.483
	848.13			2.975E+00	8.332E+00	1.424E+01	1.097E+00	0.209
	935.52			3.506E-01	3.128E-01	5.635E-01	4.668E-02	0.622
	1246.25			-2.106E+00	1.015E+01	1.616E+01	1.054E+00	-0.130
	1333.61			1.230E+00	6.432E+00	1.062E+01	8.016E-01	0.116
	1434.06	*		-5.458E-02	2.691E-01	4.367E-01	3.238E-02	-0.125
MN-54	834.83	*		1.908E-02	4.500E-02	7.694E-02	5.766E-03	0.248
CO-56	846.75	*		3.141E-02	4.308E-02	7.566E-02	5.815E-03	0.415
	977.42			-1.576E+00	3.355E+00	5.281E+00	4.199E-01	-0.299
	1037.82			-4.102E-01	3.635E-01	5.296E-01	4.191E-02	-0.775
	1175.09			-1.909E+00	2.690E+00	4.069E+00	2.326E-01	-0.469
	1238.25			2.248E-01	1.114E-01	2.050E-01	1.386E-02	1.096
	1360.21			8.409E-01	1.069E+00	1.898E+00	1.428E-01	0.443
	1771.40			5.698E-02	2.520E-01	3.783E-01	2.340E-02	0.151
CO-57	122.06	*		1.010E-02	3.223E-02	5.136E-02	3.693E-03	0.197
	136.48			5.930E-02	2.482E-01	4.067E-01	3.122E-02	0.146
CO-58	810.76	*		-1.238E-02	4.595E-02	7.484E-02	5.346E-03	-0.165
FE-59	142.65			1.634E+00	3.359E+00	5.468E+00	3.723E-01	0.299
	192.34			-1.039E+00	1.182E+00	1.784E+00	2.199E-01	-0.582
	1099.22	*		5.454E-02	1.035E-01	1.773E-01	1.341E-02	0.308
	1291.56			-2.647E-02	1.557E-01	2.477E-01	2.090E-02	-0.107
CO-60	1173.22			-2.169E-02	5.152E-02	8.007E-02	4.560E-03	-0.271
	1332.49	*		-2.840E-03	4.373E-02	7.003E-02	5.286E-03	-0.041
ZN-65	1115.52	*		2.295E-02	1.245E-01	1.781E-01	1.157E-02	0.129
GE-68	1077.35	*		8.854E-01	1.454E+00	2.505E+00	1.741E-01	0.353
AS-73	53.44	*		-7.944E-02	1.963E+00	3.263E+00	4.459E-01	-0.024
AS-74	595.88	*		-4.136E-03	1.103E-01	1.738E-01	9.345E-03	-0.024
	634.78			2.060E-01	4.161E-01	6.965E-01	3.612E-02	0.296
SE-75	66.05			6.140E-01	8.425E+00	1.225E+01	1.588E+00	0.050
	96.73			4.642E-01	1.004E+00	1.476E+00	2.117E-01	0.314
	121.11			-1.057E-02	1.670E-01	2.715E-01	2.769E-02	-0.039
	136.00			2.501E-02	4.677E-02	7.748E-02	5.395E-03	0.323
	198.60			-1.366E+00	2.252E+00	3.453E+00	2.756E-01	-0.396
	264.65	*		-2.140E-02	5.795E-02	8.245E-02	5.766E-03	-0.260
	279.53			2.804E-02	1.323E-01	2.233E-01	1.629E-02	0.126
	303.91			1.345E+00	2.479E+00	3.740E+00	3.796E-01	0.360
	400.65			-1.044E-01	2.972E-01	4.628E-01	4.179E-02	-0.226

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	87.88		4.007E+02	5.840E+02	5.757E+02	6.656E+01	0.696
		200.40		-1.594E+01	2.708E+02	4.328E+02	2.958E+01	-0.037
	+	239.00		3.422E+02	3.683E+01	5.861E+01	4.078E+00	5.839
		249.79		-1.970E+01	1.035E+02	1.724E+02	1.200E+01	-0.114
		281.68		-2.425E+02	1.513E+02	2.330E+02	1.605E+01	-1.041
		297.23		4.041E+02	1.351E+02	1.767E+02	1.202E+01	2.287
		303.76		1.366E+02	2.867E+02	4.308E+02	2.912E+01	0.317
		439.47		1.138E+02	2.041E+02	3.476E+02	1.987E+01	0.327
		484.57		-1.640E+01	3.434E+02	5.588E+02	3.180E+01	-0.029
		520.65	*	8.064E+00	1.595E+01	2.689E+01	1.513E+00	0.300
		574.64		-4.301E+02	4.048E+02	5.011E+02	2.737E+01	-0.858
		578.91		1.553E+02	1.607E+02	2.451E+02	1.335E+01	0.634
		585.48		1.357E+03	3.688E+02	6.470E+02	3.507E+01	2.098
		755.35		2.434E+01	2.381E+02	4.009E+02	2.523E+01	0.061
		817.79		-1.006E+02	1.899E+02	3.006E+02	2.172E+01	-0.335
SR-82		698.33		-2.996E+01	4.054E+01	6.452E+01	3.552E+00	-0.464
		776.49	*	-1.284E-01	5.035E-01	7.022E-01	4.635E-02	-0.183
RB-83		1395.20		-1.549E+00	1.084E+01	1.777E+01	1.329E+00	-0.087
		520.41	*	5.093E-02	7.672E-02	1.308E-01	7.357E-03	0.390
RB-84		529.64		3.897E-02	1.192E-01	1.984E-01	1.112E-02	0.196
		552.65		1.787E-01	2.265E-01	3.882E-01	2.150E-02	0.460
KR-85		881.50	*	2.464E-02	7.215E-02	1.232E-01	1.018E-02	0.200
SR-85		513.99	*	1.332E+01	8.402E+00	1.359E+01	7.665E-01	0.980
RB-86		513.99	*	6.908E-02	4.357E-02	7.048E-02	3.975E-03	0.980
Y-88		1076.63	*	9.306E-01	9.272E-01	1.650E+00	1.148E-01	0.564
		898.02		-4.806E-02	4.811E-02	7.234E-02	6.206E-03	-0.664
ZR-88		1836.01	*	3.501E-03	3.018E-02	5.088E-02	2.972E-03	0.069
		392.90	*	1.160E-02	3.409E-02	5.737E-02	3.254E-03	0.202
Y-91		1204.90	*	1.048E+01	2.200E+01	3.720E+01	2.249E+00	0.282
NB-94		702.63	*	2.442E-02	3.961E-02	6.896E-02	3.836E-03	0.354
		871.10		9.531E-03	3.847E-02	6.505E-02	5.258E-03	0.147
NB-95		765.79	*	2.842E-02	5.534E-02	8.370E-02	5.394E-03	0.340
NB-95M		235.69	*	1.617E+00	2.514E-01	3.988E-01	3.370E-02	4.056
ZR-95		724.18		3.479E-01	1.352E-01	2.343E-01	1.618E-02	1.485
		756.15	*	-2.566E-02	7.585E-02	1.232E-01	9.184E-03	-0.208
NB-97		657.90	*	2.681E-02	7.585E-02	Half-Life	too short	
		1024.50		-1.630E+01	7.585E-02	Half-Life	too short	
ZR-97		254.15		-9.748E+00	7.585E-02	Half-Life	too short	
		355.39		-4.146E+00	7.585E-02	Half-Life	too short	
		507.63	*	2.203E+01	7.585E-02	Half-Life	too short	
		602.52		-9.158E+00	7.585E-02	Half-Life	too short	
		1021.30		9.721E+00	7.585E-02	Half-Life	too short	
		1147.95		1.267E+01	7.585E-02	Half-Life	too short	
		1362.66		-1.319E+01	7.585E-02	Half-Life	too short	
		1750.46		2.879E-01	7.585E-02	Half-Life	too short	
MO-99		140.51		-1.481E+01	4.100E+01	6.526E+01	1.774E+01	-0.227
		181.06		-4.986E+00	3.084E+01	4.287E+01	7.492E+00	-0.116
		366.43		-8.418E+01	1.275E+02	2.026E+02	1.231E+01	-0.415
		739.58	*	-5.957E+00	1.597E+01	2.586E+01	3.593E+00	-0.230



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	778.00			-8.645E+00	5.530E+01	8.136E+01	5.390E+00	-0.106
TC-99M	140.51	*		-3.283E+11	5.530E+01	Half-Life too short		
RH-101	127.23	+		3.463E-02	5.041E-02	6.608E-02	4.655E-03	0.524
	198.01	*		-1.011E-02	4.057E-02	6.326E-02	4.315E-03	-0.160
	325.23			3.084E-01	2.964E-01	4.583E-01	3.014E-02	0.673
RH-102	418.52			-1.476E-01	3.148E-01	5.016E-01	2.862E-02	-0.294
	475.06	*		1.898E-02	3.392E-02	5.744E-02	3.274E-03	0.330
	631.29			-1.693E-02	6.294E-02	9.920E-02	5.164E-03	-0.171
	697.49			-6.106E-02	8.762E-02	1.398E-01	7.682E-03	-0.437
	766.84			1.405E-01	1.353E-01	2.146E-01	1.386E-02	0.655
	1046.59			3.741E-02	1.284E-01	2.161E-01	1.576E-02	0.173
	1112.84			-6.045E-02	3.116E-01	4.252E-01	2.772E-02	-0.142
RU-103	497.08	*		-1.619E-02	4.412E-02	6.989E-02	8.796E-03	-0.232
	610.33			1.180E+01	2.327E+00	3.010E+00	4.588E-01	3.921
RH-106	511.85			1.283E+00	2.363E-01	4.595E-01	2.594E-02	2.793
	621.84	*		6.040E-03	3.425E-01	5.530E-01	6.347E-02	0.011
	1050.47			4.884E-01	2.606E+00	4.343E+00	3.148E-01	0.112
RU-106	511.85			1.283E+00	2.363E-01	4.595E-01	2.594E-02	2.793
	621.84	*		6.040E-03	3.425E-01	5.530E-01	2.906E-02	0.011
	1050.47			4.884E-01	2.606E+00	4.343E+00	3.148E-01	0.112
AG-108M	433.93	*		-2.080E-02	3.743E-02	5.920E-02	3.681E-03	-0.351
	614.37			-2.388E-02	4.823E-02	6.317E-02	3.681E-03	-0.378
	722.95			6.382E-02	5.245E-02	8.470E-02	5.358E-03	0.753
AG-110M	657.75	*		6.842E-04	3.857E-02	6.209E-02	3.403E-03	0.011
	677.61			-4.763E-02	3.694E-01	5.867E-01	3.300E-02	-0.081
	706.67			-8.593E-02	2.369E-01	3.869E-01	2.312E-02	-0.222
	763.93			2.063E-02	1.902E-01	2.772E-01	1.868E-02	0.074
	884.67			-8.183E-03	5.044E-02	8.221E-02	7.068E-03	-0.100
	937.48			-8.535E-02	1.220E-01	1.881E-01	1.616E-02	-0.454
	1384.27			-2.896E-03	1.670E-01	2.790E-01	2.168E-02	-0.010
IN-111	171.28			3.999E-01	1.544E+00	2.516E+00	1.679E-01	0.159
	245.39	*		1.567E+00	1.797E+00	2.766E+00	1.926E-01	0.566
IN-113M	391.69	*		-1.000E-02	5.024E-02	8.187E-02	4.966E-03	-0.122
SN-113	391.69	*		-1.000E-02	5.024E-02	8.187E-02	4.966E-03	-0.122
IN-114M	190.27	*		2.628E-01	2.362E-01	3.527E-01	2.391E-02	0.745
CD-115	260.90			2.588E+01	2.118E+02	3.573E+02	2.484E+01	0.072
	492.35			-7.790E-01	5.638E+01	9.191E+01	5.220E+00	-0.008
	527.90	*		-5.052E+00	1.753E+01	2.791E+01	1.566E+00	-0.181
SN-117M	156.02			-1.191E+00	2.801E+00	4.448E+00	2.981E-01	-0.268
	158.56	*		-8.182E-02	6.862E-02	1.050E-01	7.020E-03	-0.779
SB-122	563.90	*		1.913E+00	3.122E+00	5.277E+00	2.903E-01	0.362
	692.80			-2.157E+01	6.524E+01	1.069E+02	5.809E+00	-0.202
I-123	159.00	*		-3.238E+01	6.524E+01	Half-Life too short		
	528.96			4.697E+02	6.524E+01	Half-Life too short		
TE-123M	159.00	*		-4.071E-02	3.362E-02	5.134E-02	3.466E-03	-0.793
I-124	602.71	*		-7.017E-01	1.123E+00	1.464E+00	7.825E-02	-0.479
	722.78			7.389E+00	6.514E+00	1.046E+01	6.104E-01	0.706
	1325.50			2.247E+01	4.912E+01	8.330E+01	6.217E+00	0.270
	1376.25			5.904E+01	4.289E+01	7.916E+01	5.941E+00	0.746

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	1509.49			3.429E+00	1.874E+01	3.033E+01	2.197E+00	0.113
	1691.02			-3.505E+00	3.680E+00	5.026E+00	3.308E-01	-0.697
	602.71			-3.449E-02	5.521E-02	7.196E-02	3.849E-03	-0.479
	645.85			-1.605E-01	5.954E-01	9.373E-01	5.580E-02	-0.171
	709.31			-2.871E+00	3.011E+00	4.672E+00	2.641E-01	-0.614
	713.82			9.272E-01	1.691E+00	2.948E+00	2.995E-01	0.315
	722.78			5.266E-01	4.643E-01	7.454E-01	4.552E-02	0.706
	968.20		+	1.301E+01	6.284E+00	7.587E+00	6.092E-01	1.715
	1045.16			1.056E+00	2.883E+00	4.836E+00	3.533E-01	0.218
	1325.50			1.710E+00	3.738E+00	6.341E+00	4.732E-01	0.270
SB-125	1368.21			-1.999E-01	2.109E+00	3.359E+00	4.298E-01	-0.060
	1436.60			-3.391E-02	3.839E+00	6.403E+00	4.745E-01	-0.005
	1691.02		*	-5.892E-02	6.187E-02	8.448E-02	5.933E-03	-0.697
	427.89		*	4.431E-02	1.041E-01	1.755E-01	1.046E-02	0.252
	463.38		+	4.453E-01	4.728E-01	5.979E-01	3.997E-02	0.745
	600.56			-1.526E-02	2.240E-01	3.385E-01	2.142E-02	-0.045
TE-125M I-126	635.90			1.997E-01	3.062E-01	5.181E-01	3.249E-02	0.385
	109.28		*	-1.275E+00	1.095E+01	1.782E+01	1.771E+00	-0.072
	388.63			7.934E-02	2.454E-01	4.125E-01	2.360E-02	0.192
SB-126	666.33		*	-7.528E-02	2.184E-01	3.410E-01	1.736E-02	-0.221
	753.82			7.272E-01	1.645E+00	2.840E+00	1.781E-01	0.256
	223.80			-3.003E-01	5.403E+00	8.598E+00	5.957E-01	-0.035
	278.60			5.021E+00	3.127E+00	5.557E+00	3.834E-01	0.904
	296.50			1.276E+01	2.922E+00	4.082E+00	2.779E-01	3.127
	414.70			-5.634E-04	8.793E-02	1.446E-01	8.244E-03	-0.004
	415.30			3.600E+00	7.214E+00	1.224E+01	6.978E-01	0.294
	555.20			-4.201E-02	4.865E+00	7.885E+00	4.361E-01	-0.005
	573.80			-1.083E-01	1.372E+00	2.077E+00	1.135E-01	-0.052
	593.00			-3.178E-01	1.111E+00	1.756E+00	9.461E-02	-0.181
SN-126	656.30			-3.971E+00	4.017E+00	5.909E+00	2.992E-01	-0.672
	666.33			-3.154E-02	9.151E-02	1.429E-01	7.271E-03	-0.221
	675.00			-6.587E-01	2.464E+00	3.868E+00	2.011E-01	-0.170
	695.00			-2.145E-02	9.156E-02	1.511E-01	8.250E-03	-0.142
	697.00			-1.051E-01	3.255E-01	5.338E-01	2.929E-02	-0.197
	720.50		*	-5.568E-03	1.987E-01	2.861E-01	1.661E-02	-0.019
	856.80			4.025E-01	6.398E-01	9.787E-01	7.681E-02	0.411
	989.30			8.818E-01	1.472E+00	2.551E+00	2.002E-01	0.346
	1034.80			-2.771E+00	1.040E+01	1.663E+01	1.232E+00	-0.167
	1213.00			1.788E+00	5.781E+00	9.563E+00	5.871E-01	0.187
SB-127	64.28			1.597E-01	9.238E-01	1.350E+00	2.314E-01	0.118
	86.94			8.789E-01	6.267E-01	7.787E-01	3.274E-01	1.129
	87.57		+	1.328E-01	1.936E-01	1.921E-01	2.216E-02	0.692
SB-127	61.10		+	1.244E+02	1.366E+02	2.019E+02	2.883E+01	0.616
	252.40			-3.582E+00	6.102E+00	9.659E+00	4.039E+00	-0.371
	290.80			-1.414E+01	3.387E+01	4.772E+01	4.879E+00	-0.296
	411.60			1.527E+00	1.691E+01	2.798E+01	4.082E+00	0.055
	444.90			2.409E+00	1.318E+01	2.187E+01	2.424E+00	0.110
	473.00			-1.093E+00	2.426E+00	3.845E+00	4.404E-01	-0.284
	543.00			2.033E+01	2.209E+01	3.806E+01	4.981E+00	0.534

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127		603.60		-2.388E+00	1.931E+01	2.655E+01	2.885E+00	-0.090
		685.20	*	-1.806E+00	1.892E+00	2.944E+00	2.811E-01	-0.613
		698.50		-8.684E+00	2.105E+01	3.425E+01	5.006E+00	-0.254
		722.20		4.033E+01	4.476E+01	7.041E+01	6.741E+00	0.573
		783.80		4.893E+00	4.948E+00	8.780E+00	1.010E+00	0.557
		57.60		3.548E+00	1.351E+01	2.002E+01	2.550E+00	0.177
		145.22		1.530E-01	8.294E-01	1.354E+00	9.182E-02	0.113
		172.10		9.024E-02	1.434E-01	2.370E-01	1.583E-02	0.381
		202.84	*	-1.410E-02	6.205E-02	9.258E-02	6.338E-03	-0.152
		374.96		4.734E-02	2.248E-01	3.761E-01	2.235E-02	0.126
I-131		80.18		-1.061E+01	8.925E+00	9.914E+00	1.111E+00	-1.070
		284.30		8.222E-02	1.920E+00	3.216E+00	2.393E-01	0.026
		364.48	*	4.388E-02	1.434E-01	2.415E-01	1.632E-02	0.182
		636.97		-1.673E-01	1.920E+00	3.069E+00	1.828E-01	-0.054
TE-132		722.89		1.149E+01	9.675E+00	1.559E+01	9.248E-01	0.737
		49.72		-4.080E+01	7.103E+01	1.153E+02	1.754E+01	-0.354
		111.76		-4.636E+01	4.535E+01	7.025E+01	7.462E+00	-0.660
		116.30		-1.900E+00	4.168E+01	6.791E+01	7.033E+00	-0.028
BA-133		228.16	*	5.360E-01	1.044E+00	1.789E+00	2.697E-01	0.300
		53.15		4.754E-03	8.476E+00	1.411E+01	1.935E+00	0.000
		79.62		-2.455E+00	2.085E+00	2.569E+00	4.312E-01	-0.955
		81.00		-2.820E-01	2.142E-01	1.930E-01	3.359E-02	-1.461
I-133		276.40		6.116E-01	4.986E-01	7.713E-01	1.041E-01	0.793
		302.84		1.763E-02	1.761E-01	2.573E-01	3.130E-02	0.069
		356.01	*	1.137E-02	5.240E-02	7.669E-02	9.031E-03	0.148
		383.85		2.737E-01	3.656E-01	6.260E-01	6.807E-02	0.437
	+	510.53		3.097E+00	3.656E-01	Half-Life	too short	
		529.87	*	1.617E-03	3.656E-01	Half-Life	too short	
		706.58		-3.884E-01	3.656E-01	Half-Life	too short	
		856.28		2.125E-01	3.656E-01	Half-Life	too short	
		875.33		-1.672E-02	3.656E-01	Half-Life	too short	
		1236.41		2.938E+00	3.656E-01	Half-Life	too short	
CS-134		1298.22		8.396E-01	3.656E-01	Half-Life	too short	
		475.35		2.282E+00	2.162E+00	3.774E+00	2.151E-01	0.605
		563.23		4.487E-01	4.091E-01	7.132E-01	4.016E-02	0.629
		569.32		1.296E-01	2.230E-01	3.762E-01	2.131E-02	0.344
I-135		604.70		3.761E-02	4.514E-02	6.791E-02	3.648E-03	0.554
	+	795.84	*	7.835E-02	5.875E-02	9.529E-02	6.640E-03	0.822
		801.93		-5.281E-01	4.687E-01	6.689E-01	4.711E-02	-0.789
		1038.57		-3.818E+00	4.262E+00	6.352E+00	4.684E-01	-0.601
		1167.94		-3.939E-01	2.991E+00	4.814E+00	2.778E-01	-0.082
		1365.15		-3.997E-01	1.410E+00	2.187E+00	1.742E-01	-0.183
		288.45		-3.734E+11	1.410E+00	Half-Life	too short	
		417.63		-1.507E+11	1.410E+00	Half-Life	too short	
		546.56		-2.051E+11	1.410E+00	Half-Life	too short	
		836.80		5.792E+11	1.410E+00	Half-Life	too short	
I-135		1038.76		-2.591E+11	1.410E+00	Half-Life	too short	
		1124.00		-2.070E+11	1.410E+00	Half-Life	too short	
		1131.51		7.810E+10	1.410E+00	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136	1260.41	*		3.148E+10	1.410E+00	Half-Life	too short	
	1457.56			1.696E+13	1.410E+00	Half-Life	too short	
	1678.03			-8.992E+10	1.410E+00	Half-Life	too short	
	1706.46			2.329E+11	1.410E+00	Half-Life	too short	
	1791.20			-2.112E+10	1.410E+00	Half-Life	too short	
	66.91			5.706E-02	1.502E+00	2.035E+00	3.501E-01	0.028
	86.29			2.583E+00	1.735E+00	2.584E+00	3.849E-01	1.000
	153.22			1.301E+00	8.115E-01	1.385E+00	1.105E-01	0.939
	163.89			1.511E+00	1.341E+00	2.254E+00	1.794E-01	0.670
	176.55			-1.167E-01	4.744E-01	7.558E-01	5.543E-02	-0.154
	273.65			-1.117E+00	6.661E-01	8.579E-01	6.534E-02	-1.302
	340.57			2.317E-01	1.727E-01	2.713E-01	1.830E-02	0.854
	818.51			-5.653E-02	8.058E-02	1.252E-01	9.074E-03	-0.452
	1048.07	*		-2.785E-02	1.339E-01	2.153E-01	1.659E-02	-0.129
BA-137M	1235.34			7.383E-01	7.648E-01	1.323E+00	1.369E-01	0.558
	661.65	*		3.215E-02	4.056E-02	6.911E-02	3.477E-03	0.465
	661.65	*		3.399E-02	4.288E-02	7.305E-02	3.696E-03	0.465
	165.85	*		-8.709E-03	3.543E-02	5.656E-02	3.762E-03	-0.154
CE-139	162.64			4.356E-01	9.346E-01	1.537E+00	1.122E-01	0.283
	304.84			3.619E-01	1.617E+00	2.379E+00	6.546E-01	0.152
LA-140	423.70			7.375E-01	2.290E+00	3.820E+00	1.214E+00	0.193
	537.32	*		-2.222E-01	3.118E-01	4.648E-01	1.510E-01	-0.478
	328.77			2.930E-01	4.357E-01	6.566E-01	4.705E-02	0.446
	432.53			-2.305E-01	2.517E+00	4.110E+00	2.601E-01	-0.056
	487.03			1.200E-01	1.612E-01	2.764E-01	1.787E-02	0.434
	751.79			1.396E+00	1.955E+00	3.437E+00	2.565E-01	0.406
	815.85			-1.146E-01	3.716E-01	6.016E-01	5.030E-02	-0.190
	867.82			-5.735E-02	1.722E+00	2.783E+00	2.371E-01	-0.021
	919.63			2.869E-01	3.331E+00	5.296E+00	5.543E-01	0.054
	925.24			1.109E+00	1.343E+00	2.368E+00	2.111E-01	0.468
CE-141	1596.49	*		2.082E-02	9.852E-02	1.682E-01	1.172E-02	0.124
	145.44	*		2.409E-02	7.460E-02	1.224E-01	8.544E-03	0.197
CE-143	57.37			2.160E-03	7.460E-02	Half-Life	too short	
	231.56			-3.059E-03	7.460E-02	Half-Life	too short	
+	293.26	*		1.903E-03	7.460E-02	Half-Life	too short	
	350.59			5.263E-02	7.460E-02	Half-Life	too short	
CE-144	490.36			-6.764E-04	7.460E-02	Half-Life	too short	
	664.57			7.316E-04	7.460E-02	Half-Life	too short	
	721.93			2.227E-03	7.460E-02	Half-Life	too short	
	80.11			-4.515E+00	3.754E+00	4.165E+00	4.646E-01	-1.084
	133.54	*		-1.127E-01	2.801E-01	3.888E-01	5.714E-02	-0.290
PM-144	476.78			5.152E-02	7.598E-02	1.297E-01	8.895E-03	0.397
	618.01			1.533E-02	3.341E-02	5.593E-02	3.163E-03	0.274
PR-144	696.49	*		-1.226E-02	4.020E-02	6.605E-02	3.624E-03	-0.186
	778.57			-2.630E-01	2.712E+00	4.156E+00	2.758E-01	-0.063
	696.49	*		-8.315E-01	2.726E+00	4.479E+00	2.455E-01	-0.186
PM-146	1489.15			-5.952E+00	1.105E+01	1.671E+01	1.219E+00	-0.356
	453.90	*		-3.117E-03	5.138E-02	8.385E-02	7.181E-03	-0.037
	633.02			-1.235E+00	1.706E+00	2.491E+00	9.151E-01	-0.496

---- Non-Identified Nuclides ----

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ND-147	735.90			1.537E-01	1.707E-01	2.850E-01	7.960E-02	0.539
	747.13			2.338E-02	9.530E-02	1.623E-01	2.058E-02	0.144
	91.11			4.213E-01	5.952E-01	6.861E-01	7.803E-02	0.614
	319.41			9.055E-01	4.185E+00	7.040E+00	4.670E-01	0.129
	439.89			1.729E-01	6.564E+00	1.079E+01	6.169E-01	0.016
PM-149	531.02	*		2.697E-01	6.806E-01	1.136E+00	1.527E-01	0.237
EU-152	285.90	*		9.935E+01	1.500E+02	2.573E+02	3.768E+01	0.386
	121.78			8.678E-03	9.036E-02	1.478E-01	1.289E-02	0.059
	244.69			3.891E-01	4.283E-01	6.603E-01	4.597E-02	0.589
	344.27	*		1.360E-01	1.668E-01	1.826E-01	1.287E-02	0.745
	443.98			2.878E-01	1.048E+00	1.750E+00	1.000E-01	0.164
	778.89			-2.480E-02	3.089E-01	4.883E-01	3.240E-02	-0.051
	867.32			1.157E-01	9.722E-01	1.555E+00	1.247E-01	0.074
	964.01			2.477E-01	4.156E-01	6.230E-01	5.024E-02	0.398
	1085.78			3.653E-01	4.979E-01	8.624E-01	5.908E-02	0.424
	1112.02			3.315E-02	3.980E-01	6.066E-01	3.960E-02	0.055
GD-153	1407.95			1.660E-01	2.013E-01	3.670E-01	2.738E-02	0.452
	69.67			-1.074E-01	2.637E+00	3.825E+00	4.318E-01	-0.028
	83.37			5.327E+00	2.128E+01	3.088E+01	3.484E+00	0.173
	97.43	*		3.444E-02	1.035E-01	1.514E-01	1.453E-02	0.227
EU-154	103.18			1.213E-01	1.260E-01	2.130E-01	1.874E-02	0.570
	123.07			2.964E-02	7.239E-02	1.054E-01	1.085E-02	0.281
	247.94			-6.512E-02	4.196E-01	7.005E-01	7.208E-02	-0.093
	591.81			-2.194E-01	7.164E-01	1.097E+00	1.046E-01	-0.200
	723.30			3.716E-01	2.271E-01	3.767E-01	2.680E-02	0.986
	756.87			-5.520E-01	8.051E-01	1.265E+00	1.321E-01	-0.436
	873.19			1.754E-01	3.229E-01	5.589E-01	6.649E-02	0.314
	996.32			-3.402E-01	4.620E-01	5.765E-01	1.002E-01	-0.590
	1004.76			1.904E-01	2.494E-01	3.883E-01	4.264E-02	0.490
	1274.45	*		2.123E-02	1.499E-01	2.459E-01	2.466E-02	0.086
EU-155	48.70			-3.075E+00	7.577E+00	1.242E+01	1.598E+00	-0.248
	60.01			5.691E+00	9.483E+00	1.426E+01	1.743E+00	0.399
	86.54			2.298E-01	1.494E-01	2.248E-01	2.592E-02	1.022
	105.31	*		1.208E-02	1.295E-01	2.127E-01	1.842E-02	0.057
TB-160	86.79			6.618E-01	4.034E-01	6.079E-01	6.982E-02	1.089
	197.04			4.349E-01	6.818E-01	1.104E+00	7.522E-02	0.394
	215.65			-1.119E+00	9.846E-01	1.426E+00	9.842E-02	-0.784
	298.57			3.709E-01	2.018E-01	2.433E-01	1.653E-02	1.524
	879.36	*		1.348E-02	1.498E-01	2.501E-01	2.056E-02	0.054
	962.29			1.117E+00	7.223E-01	1.179E+00	9.527E-02	0.947
	966.15			1.094E+00	3.499E-01	6.017E-01	4.842E-02	1.818
	1177.93			-2.192E-02	4.213E-01	6.824E-01	3.922E-02	-0.032
	1271.85			-3.361E-01	8.886E-01	1.386E+00	9.450E-02	-0.243
	80.57			-5.350E-01	5.598E-01	5.333E-01	5.957E-02	-1.003
HO-166M	184.41	+		1.271E-01	6.192E-02	7.924E-02	5.347E-03	1.604
	280.46			-7.820E-02	1.042E-01	1.683E-01	1.160E-02	-0.465
	410.95			1.255E-01	2.837E-01	4.787E-01	2.727E-02	0.262
	711.68	*		-4.542E-02	6.377E-02	1.008E-01	5.732E-03	-0.450
	752.31			1.367E-01	2.959E-01	5.114E-01	3.196E-02	0.267

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		810.29		-2.045E-02	6.869E-02	1.116E-01	7.937E-03	-0.183
		51.35		-1.964E+01	8.102E+01	1.336E+02	1.846E+01	-0.147
		52.39		-1.492E+00	3.901E+01	6.487E+01	8.948E+00	-0.023
		59.40		1.267E+01	5.193E+01	7.682E+01	9.453E+00	0.165
LU-176		66.72	*	4.639E+00	5.196E+01	7.060E+01	8.118E+00	0.066
	+	88.36		3.150E-01	4.592E-01	4.365E-01	5.008E-02	0.722
		201.83		-3.414E-02	3.497E-02	5.347E-02	3.658E-03	-0.638
		306.84	*	3.035E-03	3.100E-02	4.525E-02	3.048E-03	0.067
LU-177		401.10		-4.264E+00	7.680E+00	1.179E+01	6.701E-01	-0.362
		112.95		1.913E+00	2.155E+00	3.603E+00	2.821E-01	0.531
	+	208.36	*	3.171E+00	1.945E+00	2.586E+00	1.777E-01	1.226
		52.97		9.056E-02	3.898E+00	6.496E+00	8.922E-01	0.014
LU-177M		54.07		1.294E+00	1.953E+00	3.321E+00	4.501E-01	0.390
	+	61.30		2.677E+00	2.934E+00	4.306E+00	5.198E-01	0.622
		121.62		3.392E-02	4.652E-01	7.603E-01	5.478E-02	0.045
		147.16		-1.424E-01	7.523E-01	1.209E+00	8.181E-02	-0.118
HF-181		171.86		3.726E-01	5.683E-01	9.403E-01	6.279E-02	0.396
		218.09		5.154E-01	1.052E+00	1.716E+00	1.186E-01	0.300
	+	268.79		3.044E+00	1.433E+00	1.755E+00	1.217E-01	1.735
		319.02		1.412E-01	3.030E-01	5.159E-01	3.423E-02	0.274
W-181		367.43		-4.909E-01	1.046E+00	1.682E+00	1.019E-01	-0.292
		413.65	*	-7.986E-02	2.001E-01	3.211E-01	1.830E-02	-0.249
		56.28		-4.324E-01	1.973E+00	3.251E+00	4.245E-01	-0.133
		57.53		3.617E-01	1.075E+00	1.681E+00	2.144E-01	0.215
TA-182		65.20		2.528E-01	1.706E+00	2.490E+00	2.898E-01	0.102
		133.02		-6.133E-02	9.085E-02	1.242E-01	8.615E-03	-0.494
		136.25		2.870E-01	5.498E-01	9.105E-01	6.269E-02	0.315
		345.85		1.811E-02	2.585E-01	3.534E-01	2.243E-02	0.051
RE-183		482.03	*	-5.069E-02	4.745E-02	7.124E-02	4.055E-03	-0.712
		56.28		-1.672E-01	7.633E-01	1.258E+00	1.642E-01	-0.133
		57.53		1.397E-01	4.162E-01	6.512E-01	8.305E-02	0.215
		65.20	*	9.712E-02	6.555E-01	9.566E-01	1.113E-01	0.102
RE-184		67.75		5.094E-02	2.168E-01	2.703E-01	3.086E-02	0.188
		100.10		-1.336E-01	2.159E-01	3.451E-01	3.174E-02	-0.387
		152.43		5.223E-01	3.928E-01	6.664E-01	4.482E-02	0.784
		222.10		1.754E-01	4.309E-01	7.000E-01	4.846E-02	0.251
RE-183	+	1001.68		6.087E+00	3.115E+00	4.382E+00	3.390E-01	1.389
	+	1121.28		5.425E-01	2.600E-01	3.817E-01	2.447E-02	1.421
		1189.05		-1.357E-01	3.670E-01	5.774E-01	3.389E-02	-0.235
		1221.42	*	6.300E-02	2.312E-01	3.839E-01	2.394E-02	0.164
RE-183		1230.97		-6.531E-01	5.781E-01	8.377E-01	5.314E-02	-0.780
		57.98		1.033E-01	4.284E-01	6.339E-01	8.014E-02	0.163
		59.32		5.530E-02	2.164E-01	3.203E-01	3.948E-02	0.173
		67.20		1.408E-02	4.004E-01	4.926E-01	5.645E-02	0.029
RE-184		162.32	*	2.229E-02	1.306E-01	2.123E-01	1.415E-02	0.105
	+	208.81		2.576E+00	1.580E+00	2.107E+00	1.448E-01	1.223
		291.72		9.862E-01	1.239E+00	1.893E+00	1.294E-01	0.521
		57.98		3.783E-01	1.569E+00	2.321E+00	2.935E-01	0.163
		59.32		2.023E-01	7.917E-01	1.172E+00	1.444E-01	0.173

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		67.20		5.153E-02	1.466E+00	1.803E+00	2.066E-01	0.029
		161.27		2.779E-01	4.156E-01	6.889E-01	4.596E-02	0.403
		216.55		-1.352E-01	3.277E-01	5.134E-01	3.545E-02	-0.263
		252.85	*	-1.827E-01	2.619E-01	4.253E-01	2.960E-02	-0.430
		318.01		-1.896E-01	5.275E-01	8.615E-01	5.724E-02	-0.220
		792.07		2.208E-01	1.213E+00	1.778E+00	1.215E-01	0.124
		903.28		9.440E-01	1.258E+00	2.011E+00	1.710E-01	0.469
		920.93		-1.026E-01	5.134E-01	8.331E-01	6.987E-02	-0.123
		59.72		2.116E-01	5.708E-01	8.496E-01	1.041E-01	0.249
	+	61.14		2.938E-01	3.220E-01	4.760E-01	5.756E-02	0.617
		69.30		-2.672E-01	4.884E-01	6.894E-01	7.798E-02	-0.388
		592.07		-2.173E+00	2.937E+00	4.471E+00	2.411E-01	-0.486
		646.12	*	-1.586E-03	4.980E-02	7.991E-02	4.094E-03	-0.020
		717.42		-7.629E-01	9.890E-01	1.558E+00	8.977E-02	-0.490
		874.81		2.067E-02	6.486E-01	1.078E+00	8.777E-02	0.019
RE-188		880.27		7.328E-02	8.196E-01	1.368E+00	1.127E-01	0.054
		155.03	*	1.141E-01	2.027E-01	3.350E-01	2.247E-02	0.341
		477.96		1.355E-01	3.482E+00	5.706E+00	3.251E-01	0.024
W-188		633.10		-2.561E+00	3.359E+00	5.078E+00	2.638E-01	-0.504
	+	63.58		1.014E+02	1.111E+02	1.464E+02	1.729E+01	0.692
		227.08		-9.146E+00	1.562E+01	2.572E+01	1.784E+00	-0.356
IR-192		290.67	*	-4.224E+00	9.743E+00	1.372E+01	9.386E-01	-0.308
	+	295.96		8.909E-01	2.208E-01	3.088E-01	2.127E-02	2.885
		308.46		4.004E-02	1.093E-01	1.810E-01	1.228E-02	0.221
AU-195		316.51	*	2.284E-03	4.132E-02	6.898E-02	4.610E-03	0.033
		468.07		4.919E-02	8.691E-02	1.294E-01	8.550E-03	0.380
		604.41		3.207E-01	6.054E-01	8.864E-01	9.858E-02	0.362
		612.46		5.241E-01	8.597E-01	1.275E+00	9.175E-02	0.411
		65.12		6.813E-02	3.045E-01	4.459E-01	5.194E-02	0.153
		66.83		1.019E-02	1.716E-01	2.328E-01	2.675E-02	0.044
TL-200	+	75.70		1.699E+00	3.834E-01	6.017E-01	6.681E-02	2.824
		98.88	*	1.591E-01	2.845E-01	4.425E-01	4.148E-02	0.359
	+	129.76		3.063E+00	4.459E+00	5.708E+00	3.992E-01	0.537
TL-201		367.94	*	-2.669E-04	4.459E+00	Half-Life	too short	
		579.30		2.085E-02	4.459E+00	Half-Life	too short	
		828.27		-4.578E-03	4.459E+00	Half-Life	too short	
TL-202		1205.75		-4.751E-04	4.459E+00	Half-Life	too short	
		68.90		-2.714E+00	9.783E+00	1.402E+01	1.589E+00	-0.194
		70.82		2.629E+00	5.402E+00	8.021E+00	9.005E-01	0.328
HG-203		80.30		-1.319E+01	1.132E+01	1.261E+01	1.407E+00	-1.047
		135.34		2.824E+01	3.804E+01	6.350E+01	4.381E+00	0.445
		167.43	*	-4.383E+00	1.036E+01	1.639E+01	1.091E+00	-0.267
TL-202		68.90		-2.028E-01	7.309E-01	1.047E+00	1.187E-01	-0.194
		70.82		1.959E-01	4.024E-01	5.975E-01	6.709E-02	0.328
		80.30		-9.833E-01	8.439E-01	9.395E-01	1.049E-01	-1.047
HG-203		439.56	*	3.931E-02	7.632E-02	1.297E-01	7.410E-03	0.303
		70.83		8.216E-01	1.669E+00	2.475E+00	3.810E-01	0.332
	+	72.87		3.752E+00	1.296E+00	1.709E+00	2.559E-01	2.196
		82.60		-3.072E-01	1.773E+00	2.355E+00	3.656E-01	-0.130

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-207		279.20	*	6.033E-02	4.929E-02	8.651E-02	6.231E-03	0.697
	+	72.80		1.082E+00	3.578E-01	4.912E-01	5.479E-02	2.203
	+	74.97		6.412E-01	2.119E-01	3.356E-01	3.728E-02	1.911
		84.90		5.647E-01	2.793E-01	4.279E-01	4.863E-02	1.320
		569.67		2.096E-02	3.516E-02	5.934E-02	3.253E-03	0.353
TL-207		1063.62	*	1.276E-02	5.889E-02	9.836E-02	6.988E-03	0.130
		1770.23		1.814E-01	5.080E-01	7.874E-01	4.876E-02	0.230
		81.07		-3.679E-01	4.428E-01	4.275E-01	4.782E-02	-0.860
		83.78		7.694E-02	1.807E-01	2.641E-01	2.985E-02	0.291
		94.90		3.393E-01	3.001E-01	4.537E-01	4.550E-02	0.748
		122.32		8.736E-01	2.235E+00	3.572E+00	2.828E-01	0.245
		144.24		1.608E-01	8.299E-01	1.336E+00	1.076E-01	0.120
		154.21		3.654E-01	4.622E-01	7.697E-01	5.992E-02	0.475
	+	269.46		7.094E-01	3.341E-01	4.192E-01	2.998E-02	1.692
		323.87	*	-1.268E-01	8.506E-01	1.214E+00	2.041E-01	-0.104
PO-209	+	338.28		7.673E+00	2.128E+00	2.744E+00	2.990E-01	2.797
		445.03		6.147E-01	2.535E+00	4.223E+00	4.317E-01	0.146
		260.50		1.804E+00	1.115E+01	1.884E+01	1.310E+00	0.096
		262.80		-3.596E+00	3.236E+01	5.097E+01	3.541E+00	-0.071
		896.60	*	-5.192E+00	8.617E+00	1.350E+01	1.150E+00	-0.384
BI-210		46.50	*	-1.089E+00	1.294E+01	2.099E+01	2.180E+00	-0.052
PB-210		46.50	*	-1.089E+00	1.294E+01	2.099E+01	2.180E+00	-0.052
PO-210		46.50	*	-1.089E+00	1.294E+01	2.099E+01	2.016E+00	-0.052
PB-211		404.84	*	-2.806E-01	1.099E+00	1.760E+00	1.097E+00	-0.159
BI-212		427.08		-8.203E-02	2.381E+00	3.903E+00	2.412E+00	-0.021
		831.96		-2.180E-01	1.357E+00	2.215E+00	1.385E+00	-0.098
	+	727.18	*	1.403E+00	5.676E-01	7.619E-01	5.932E-02	1.842
		785.46		2.038E+00	1.905E+00	3.418E+00	2.302E-01	0.596
		1620.62		7.290E-01	1.254E+00	2.263E+00	1.557E-01	0.322
PO-215		81.07		-3.679E-01	4.428E-01	4.275E-01	4.782E-02	-0.860
		83.78		7.694E-02	1.807E-01	2.641E-01	2.985E-02	0.291
		94.90		3.393E-01	3.001E-01	4.537E-01	4.550E-02	0.748
		122.32		8.736E-01	2.235E+00	3.572E+00	2.828E-01	0.245
		144.24		1.608E-01	8.299E-01	1.336E+00	1.076E-01	0.120
		154.21		3.654E-01	4.622E-01	7.697E-01	5.992E-02	0.475
	+	269.46		7.094E-01	3.341E-01	4.192E-01	2.998E-02	1.692
		323.87	*	-1.268E-01	8.506E-01	1.214E+00	2.041E-01	-0.104
	+	338.28		7.673E+00	2.128E+00	2.744E+00	2.990E-01	2.797
		445.03		6.147E-01	2.535E+00	4.223E+00	4.317E-01	0.146
RN-219		271.23		5.531E-01	3.257E-01	5.174E-01	4.629E-02	1.069
		401.81	*	-1.491E-01	4.548E-01	7.334E-01	9.943E-02	-0.203
RN-220		549.76	*	2.198E+00	2.958E+01	4.826E+01	2.677E+00	0.046
RA-223		81.07		-3.679E-01	4.428E-01	4.275E-01	4.782E-02	-0.860
		83.78		7.694E-02	1.807E-01	2.641E-01	2.985E-02	0.291
		94.90		3.393E-01	3.001E-01	4.537E-01	4.550E-02	0.748
		122.32		8.736E-01	2.235E+00	3.572E+00	2.828E-01	0.245
		144.24		1.608E-01	8.299E-01	1.336E+00	1.076E-01	0.120
		154.21		3.654E-01	4.622E-01	7.697E-01	5.992E-02	0.475
	+	269.46		7.094E-01	3.341E-01	4.192E-01	2.998E-02	1.692



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		323.87	*	-1.268E-01	8.506E-01	1.214E+00	2.041E-01	-0.104
	+	338.28		7.673E+00	2.128E+00	2.744E+00	2.990E-01	2.797
		445.03		6.147E-01	2.535E+00	4.223E+00	4.317E-01	0.146
		79.80		-3.208E+00	2.683E+00	3.239E+00	7.331E-01	-0.991
		236.00		4.295E+00	6.361E-01	8.276E-01	9.215E-02	5.190
		256.20	*	3.156E-04	4.346E-01	7.296E-01	1.056E-01	0.000
TH-227		286.10		1.414E+00	1.776E+00	3.065E+00	3.718E-01	0.461
	+	299.80		5.309E+00	2.505E+00	3.061E+00	5.100E-01	1.735
		304.40		7.019E-01	2.241E+00	3.322E+00	5.860E-01	0.211
		334.20		-1.789E-01	3.569E+00	4.480E+00	8.315E-01	-0.040
		79.80		-3.208E+00	2.685E+00	3.239E+00	7.416E-01	-0.991
	+	94.00		6.890E+00	4.182E+00	4.148E+00	9.313E-01	1.661
TH-229		236.00		4.295E+00	5.954E-01	8.276E-01	8.140E-02	5.190
		256.20	*	3.156E-04	4.346E-01	7.296E-01	1.264E-01	0.000
		286.10		1.414E+00	2.265E+00	3.065E+00	3.072E+00	0.461
	+	299.80		5.309E+00	2.505E+00	3.061E+00	5.100E-01	1.735
		304.40		7.019E-01	2.241E+00	3.322E+00	5.860E-01	0.211
		334.20		-1.789E-01	3.569E+00	4.480E+00	8.315E-01	-0.040
PA-231		85.43		4.704E-01	2.808E-01	4.241E-01	4.833E-02	1.109
	+	88.47		1.814E-01	2.643E-01	2.485E-01	2.844E-02	0.730
		100.00		-6.959E-02	2.200E-01	3.562E-01	3.281E-02	-0.195
		193.63	*	-2.037E-02	6.173E-01	9.740E-01	6.622E-02	-0.021
		210.97		1.197E+00	1.036E+00	1.539E+00	1.059E-01	0.778
		283.67	*	-2.950E-01	1.796E+00	2.980E+00	4.251E-01	-0.099
TH-231	+	301.29		2.124E+00	9.662E-01	1.184E+00	1.305E-01	1.794
		81.07		-3.679E-01	4.428E-01	4.275E-01	4.782E-02	-0.860
		83.78		7.694E-02	1.807E-01	2.641E-01	2.985E-02	0.291
		94.90		3.393E-01	3.001E-01	4.537E-01	4.550E-02	0.748
		122.32		8.736E-01	2.235E+00	3.572E+00	2.828E-01	0.245
		144.24		1.608E-01	8.299E-01	1.336E+00	1.076E-01	0.120
U-231		154.21		3.654E-01	4.622E-01	7.697E-01	5.992E-02	0.475
	+	269.46		7.094E-01	3.341E-01	4.192E-01	2.998E-02	1.692
		323.87	*	-1.268E-01	8.506E-01	1.214E+00	2.041E-01	-0.104
	+	338.28		7.673E+00	2.128E+00	2.744E+00	2.990E-01	2.797
		445.03		6.147E-01	2.535E+00	4.223E+00	4.317E-01	0.146
		84.21		1.025E+01	9.294E+00	1.390E+01	1.574E+00	0.738
PA-233	+	92.29		8.139E+00	4.664E+00	5.616E+00	5.918E-01	1.449
		95.87	*	4.284E-01	1.674E+00	2.440E+00	2.405E-01	0.176
		108.00		-1.065E+00	2.921E+00	4.710E+00	3.896E-01	-0.226
	+	75.28		2.739E+01	7.092E+00	9.846E+00	1.661E+00	2.782
		86.59		3.784E+00	2.611E+00	3.654E+00	1.018E+00	1.036
	+	300.12		1.480E+00	6.849E-01	8.560E-01	1.189E-01	1.729
PA-234		311.98	*	1.815E-02	7.248E-02	1.223E-01	8.571E-03	0.148
		340.50		1.217E+00	8.434E-01	1.267E+00	2.931E-01	0.961
		398.62		-1.334E+00	2.447E+00	3.725E+00	9.621E-01	-0.358
		415.76		-1.460E-01	1.812E+00	2.965E+00	6.096E-01	-0.049
	+	63.00		2.909E+00	3.210E+00	4.336E+00	7.597E-01	0.671
		94.67		3.370E-01	2.210E-01	3.351E-01	4.507E-02	1.006
		98.44		1.064E-01	1.333E-01	1.797E-01	1.005E-01	0.592

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		99.86		-1.039E-02	5.539E-01	9.073E-01	8.376E-02	-0.011
		111.00		-2.553E-01	2.225E-01	3.443E-01	4.011E-02	-0.741
		131.20		-5.799E-02	1.408E-01	1.956E-01	1.363E-02	-0.296
		152.70		5.698E-01	3.863E-01	6.432E-01	1.040E-01	0.886
	+	186.00		4.575E+00	2.618E+00	2.903E+00	8.928E-01	1.576
		226.40		-2.306E-01	4.802E-01	7.935E-01	9.656E-02	-0.291
		227.20		-3.031E-01	5.219E-01	8.598E-01	5.964E-02	-0.353
		248.90		-4.232E-02	9.333E-01	1.565E+00	3.417E-01	-0.027
	+	293.70		5.552E+00	1.607E+00	1.897E+00	3.127E-01	2.926
		369.80		2.176E-01	9.582E-01	1.604E+00	3.350E-01	0.136
		568.70		-1.199E-01	1.134E+00	1.822E+00	9.995E-02	-0.066
		569.50		1.956E-01	3.094E-01	5.237E-01	2.871E-02	0.374
		574.00		-9.890E-02	1.822E+00	2.764E+00	1.510E-01	-0.036
		699.00		1.248E-01	8.177E-01	1.385E+00	2.477E-01	0.090
		706.10		-1.583E-01	1.201E+00	1.992E+00	8.784E-01	-0.079
		733.00		-3.200E-02	4.504E-01	6.443E-01	1.373E-01	-0.050
		742.81		-8.057E-01	1.476E+00	2.182E+00	1.460E+00	-0.369
	+	796.30		1.521E+00	1.205E+00	1.853E+00	4.919E-01	0.821
		805.60		-5.865E-02	1.088E+00	1.803E+00	5.452E-01	-0.033
		819.60		-1.324E+00	1.398E+00	1.972E+00	7.443E-01	-0.671
		826.30		2.519E-01	8.578E-01	1.450E+00	6.453E-01	0.174
		831.60		-3.163E-01	7.236E-01	1.151E+00	3.399E-01	-0.275
		876.40		3.098E-02	8.913E-01	1.480E+00	1.521E+00	0.021
		880.51		5.308E-03	2.970E-01	4.926E-01	4.059E-02	0.011
		883.24		-1.850E-02	2.863E-01	4.706E-01	3.161E-01	-0.039
		899.00		-9.909E-01	1.039E+00	1.416E+00	6.186E-01	-0.700
		925.00		1.228E+00	1.329E+00	2.359E+00	1.972E-01	0.521
		926.50		9.550E-03	1.985E-01	3.291E-01	8.288E-02	0.029
		946.00	*	-3.213E-01	3.354E-01	4.942E-01	9.182E-02	-0.650
		949.00		5.631E-02	4.837E-01	8.059E-01	6.594E-02	0.070
		980.50		3.856E-01	7.976E-01	1.370E+00	1.086E-01	0.281
		1394.10		-3.879E-02	1.064E+00	1.770E+00	1.150E+00	-0.022
PA-234M		766.42		1.219E+01	1.554E+01	2.231E+01	1.125E+01	0.546
	+	1001.03	*	1.373E+01	7.059E+00	1.012E+01	9.326E-01	1.357
U-235	+	89.95		1.820E+00	2.707E+00	2.428E+00	7.679E-01	0.750
	+	93.35		2.144E+00	1.355E+00	1.421E+00	4.064E-01	1.508
		105.00		4.504E-01	1.277E+00	2.107E+00	6.286E-01	0.214
		143.76	*	-5.220E-02	2.585E-01	4.100E-01	6.840E-02	-0.127
		163.35		4.497E-01	5.641E-01	9.302E-01	1.700E-01	0.483
	+	185.71		1.695E-01	8.256E-02	1.077E-01	7.275E-03	1.574
		205.31		2.288E-03	7.259E-01	9.965E-01	1.829E-01	0.002
NP-236		94.67		2.572E-01	1.661E-01	2.543E-01	2.561E-02	1.011
		98.44		8.043E-02	9.052E-02	1.359E-01	1.283E-02	0.592
		111.00		-1.931E-01	1.675E-01	2.605E-01	2.082E-02	-0.741
		160.31	*	5.111E-03	9.160E-02	1.483E-01	9.901E-03	0.034
NP-237		86.50	*	5.530E-01	3.814E-01	5.475E-01	1.292E-01	1.010
		95.87		3.161E-01	1.237E+00	1.801E+00	4.518E-01	0.176
NP-239		99.55		2.677E-02	1.862E-01	3.069E-01	2.847E-02	0.087
		117.00	*	-7.536E-02	2.304E-01	3.712E-01	2.790E-02	-0.203

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	209.75		2.011E+00	1.233E+00	1.633E+00	1.123E-01	1.231
		228.18		1.403E-01	2.705E-01	4.647E-01	3.225E-02	0.302
		277.60		3.490E-01	2.221E-01	3.858E-01	2.664E-02	0.905
		334.30		3.261E-02	2.027E+00	2.561E+00	1.660E-01	0.013
AM-241		59.54	*	7.939E-02	2.992E-01	4.430E-01	5.638E-02	0.179
CM-243		99.55		2.755E-02	1.916E-01	3.159E-01	2.930E-02	0.087
		103.76	*	4.331E-02	1.178E-01	1.955E-01	1.706E-02	0.222
		117.00		-7.754E-02	2.371E-01	3.819E-01	2.871E-02	-0.203
	+	209.75		1.982E+00	1.216E+00	1.610E+00	1.107E-01	1.231
		228.18		1.418E-01	2.733E-01	4.696E-01	3.259E-02	0.302
		277.60		3.518E-01	2.239E-01	3.889E-01	2.685E-02	0.905
AM-246		798.80		9.304E-03	1.624E-01	2.346E-01	1.627E-02	0.040
		1036.00		-1.784E-01	3.314E-01	5.147E-01	3.810E-02	-0.347
		1062.04		1.212E-02	2.555E-01	4.203E-01	2.993E-02	0.029
		1078.86	*	-7.317E-03	1.668E-01	2.718E-01	1.884E-02	-0.027
CM-247		278.00		1.645E+00	8.938E-01	1.599E+00	1.104E-01	1.029
		287.40		5.391E-01	1.442E+00	2.392E+00	1.641E-01	0.225
		402.60	*	-1.138E-02	4.118E-02	6.669E-02	3.793E-03	-0.171
CF-249		252.85		-6.825E-01	9.785E-01	1.589E+00	1.106E-01	-0.430
		333.44		-5.920E-02	3.527E-01	3.324E-01	2.158E-02	-0.178
		387.95	*	5.447E-03	4.546E-02	7.555E-02	4.332E-03	0.072
CF-251		176.60	*	-3.889E-02	1.545E-01	2.460E-01	1.649E-02	-0.158
		227.00		-2.730E-01	4.635E-01	7.633E-01	5.294E-02	-0.358
		285.00		-1.038E+00	2.050E+00	3.342E+00	2.297E-01	-0.311

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229014      *
* Acquisition date   : 22-JAN-2010 16:50:37 Detector SN# :                  *
* Detector ID        : GAM15 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000           *
* Elapsed real time  : 0 02:00:01.34 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229014 Analyst initials: MXR1                 *
* Batch Number       : 941239 Sample Quantity : 1.4037E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                 *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.051E+01	2.939E+00	6.384E-01	0.000E+00
CD-109	1.354E+00	1.933E+00	1.755E+00	0.000E+00
CS-135	6.030E-01	2.796E-01	2.868E-01	0.000E+00
TL-208	4.701E-01	1.059E-01	6.859E-02	0.000E+00
BI-211	3.842E+00	5.845E-01	3.694E-01	0.000E+00
PB-212	1.553E+00	1.774E-01	1.115E-01	0.000E+00
PO-212	1.553E+00	1.774E-01	1.115E-01	0.000E+00
BI-214	1.018E+00	1.858E-01	1.254E-01	0.000E+00
PB-214	1.337E+00	2.145E-01	1.287E-01	0.000E+00
PO-214	1.337E+00	2.145E-01	1.287E-01	0.000E+00
PO-216	1.553E+00	1.774E-01	1.115E-01	0.000E+00
PO-218	1.337E+00	2.145E-01	1.287E-01	0.000E+00
RA-224	4.227E+00	1.184E+00	1.273E+00	0.000E+00
RA-226	1.018E+00	1.858E-01	1.254E-01	0.000E+00
AC-228	1.416E+00	3.351E-01	2.581E-01	0.000E+00
RA-228	1.416E+00	3.351E-01	2.581E-01	0.000E+00
TH-228	1.578E+00	1.803E-01	1.133E-01	0.000E+00
TH-230	1.018E+00	1.858E-01	1.254E-01	0.000E+00
TH-232	1.416E+00	3.351E-01	2.581E-01	0.000E+00
TH-234	2.495E+00	2.708E+00	3.820E+00	0.000E+00
U-234	1.018E+00	1.858E-01	1.254E-01	0.000E+00
U-238	2.495E+00	2.708E+00	3.820E+00	0.000E+00
AM-243	3.572E-01	1.157E-01	1.215E-01	0.000E+00
ANH-511	1.278E-01	7.541E-02	5.014E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	7.125E-02	3.560E-01	6.183E-01	0.000E+00 NOT IDENT.
NA-22	5.869E-03	5.245E-02	8.815E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.879E+06	0.000E+00	0.000E+00 SHORT HLIF

AL-26	-2.147E-02	2.763E-02	3.782E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.704E-02	9.484E-02	0.000E+00	NOT IDENT.
SC-46	-4.689E-02	4.147E-02	6.324E-02	0.000E+00	FAIL ABUN
V-48	-4.490E-03	8.015E-02	1.355E-01	0.000E+00	NOT IDENT.
CR-51	1.272E-01	4.311E-01	7.696E-01	0.000E+00	NOT IDENT.
MN-52	-5.458E-02	2.638E-01	4.385E-01	0.000E+00	NOT IDENT.
MN-54	1.908E-02	4.410E-02	7.816E-02	0.000E+00	NOT IDENT.
CO-56	3.141E-02	4.222E-02	7.684E-02	0.000E+00	NOT IDENT.
CO-57	1.010E-02	3.158E-02	5.424E-02	0.000E+00	NOT IDENT.
CO-58	-1.238E-02	4.504E-02	7.607E-02	0.000E+00	NOT IDENT.
FE-59	5.454E-02	1.015E-01	1.790E-01	0.000E+00	NOT IDENT.
CO-60	-2.840E-03	4.285E-02	7.044E-02	0.000E+00	NOT IDENT.
ZN-65	2.295E-02	1.220E-01	1.798E-01	0.000E+00	NOT IDENT.
GE-68	8.854E-01	1.425E+00	2.532E+00	0.000E+00	NOT IDENT.
AS-73	-7.944E-02	1.924E+00	3.501E+00	0.000E+00	NOT IDENT.
AS-74	-4.136E-03	1.081E-01	1.778E-01	0.000E+00	NOT IDENT.
SE-75	-2.140E-02	5.680E-02	8.575E-02	0.000E+00	NOT IDENT.
BR-77	8.064E+00	1.563E+01	2.758E+01	0.000E+00	FAIL ABUN
SR-82	-1.284E-01	4.934E-01	7.144E-01	0.000E+00	NOT IDENT.
RB-83	5.093E-02	7.518E-02	1.341E-01	0.000E+00	NOT IDENT.
RB-84	2.464E-02	7.070E-02	1.250E-01	0.000E+00	NOT IDENT.
KR-85	1.332E+01	8.234E+00	1.394E+01	0.000E+00	NOT IDENT.
SR-85	6.908E-02	4.270E-02	7.232E-02	0.000E+00	NOT IDENT.
RB-86	9.306E-01	9.086E-01	1.667E+00	0.000E+00	NOT IDENT.
Y-88	3.501E-03	2.958E-02	5.083E-02	0.000E+00	NOT IDENT.
ZR-88	1.160E-02	3.340E-02	5.920E-02	0.000E+00	NOT IDENT.
Y-91	1.048E+01	2.156E+01	3.750E+01	0.000E+00	NOT IDENT.
NB-94	2.442E-02	3.881E-02	7.031E-02	0.000E+00	NOT IDENT.
NB-95	2.842E-02	5.423E-02	8.518E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.464E-01	4.158E-01	0.000E+00	NOT IDENT.
ZR-95	-2.566E-02	7.433E-02	1.254E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.073E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	7.385E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-5.957E+00	1.565E+01	2.633E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	8.917E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.011E-02	3.975E-02	6.617E-02	0.000E+00	FAIL ABUN
RH-102	1.898E-02	3.324E-02	5.904E-02	0.000E+00	NOT IDENT.
RU-103	-1.619E-02	4.324E-02	7.176E-02	0.000E+00	NOT IDENT.
RH-106	6.040E-03	3.357E-01	5.653E-01	0.000E+00	NOT IDENT.
RU-106	6.040E-03	3.357E-01	5.653E-01	0.000E+00	NOT IDENT.
AG-108M	-2.080E-02	3.668E-02	6.096E-02	0.000E+00	NOT IDENT.
AG-110M	6.842E-04	3.780E-02	6.339E-02	0.000E+00	NOT IDENT.
IN-111	1.567E+00	1.761E+00	2.882E+00	0.000E+00	NOT IDENT.
IN-113M	-1.000E-02	4.923E-02	8.448E-02	0.000E+00	NOT IDENT.
SN-113	-1.000E-02	4.923E-02	8.448E-02	0.000E+00	NOT IDENT.
IN-114M	2.628E-01	2.315E-01	3.692E-01	0.000E+00	NOT IDENT.
CD-115	-5.052E+00	1.718E+01	2.863E+01	0.000E+00	NOT IDENT.
SN-117M	-8.182E-02	6.725E-02	1.103E-01	0.000E+00	NOT IDENT.
SB-122	1.913E+00	3.059E+00	5.405E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.620E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-4.071E-02	3.294E-02	5.394E-02	0.000E+00	NOT IDENT.
I-124	-7.017E-01	1.101E+00	1.497E+00	0.000E+00	NOT IDENT.
SB-124	-5.892E-02	6.064E-02	8.454E-02	0.000E+00	FAIL ABUN
SB-125	4.431E-02	1.020E-01	1.808E-01	0.000E+00	FAIL ABUN
TE-125M	-1.275E+00	1.073E+01	1.886E+01	0.000E+00	NOT IDENT.
I-126	-7.528E-02	2.141E-01	3.481E-01	0.000E+00	NOT IDENT.
SB-126	-5.568E-03	1.947E-01	2.915E-01	0.000E+00	NOT IDENT.
SN-126	1.328E-01	1.897E-01	2.041E-01	0.000E+00	FAIL ABUN
SB-127	-1.806E+00	1.854E+00	3.004E+00	0.000E+00	FAIL ABUN
XE-127	-1.410E-02	6.081E-02	9.680E-02	0.000E+00	NOT IDENT.
I-131	4.388E-02	1.406E-01	2.496E-01	0.000E+00	NOT IDENT.
TE-132	5.360E-01	1.023E+00	1.866E+00	0.000E+00	NOT IDENT.
BA-133	1.137E-02	5.135E-02	7.929E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.587E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.835E-02	5.757E-02	9.690E-02	0.000E+00	FAIL ABUN
I-135	0.000E+00	9.396E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.785E-02	1.312E-01	2.177E-01	0.000E+00	NOT IDENT.
BA-137M	3.215E-02	3.975E-02	7.055E-02	0.000E+00	NOT IDENT.
CS-137	3.399E-02	4.202E-02	7.457E-02	0.000E+00	NOT IDENT.
CE-139	-8.709E-03	3.472E-02	5.938E-02	0.000E+00	NOT IDENT.
BA-140	-2.222E-01	3.055E-01	4.766E-01	0.000E+00	NOT IDENT.
LA-140	2.082E-02	9.655E-02	1.685E-01	0.000E+00	NOT IDENT.
CE-141	2.409E-02	7.311E-02	1.288E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.112E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.127E-01	2.745E-01	4.098E-01	0.000E+00	NOT IDENT.
PM-144	-1.226E-02	3.940E-02	6.736E-02	0.000E+00	NOT IDENT.
PR-144	-8.315E-01	2.671E+00	4.567E+00	0.000E+00	NOT IDENT.
PM-146	-3.117E-03	5.035E-02	8.627E-02	0.000E+00	NOT IDENT.

ND-147	2.697E-01	6.670E-01	1.165E+00	0.000E+00	NOT IDENT.
PM-149	9.935E+01	1.470E+02	2.672E+02	0.000E+00	NOT IDENT.
EU-152	1.360E-01	1.635E-01	1.889E-01	0.000E+00	NOT IDENT.
GD-153	3.444E-02	1.014E-01	1.606E-01	0.000E+00	NOT IDENT.
EU-154	2.123E-02	1.469E-01	2.475E-01	0.000E+00	NOT IDENT.
EU-155	1.208E-02	1.269E-01	2.252E-01	0.000E+00	NOT IDENT.
TB-160	1.348E-02	1.468E-01	2.538E-01	0.000E+00	NOT IDENT.
HO-166M	-4.542E-02	6.249E-02	1.028E-01	0.000E+00	FAIL ABUN
TM-171	4.639E+00	5.092E+01	7.543E+01	0.000E+00	NOT IDENT.
LU-176	3.035E-03	3.038E-02	4.693E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.906E+00	2.703E+00	0.000E+00	FAIL ABUN
LU-177M	-7.986E-02	1.961E-01	3.310E-01	0.000E+00	FAIL ABUN
HF-181	-5.069E-02	4.650E-02	7.320E-02	0.000E+00	NOT IDENT.
W-181	9.712E-02	6.424E-01	1.023E+00	0.000E+00	NOT IDENT.
TA-182	6.300E-02	2.266E-01	3.869E-01	0.000E+00	FAIL ABUN
RE-183	2.229E-02	1.279E-01	2.229E-01	0.000E+00	FAIL ABUN
RE-184	-1.827E-01	2.567E-01	4.427E-01	0.000E+00	NOT IDENT.
OS-185	-1.586E-03	4.880E-02	8.162E-02	0.000E+00	FAIL ABUN
RE-188	1.141E-01	1.987E-01	3.521E-01	0.000E+00	NOT IDENT.
W-188	-4.224E+00	9.548E+00	1.424E+01	0.000E+00	FAIL ABUN
IR-192	2.284E-03	4.049E-02	7.149E-02	0.000E+00	FAIL ABUN
AU-195	1.591E-01	2.788E-01	4.692E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.040E+03	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-4.383E+00	1.015E+01	1.721E+01	0.000E+00	NOT IDENT.
TL-202	3.931E-02	7.479E-02	1.335E-01	0.000E+00	NOT IDENT.
HG-203	6.033E-02	4.831E-02	8.988E-02	0.000E+00	FAIL ABUN
BI-207	1.276E-02	5.771E-02	9.941E-02	0.000E+00	FAIL ABUN
TL-207	-1.268E-01	8.336E-01	1.258E+00	0.000E+00	FAIL ABUN
PO-209	-5.192E+00	8.445E+00	1.370E+01	0.000E+00	NOT IDENT.
BI-210	-1.089E+00	1.268E+01	2.258E+01	0.000E+00	NOT IDENT.
PB-210	-1.089E+00	1.268E+01	2.258E+01	0.000E+00	NOT IDENT.
PO-210	-1.089E+00	1.268E+01	2.258E+01	0.000E+00	NOT IDENT.
PB-211	-2.806E-01	1.077E+00	1.815E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.562E-01	7.762E-01	0.000E+00	FAIL ABUN
PO-215	-1.268E-01	8.336E-01	1.258E+00	0.000E+00	FAIL ABUN
RN-219	-1.491E-01	4.457E-01	7.564E-01	0.000E+00	NOT IDENT.
RN-220	2.198E+00	2.898E+01	4.945E+01	0.000E+00	NOT IDENT.
RA-223	-1.268E-01	8.336E-01	1.258E+00	0.000E+00	FAIL ABUN
AC-227	3.156E-04	4.259E-01	7.593E-01	0.000E+00	FAIL ABUN
TH-227	3.156E-04	4.259E-01	7.593E-01	0.000E+00	FAIL ABUN
TH-229	-2.037E-02	6.050E-01	1.019E+00	0.000E+00	FAIL ABUN
PA-231	-2.950E-01	1.760E+00	3.095E+00	0.000E+00	FAIL ABUN
TH-231	-1.268E-01	8.336E-01	1.258E+00	0.000E+00	FAIL ABUN
U-231	4.284E-01	1.641E+00	2.589E+00	0.000E+00	FAIL ABUN
PA-233	1.815E-02	7.103E-02	1.268E-01	0.000E+00	FAIL ABUN
PA-234	-3.213E-01	3.287E-01	5.008E-01	0.000E+00	FAIL ABUN
PA-234M	0.000E+00	6.918E+00	1.024E+01	0.000E+00	FAIL ABUN
U-235	-5.220E-02	2.534E-01	4.316E-01	0.000E+00	FAIL ABUN
NP-236	5.111E-03	8.977E-02	1.558E-01	0.000E+00	NOT IDENT.
NP-237	5.530E-01	3.738E-01	5.821E-01	0.000E+00	NOT IDENT.
NP-239	-7.536E-02	2.258E-01	3.923E-01	0.000E+00	FAIL ABUN
AM-241	7.939E-02	2.932E-01	4.743E-01	0.000E+00	NOT IDENT.
CM-243	4.331E-02	1.155E-01	2.071E-01	0.000E+00	FAIL ABUN
AM-246	-7.317E-03	1.634E-01	2.746E-01	0.000E+00	NOT IDENT.
CM-247	-1.138E-02	4.036E-02	6.878E-02	0.000E+00	NOT IDENT.
CF-249	5.447E-03	4.455E-02	7.798E-02	0.000E+00	NOT IDENT.
CF-251	-3.889E-02	1.514E-01	2.580E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229014.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:50:37
Sample ID       : G244229014           Sample quantity  : 1.40370E+02 GRAM
Detector name   : GAM15                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00        Elapsed real time: 0 02:00:01.34  0.0%
Energy tolerance: 1.50000 keV           Analyst Initials : MXR1
Abundance limit : 75.00000              Sensitivity      : 5.00000
Batch ID        : 941239                 Detector SN#      :
Matrix Spike ID :                        LCS ID          : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1216	10.67*	9.991E-01	3.051E+01	3.051E+01	9.83
CD-109	88.03	85	3.72*	4.598E+00	1.321E+00	1.354E+00	145.75
CS-135	268.24	139	16.00*	3.865E+00	6.030E-01	6.030E-01	47.32
TL-208	277.35	---	6.80	3.788E+00	-----	Line Not Found	-----
	510.84	118	21.60	2.462E+00	5.917E-01	5.917E-01	60.78
	583.14	330	84.20*	2.231E+00	4.701E-01	4.701E-01	22.99
	860.37	45	12.46	1.613E+00	5.992E-01	5.992E-01	90.41
BI-211	72.87	276	1.27	3.130E+00	1.856E+01	1.856E+01	33.05
	351.07	596	12.94*	3.207E+00	3.842E+00	3.842E+00	15.52
PB-212	74.81	276	10.70	3.130E+00	2.203E+00	2.203E+00	34.35
	77.11	440	18.00	3.413E+00	1.917E+00	1.917E+00	22.57
	87.30	---	8.00	4.461E+00	-----	Line Not Found	-----
	238.63	1093	44.60*	4.221E+00	1.553E+00	1.553E+00	11.66
	300.09	131	3.41	3.582E+00	2.865E+00	2.865E+00	45.04
PO-212	74.81	276	10.70	3.130E+00	2.203E+00	2.203E+00	34.35
	77.11	440	18.00	3.413E+00	1.917E+00	1.917E+00	22.57
	87.30	---	8.00	4.461E+00	-----	Line Not Found	-----
	115.19	---	0.60	5.666E+00	-----	Line Not Found	-----
	238.63	1093	44.60*	4.221E+00	1.553E+00	1.553E+00	11.66
	300.09	131	3.41	3.582E+00	2.865E+00	2.865E+00	45.04
BI-214	609.31	380	46.30*	2.156E+00	1.018E+00	1.018E+00	18.61
	1120.29	81	15.10	1.264E+00	1.140E+00	1.140E+00	48.38
	1764.49	79	15.80	8.816E-01	1.523E+00	1.523E+00	28.53
PB-214	74.81	276	6.21	3.130E+00	3.796E+00	3.796E+00	33.87
	77.11	440	10.50	3.413E+00	3.287E+00	3.287E+00	23.82
	87.30	---	4.67	4.461E+00	-----	Line Not Found	-----
	241.98	261	7.49	4.184E+00	2.229E+00	2.229E+00	29.12
	295.21	301	19.20	3.629E+00	1.157E+00	1.157E+00	25.54
	351.92	596	37.20*	3.207E+00	1.337E+00	1.337E+00	16.38
PO-214	74.81	276	6.21	3.130E+00	3.796E+00	3.796E+00	33.87
	77.11	440	10.50	3.413E+00	3.287E+00	3.287E+00	23.82
	87.30	---	4.67	4.461E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	241.98	261	7.49	4.184E+00	2.229E+00	2.229E+00	29.12
	295.21	301	19.20	3.629E+00	1.157E+00	1.157E+00	25.54
	351.92	596	37.20*	3.207E+00	1.337E+00	1.337E+00	16.38
PO-216	74.81	276	10.70	3.130E+00	2.203E+00	2.203E+00	34.35
	77.11	440	18.00	3.413E+00	1.917E+00	1.917E+00	22.57
	87.30	-----	8.00	4.461E+00	-----	Line Not Found	-----
	238.63	1093	44.60*	4.221E+00	1.553E+00	1.553E+00	11.66
	300.09	131	3.41	3.582E+00	2.865E+00	2.865E+00	45.04
PO-218	74.81	276	6.21	3.130E+00	3.796E+00	3.796E+00	33.87
	77.11	440	10.50	3.413E+00	3.287E+00	3.287E+00	23.82
	87.30	-----	4.67	4.461E+00	-----	Line Not Found	-----
	241.98	261	7.49	4.184E+00	2.229E+00	2.229E+00	29.12
	295.21	301	19.20	3.629E+00	1.157E+00	1.157E+00	25.54
	351.92	596	37.20*	3.207E+00	1.337E+00	1.337E+00	16.38
RA-224	240.98	261	3.95*	4.184E+00	4.227E+00	4.227E+00	28.58
RA-226	609.31	380	46.30*	2.156E+00	1.018E+00	1.018E+00	18.61
	1120.29	81	15.10	1.264E+00	1.140E+00	1.140E+00	48.38
	1764.49	79	15.80	8.816E-01	1.523E+00	1.523E+00	28.53
AC-228	338.32	258	11.40	3.295E+00	1.838E+00	1.838E+00	48.17
	911.07	225	27.70*	1.532E+00	1.416E+00	1.416E+00	24.15
	969.11	112	16.60	1.447E+00	1.248E+00	1.248E+00	52.95
RA-228	338.32	258	11.40	3.295E+00	1.838E+00	1.838E+00	48.17
	911.07	225	27.70*	1.532E+00	1.416E+00	1.416E+00	24.15
	969.11	112	16.60	1.447E+00	1.248E+00	1.248E+00	52.95
TH-228	74.81	276	10.70	3.130E+00	2.203E+00	2.239E+00	33.07
	77.11	440	18.00	3.413E+00	1.917E+00	1.948E+00	22.57
	87.30	-----	8.00	4.461E+00	-----	Line Not Found	-----
	238.63	1093	44.60*	4.221E+00	1.553E+00	1.578E+00	11.66
	300.09	131	3.41	3.582E+00	2.865E+00	2.911E+00	73.72
TH-230	609.31	380	46.30*	2.156E+00	1.018E+00	1.018E+00	18.61
	1120.29	81	15.10	1.264E+00	1.140E+00	1.140E+00	48.38
	1764.49	79	15.80	8.816E-01	1.523E+00	1.523E+00	28.53
TH-232	338.32	258	11.40	3.295E+00	1.838E+00	1.838E+00	26.31
	911.07	225	27.70*	1.532E+00	1.416E+00	1.416E+00	24.15
	969.11	112	16.60	1.447E+00	1.248E+00	1.248E+00	52.95
TH-234	63.29	60	3.80*	1.696E+00	2.495E+00	2.495E+00	110.74
	92.38	175	5.41	4.848E+00	1.783E+00	1.783E+00	59.47
U-234	609.31	380	46.30*	2.156E+00	1.018E+00	1.018E+00	18.61
	1120.29	81	15.10	1.264E+00	1.140E+00	1.140E+00	48.38
	1764.49	79	15.80	8.816E-01	1.523E+00	1.523E+00	28.53
U-238	63.29	60	3.80*	1.696E+00	2.495E+00	2.495E+00	110.74
	92.38	175	5.41	4.848E+00	1.783E+00	1.783E+00	57.31
AM-243	74.67	276	66.00*	3.130E+00	3.572E-01	3.572E-01	33.05
	86.72	-----	0.34	4.414E+00	-----	Line Not Found	-----
	117.66	-----	0.55	5.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.637E+00	-----	Line Not Found	-----
ANH-511	511.00	118	100.00*	2.462E+00	1.278E-01	1.278E-01	60.21

Flag: "\*" = Keyline



Total number of lines in spectrum 30  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 28 93.33%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.051E+01	3.051E+01	0.300E+01	9.83	
CD-109	464.00D	1.02	1.321E+00	1.354E+00	1.973E+00	145.75	
CS-135	2.30E+06Y	1.00	6.030E-01	6.030E-01	2.853E-01	47.32	
TL-208	1.41E+10Y	1.00	4.701E-01	4.701E-01	1.081E-01	22.99	
BI-211	7.04E+08Y	1.00	3.842E+00	3.842E+00	0.596E+00	15.52	
PB-212	1.41E+10Y	1.00	1.553E+00	1.553E+00	0.181E+00	11.66	
PO-212	1.41E+10Y	1.00	1.553E+00	1.553E+00	0.181E+00	11.66	
BI-214	1600.00Y	1.00	1.018E+00	1.018E+00	0.190E+00	18.61	
PB-214	1600.00Y	1.00	1.337E+00	1.337E+00	0.219E+00	16.38	
PO-214	1600.00Y	1.00	1.337E+00	1.337E+00	0.219E+00	16.38	
PO-216	1.41E+10Y	1.00	1.553E+00	1.553E+00	0.181E+00	11.66	
PO-218	1600.00Y	1.00	1.337E+00	1.337E+00	0.219E+00	16.38	
RA-224	1.41E+10Y	1.00	4.227E+00	4.227E+00	1.208E+00	28.58	
RA-226	1600.00Y	1.00	1.018E+00	1.018E+00	0.190E+00	18.61	
AC-228	1.41E+10Y	1.00	1.416E+00	1.416E+00	0.342E+00	24.15	
RA-228	1.41E+10Y	1.00	1.416E+00	1.416E+00	0.342E+00	24.15	
TH-228	1.91Y	1.02	1.553E+00	1.578E+00	0.184E+00	11.66	
TH-230	4.47E+09Y	1.00	1.018E+00	1.018E+00	0.190E+00	18.61	
TH-232	1.41E+10Y	1.00	1.416E+00	1.416E+00	0.342E+00	24.15	
TH-234	4.47E+09Y	1.00	2.495E+00	2.495E+00	2.763E+00	110.74	
U-234	4.47E+09Y	1.00	1.018E+00	1.018E+00	0.190E+00	18.61	
U-238	4.47E+09Y	1.00	2.495E+00	2.495E+00	2.763E+00	110.74	
AM-243	7380.00Y	1.00	3.572E-01	3.572E-01	1.181E-01	33.05	
ANH-511	1.00E+09Y	1.00	1.278E-01	1.278E-01	0.770E-01	60.21	
Total Activity :			6.499E+01	6.505E+01			

Grand Total Activity : 6.499E+01 6.505E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229014

Page : 4  
Acquisition date : 22-JAN-2010 16:50:37

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	128.30	50	391	1.40	257.04	253	9	6.95E-03	****	5.73E+00	T
0	185.40	171	369	1.76	371.19	366	11	2.37E-02	48.2	4.98E+00	T
0	208.86	112	301	1.26	418.08	414	10	1.56E-02	61.0	4.62E+00	T
0	327.18	61	176	1.49	654.63	651	10	8.52E-03	84.7	3.37E+00	
0	463.09	45	138	1.40	926.34	919	11	6.25E-03	****	2.64E+00	T
0	727.18	116	80	1.48	1454.37	1448	14	1.61E-02	39.7	1.87E+00	T
0	769.37	55	104	5.14	1538.72	1531	17	7.67E-03	89.4	1.78E+00	
0	794.89	38	45	1.71	1589.75	1584	10	5.33E-03	74.7	1.73E+00	T
0	1000.80	61	34	1.38	2001.45	1994	15	8.41E-03	50.6	1.40E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229014.CNF;1  *
* Acquisition date   : 22-JAN-2010 16:50:37  Detector SN#      :              *
* Detector ID        : GAM15                      Sensitivity    : 5.00000      *
* Geometry           : CAN                      Energy tolerance: 1.50000      *
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000      *
* Elapsed real time  : 0 02:00:01.34             Half life ratio : 8.00000      *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID          *
* Sample ID          : G244229014             Analyst initials: MXR1          *
* Batch Number       : 941239                 Sample Quantity : 1.40370E+02 GRAM *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12.9MS Isotope       :              *
* MSD ID              :                      MSD Isotope       :              *
* LCS ID              : 1032-A                 LCS Isotope     :              *
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.051E+01	2.999E+00	6.360E-01	4.861E-02	47.978
CD-109	1.354E+00	1.973E+00	1.652E+00	1.910E-01	0.820
CS-135	6.030E-01	2.853E-01	2.759E-01	2.358E-02	2.186
TL-208	4.701E-01	1.081E-01	6.701E-02	4.267E-03	7.014
BI-211	3.842E+00	5.964E-01	3.572E-01	2.455E-02	10.756
PB-212	1.553E+00	1.811E-01	1.070E-01	8.857E-03	14.514
PO-212	1.553E+00	1.811E-01	1.070E-01	8.857E-03	14.514
BI-214	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
PB-214	1.337E+00	2.189E-01	1.245E-01	1.073E-02	10.736
PO-214	1.337E+00	2.189E-01	1.245E-01	1.073E-02	10.736
PO-216	1.553E+00	1.811E-01	1.070E-01	8.857E-03	14.514
PO-218	1.337E+00	2.189E-01	1.245E-01	1.073E-02	10.736
RA-224	4.227E+00	1.208E+00	1.222E+00	8.503E-02	3.460
RA-226	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
AC-228	1.416E+00	3.419E-01	2.545E-01	2.829E-02	5.564
RA-228	1.416E+00	3.419E-01	2.545E-01	2.829E-02	5.564
TH-228	1.578E+00	1.840E-01	1.087E-01	9.001E-03	14.514
TH-230	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.416E+00	3.419E-01	2.545E-01	2.829E-02	5.564
TH-234	2.495E+00	2.763E+00	3.572E+00	7.049E-01	0.699
U-234	1.018E+00	1.896E-01	1.226E-01	9.104E-03	8.305
U-238	2.495E+00	2.763E+00	3.572E+00	7.049E-01	0.699
AM-243	3.572E-01	1.181E-01	1.139E-01	1.266E-02	3.135
ANH-511	1.278E-01	7.695E-02	4.885E-02	2.759E-03	2.616

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	7.125E-02		3.633E-01	6.017E-01	4.009E-02	0.118
NA-22	5.869E-03		5.352E-02	8.755E-02	6.009E-03	0.067
NA-24	-1.693E-01		1.469E+00	Half-Life too short		
AL-26	-2.147E-02		2.820E-02	3.785E-02	2.265E-03	-0.567
TI-44	1.999E-01		5.820E-02	8.904E-02	9.900E-03	2.245
SC-46	-4.689E-02		4.232E-02	6.233E-02	5.228E-03	-0.752
V-48	-4.490E-03		8.179E-02	1.339E-01	1.058E-02	-0.034
CR-51	1.272E-01		4.399E-01	7.427E-01	5.356E-02	0.171
MN-52	-5.458E-02		2.691E-01	4.367E-01	3.238E-02	-0.125
MN-54	1.908E-02		4.500E-02	7.694E-02	5.766E-03	0.248
CO-56	3.141E-02		4.308E-02	7.566E-02	5.815E-03	0.415
CO-57	1.010E-02		3.223E-02	5.136E-02	3.693E-03	0.197
CO-58	-1.238E-02		4.595E-02	7.484E-02	5.346E-03	-0.165
FE-59	5.454E-02		1.035E-01	1.773E-01	1.341E-02	0.308
CO-60	-2.840E-03		4.373E-02	7.003E-02	5.286E-03	-0.041
ZN-65	2.295E-02		1.245E-01	1.781E-01	1.157E-02	0.129
GE-68	8.854E-01		1.454E+00	2.505E+00	1.741E-01	0.353
AS-73	-7.944E-02		1.963E+00	3.263E+00	4.459E-01	-0.024
AS-74	-4.136E-03		1.103E-01	1.738E-01	9.345E-03	-0.024
SE-75	-2.140E-02		5.795E-02	8.245E-02	5.766E-03	-0.260
BR-77	8.064E+00		1.595E+01	2.689E+01	1.513E+00	0.300
SR-82	-1.284E-01		5.035E-01	7.022E-01	4.635E-02	-0.183
RB-83	5.093E-02		7.672E-02	1.308E-01	7.357E-03	0.390
RB-84	2.464E-02		7.215E-02	1.232E-01	1.018E-02	0.200
KR-85	1.332E+01		8.402E+00	1.359E+01	7.665E-01	0.980
SR-85	6.908E-02		4.357E-02	7.048E-02	3.975E-03	0.980
RB-86	9.306E-01		9.272E-01	1.650E+00	1.148E-01	0.564
Y-88	3.501E-03		3.018E-02	5.088E-02	2.972E-03	0.069
ZR-88	1.160E-02		3.409E-02	5.737E-02	3.254E-03	0.202
Y-91	1.048E+01		2.200E+01	3.720E+01	2.249E+00	0.282
NB-94	2.442E-02		3.961E-02	6.896E-02	3.836E-03	0.354
NB-95	2.842E-02		5.534E-02	8.370E-02	5.394E-03	0.340
NB-95M	1.617E+00		2.514E-01	3.988E-01	3.370E-02	4.056
ZR-95	-2.566E-02		7.585E-02	1.232E-01	9.184E-03	-0.208
NB-97	2.681E-02		1.568E-01	Half-Life too short		
ZR-97	2.203E+01		3.768E+00	Half-Life too short		
MO-99	-5.957E+00		1.597E+01	2.586E+01	3.593E+00	-0.230

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	-3.283E+11		4.550E+11	Half-Life too short		
RH-101	-1.011E-02		4.057E-02	6.326E-02	4.315E-03	-0.160
RH-102	1.898E-02		3.392E-02	5.744E-02	3.274E-03	0.330
RU-103	-1.619E-02		4.412E-02	6.989E-02	8.796E-03	-0.232
RH-106	6.040E-03		3.425E-01	5.530E-01	6.347E-02	0.011
RU-106	6.040E-03		3.425E-01	5.530E-01	2.906E-02	0.011
AG-108M	-2.080E-02		3.743E-02	5.920E-02	3.681E-03	-0.351
AG-110M	6.842E-04		3.857E-02	6.209E-02	3.403E-03	0.011
IN-111	1.567E+00		1.797E+00	2.766E+00	1.926E-01	0.566
IN-113M	-1.000E-02		5.024E-02	8.187E-02	4.966E-03	-0.122
SN-113	-1.000E-02		5.024E-02	8.187E-02	4.966E-03	-0.122
IN-114M	2.628E-01		2.362E-01	3.527E-01	2.391E-02	0.745
CD-115	-5.052E+00		1.753E+01	2.791E+01	1.566E+00	-0.181
SN-117M	-8.182E-02		6.862E-02	1.050E-01	7.020E-03	-0.779
SB-122	1.913E+00		3.122E+00	5.277E+00	2.903E-01	0.362
I-123	-3.238E+01		1.336E+01	Half-Life too short		
TE-123M	-4.071E-02		3.362E-02	5.134E-02	3.466E-03	-0.793
I-124	-7.017E-01		1.123E+00	1.464E+00	7.825E-02	-0.479
SB-124	-5.892E-02		6.187E-02	8.448E-02	5.933E-03	-0.697
SB-125	4.431E-02		1.041E-01	1.755E-01	1.046E-02	0.252
TE-125M	-1.275E+00		1.095E+01	1.782E+01	1.771E+00	-0.072
I-126	-7.528E-02		2.184E-01	3.410E-01	1.736E-02	-0.221
SB-126	-5.568E-03		1.987E-01	2.861E-01	1.661E-02	-0.019
SN-126	1.328E-01	+	1.936E-01	1.921E-01	2.216E-02	0.692
SB-127	-1.806E+00		1.892E+00	2.944E+00	2.811E-01	-0.613
XE-127	-1.410E-02		6.205E-02	9.258E-02	6.338E-03	-0.152
I-131	4.388E-02		1.434E-01	2.415E-01	1.632E-02	0.182
TE-132	5.360E-01		1.044E+00	1.789E+00	2.697E-01	0.300
BA-133	1.137E-02		5.240E-02	7.669E-02	9.031E-03	0.148
I-133	1.617E-03		8.099E-03	Half-Life too short		
CS-134	7.835E-02	+	5.875E-02	9.529E-02	6.640E-03	0.822
I-135	3.148E+10		4.794E+10	Half-Life too short		
CS-136	-2.785E-02		1.339E-01	2.153E-01	1.659E-02	-0.129
BA-137M	3.215E-02		4.056E-02	6.911E-02	3.477E-03	0.465
CS-137	3.399E-02		4.288E-02	7.305E-02	3.696E-03	0.465
CE-139	-8.709E-03		3.543E-02	5.656E-02	3.762E-03	-0.154
BA-140	-2.222E-01		3.118E-01	4.648E-01	1.510E-01	-0.478
LA-140	2.082E-02		9.852E-02	1.682E-01	1.172E-02	0.124
CE-141	2.409E-02		7.460E-02	1.224E-01	8.544E-03	0.197
CE-143	1.903E-03	+	3.119E-04	Half-Life too short		
CE-144	-1.127E-01		2.801E-01	3.888E-01	5.714E-02	-0.290
PM-144	-1.226E-02		4.020E-02	6.605E-02	3.624E-03	-0.186
PR-144	-8.315E-01		2.726E+00	4.479E+00	2.455E-01	-0.186
PM-146	-3.117E-03		5.138E-02	8.385E-02	7.181E-03	-0.037
ND-147	2.697E-01		6.806E-01	1.136E+00	1.527E-01	0.237
PM-149	9.935E+01		1.500E+02	2.573E+02	3.768E+01	0.386
EU-152	1.360E-01		1.668E-01	1.826E-01	1.287E-02	0.745
GD-153	3.444E-02		1.035E-01	1.514E-01	1.453E-02	0.227

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154	2.123E-02		1.499E-01	2.459E-01	2.466E-02	0.086
EU-155	1.208E-02		1.295E-01	2.127E-01	1.842E-02	0.057
TB-160	1.348E-02		1.498E-01	2.501E-01	2.056E-02	0.054
HO-166M	-4.542E-02		6.377E-02	1.008E-01	5.732E-03	-0.450
TM-171	4.639E+00		5.196E+01	7.060E+01	8.118E+00	0.066
LU-176	3.035E-03		3.100E-02	4.525E-02	3.048E-03	0.067
LU-177	3.171E+00	+	1.945E+00	2.586E+00	1.777E-01	1.226
LU-177M	-7.986E-02		2.001E-01	3.211E-01	1.830E-02	-0.249
HF-181	-5.069E-02		4.745E-02	7.124E-02	4.055E-03	-0.712
W-181	9.712E-02		6.555E-01	9.566E-01	1.113E-01	0.102
TA-182	6.300E-02		2.312E-01	3.839E-01	2.394E-02	0.164
RE-183	2.229E-02		1.306E-01	2.123E-01	1.415E-02	0.105
RE-184	-1.827E-01		2.619E-01	4.253E-01	2.960E-02	-0.430
OS-185	-1.586E-03		4.980E-02	7.991E-02	4.094E-03	-0.020
RE-188	1.141E-01		2.027E-01	3.350E-01	2.247E-02	0.341
W-188	-4.224E+00		9.743E+00	1.372E+01	9.386E-01	-0.308
IR-192	2.284E-03		4.132E-02	6.898E-02	4.610E-03	0.033
AU-195	1.591E-01		2.845E-01	4.425E-01	4.148E-02	0.359
TL-200	-2.669E-04		5.305E-04	Half-Life too short		
TL-201	-4.383E+00		1.036E+01	1.639E+01	1.091E+00	-0.267
TL-202	3.931E-02		7.632E-02	1.297E-01	7.410E-03	0.303
HG-203	6.033E-02		4.929E-02	8.651E-02	6.231E-03	0.697
BI-207	1.276E-02		5.889E-02	9.836E-02	6.988E-03	0.130
TL-207	-1.268E-01		8.506E-01	1.214E+00	2.041E-01	-0.104
PO-209	-5.192E+00		8.617E+00	1.350E+01	1.150E+00	-0.384
BI-210	-1.089E+00		1.294E+01	2.099E+01	2.180E+00	-0.052
PB-210	-1.089E+00		1.294E+01	2.099E+01	2.180E+00	-0.052
PO-210	-1.089E+00		1.294E+01	2.099E+01	2.016E+00	-0.052
PB-211	-2.806E-01		1.099E+00	1.760E+00	1.097E+00	-0.159
BI-212	1.403E+00	+	5.676E-01	7.619E-01	5.932E-02	1.842
PO-215	-1.268E-01		8.506E-01	1.214E+00	2.041E-01	-0.104
RN-219	-1.491E-01		4.548E-01	7.334E-01	9.943E-02	-0.203
RN-220	2.198E+00		2.958E+01	4.826E+01	2.677E+00	0.046
RA-223	-1.268E-01		8.506E-01	1.214E+00	2.041E-01	-0.104
AC-227	3.156E-04		4.346E-01	7.296E-01	1.056E-01	0.000
TH-227	3.156E-04		4.346E-01	7.296E-01	1.264E-01	0.000
TH-229	-2.037E-02		6.173E-01	9.740E-01	6.622E-02	-0.021
PA-231	-2.950E-01		1.796E+00	2.980E+00	4.251E-01	-0.099
TH-231	-1.268E-01		8.506E-01	1.214E+00	2.041E-01	-0.104
U-231	4.284E-01		1.674E+00	2.440E+00	2.405E-01	0.176
PA-233	1.815E-02		7.248E-02	1.223E-01	8.571E-03	0.148
PA-234	-3.213E-01		3.354E-01	4.942E-01	9.182E-02	-0.650
PA-234M	1.373E+01	+	7.059E+00	1.012E+01	9.326E-01	1.357
U-235	-5.220E-02		2.585E-01	4.100E-01	6.840E-02	-0.127
NP-236	5.111E-03		9.160E-02	1.483E-01	9.901E-03	0.034
NP-237	5.530E-01		3.814E-01	5.475E-01	1.292E-01	1.010
NP-239	-7.536E-02		2.304E-01	3.712E-01	2.790E-02	-0.203
AM-241	7.939E-02		2.992E-01	4.430E-01	5.638E-02	0.179

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.331E-02		1.178E-01	1.955E-01	1.706E-02	0.222
AM-246	-7.317E-03		1.668E-01	2.718E-01	1.884E-02	-0.027
CM-247	-1.138E-02		4.118E-02	6.669E-02	3.793E-03	-0.171
CF-249	5.447E-03		4.546E-02	7.555E-02	4.332E-03	0.072
CF-251	-3.889E-02		1.545E-01	2.460E-01	1.649E-02	-0.158

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229014            *
* Acquisition date   : 22-JAN-2010 16:50:37 Detector SN#      :              *
* Detector ID        : GAM15 Sensitivity      : 5.000           *
* Geometry           : CAN Energy tolerance: 1.500           *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 02:00:01.34 Half life ratio : 8.000    *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229014 Analyst initials: MXR1          *
* Batch Number       : 941239 Sample Quantity : 1.4037E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000           *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 16-FEB-2009 10:54:12 MS Isotope      :              *
* MSD DPM            : 0.000 MSD Isotope      :              *
* LCS DPM            : 0.000 LCS Isotope      :              *
* LCSD DPM           : 0.000 LCSD Isotope     :              *
*****

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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.051E+01	2.939E+00	3.194E-01	1.500E+00
CD-109	1.354E+00	1.933E+00	8.781E-01	9.864E-01
CS-135	6.030E-01	2.796E-01	1.435E-01	1.427E-01
TL-208	4.701E-01	1.059E-01	3.432E-02	5.403E-02
BI-211	3.842E+00	5.845E-01	1.848E-01	2.982E-01
PB-212	1.553E+00	1.774E-01	5.579E-02	9.053E-02
PO-212	1.553E+00	1.774E-01	5.579E-02	9.053E-02
BI-214	1.018E+00	1.858E-01	6.273E-02	9.478E-02
PB-214	1.337E+00	2.145E-01	6.441E-02	1.094E-01
PO-214	1.337E+00	2.145E-01	6.441E-02	1.094E-01
PO-216	1.553E+00	1.774E-01	5.579E-02	9.053E-02
PO-218	1.337E+00	2.145E-01	6.441E-02	1.094E-01
RA-224	4.227E+00	1.184E+00	6.369E-01	6.040E-01
RA-226	1.018E+00	1.858E-01	6.273E-02	9.478E-02
AC-228	1.416E+00	3.351E-01	1.291E-01	1.710E-01
RA-228	1.416E+00	3.351E-01	1.291E-01	1.710E-01
TH-228	1.578E+00	1.803E-01	5.670E-02	9.201E-02
TH-230	1.018E+00	1.858E-01	6.273E-02	9.478E-02
TH-232	1.416E+00	3.351E-01	1.291E-01	1.710E-01
TH-234	2.495E+00	2.708E+00	1.911E+00	1.382E+00
U-234	1.018E+00	1.858E-01	6.273E-02	9.478E-02
U-238	2.495E+00	2.708E+00	1.911E+00	1.382E+00
AM-243	3.572E-01	1.157E-01	6.078E-02	5.903E-02
ANH-511	1.278E-01	7.541E-02	2.508E-02	3.848E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	7.125E-02	3.560E-01	3.094E-01	1.816E-01 NOT IDENT.
NA-22	5.869E-03	5.245E-02	4.410E-02	2.676E-02 NOT IDENT.
NA-24	-1.693E+05	2.879E+06	0.000E+00	1.469E+06 SHORT HLIF



AL-26	-2.147E-02	2.763E-02	1.892E-02	1.410E-02	NOT IDENT.
TI-44	1.999E-01	5.704E-02	4.745E-02	2.910E-02	NOT IDENT.
SC-46	-4.689E-02	4.147E-02	3.164E-02	2.116E-02	FAIL ABUN
V-48	-4.490E-03	8.015E-02	6.781E-02	4.089E-02	NOT IDENT.
CR-51	1.272E-01	4.311E-01	3.850E-01	2.200E-01	NOT IDENT.
MN-52	-5.458E-02	2.638E-01	2.194E-01	1.346E-01	NOT IDENT.
MN-54	1.908E-02	4.410E-02	3.910E-02	2.250E-02	NOT IDENT.
CO-56	3.141E-02	4.222E-02	3.844E-02	2.154E-02	NOT IDENT.
CO-57	1.010E-02	3.158E-02	2.714E-02	1.611E-02	NOT IDENT.
CO-58	-1.238E-02	4.504E-02	3.806E-02	2.298E-02	NOT IDENT.
FE-59	5.454E-02	1.015E-01	8.957E-02	5.177E-02	NOT IDENT.
CO-60	-2.840E-03	4.285E-02	3.524E-02	2.186E-02	NOT IDENT.
ZN-65	2.295E-02	1.220E-01	8.996E-02	6.225E-02	NOT IDENT.
GE-68	8.854E-01	1.425E+00	1.267E+00	7.272E-01	NOT IDENT.
AS-73	-7.944E-02	1.924E+00	1.751E+00	9.817E-01	NOT IDENT.
AS-74	-4.136E-03	1.081E-01	8.896E-02	5.515E-02	NOT IDENT.
SE-75	-2.140E-02	5.680E-02	4.290E-02	2.898E-02	NOT IDENT.
BR-77	8.064E+00	1.563E+01	1.380E+01	7.974E+00	FAIL ABUN
SR-82	-1.284E-01	4.934E-01	3.574E-01	2.517E-01	NOT IDENT.
RB-83	5.093E-02	7.518E-02	6.711E-02	3.836E-02	NOT IDENT.
RB-84	2.464E-02	7.070E-02	6.256E-02	3.607E-02	NOT IDENT.
KR-85	1.332E+01	8.234E+00	6.977E+00	4.201E+00	NOT IDENT.
SR-85	6.908E-02	4.270E-02	3.618E-02	2.179E-02	NOT IDENT.
RB-86	9.306E-01	9.086E-01	8.341E-01	4.636E-01	NOT IDENT.
Y-88	3.501E-03	2.958E-02	2.543E-02	1.509E-02	NOT IDENT.
ZR-88	1.160E-02	3.340E-02	2.962E-02	1.704E-02	NOT IDENT.
Y-91	1.048E+01	2.156E+01	1.876E+01	1.100E+01	NOT IDENT.
NB-94	2.442E-02	3.881E-02	3.518E-02	1.980E-02	NOT IDENT.
NB-95	2.842E-02	5.423E-02	4.262E-02	2.767E-02	NOT IDENT.
NB-95M	1.617E+00	2.464E-01	2.080E-01	1.257E-01	NOT IDENT.
ZR-95	-2.566E-02	7.433E-02	6.274E-02	3.792E-02	NOT IDENT.
NB-97	2.681E+04	3.073E+05	0.000E+00	1.568E+05	SHORT HLIF
ZR-97	2.203E+07	7.385E+06	0.000E+00	3.768E+06	SHORT HLIF
MO-99	-5.957E+00	1.565E+01	1.318E+01	7.984E+00	NOT IDENT.
TC-99M	-3.283E+17	8.917E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.011E-02	3.975E-02	3.311E-02	2.028E-02	FAIL ABUN
RH-102	1.898E-02	3.324E-02	2.954E-02	1.696E-02	NOT IDENT.
RU-103	-1.619E-02	4.324E-02	3.590E-02	2.206E-02	NOT IDENT.
RH-106	6.040E-03	3.357E-01	2.828E-01	1.713E-01	NOT IDENT.
RU-106	6.040E-03	3.357E-01	2.828E-01	1.713E-01	NOT IDENT.
AG-108M	-2.080E-02	3.668E-02	3.050E-02	1.872E-02	NOT IDENT.
AG-110M	6.842E-04	3.780E-02	3.171E-02	1.929E-02	NOT IDENT.
IN-111	1.567E+00	1.761E+00	1.442E+00	8.985E-01	NOT IDENT.
IN-113M	-1.000E-02	4.923E-02	4.227E-02	2.512E-02	NOT IDENT.
SN-113	-1.000E-02	4.923E-02	4.227E-02	2.512E-02	NOT IDENT.
IN-114M	2.628E-01	2.315E-01	1.847E-01	1.181E-01	NOT IDENT.
CD-115	-5.052E+00	1.718E+01	1.432E+01	8.766E+00	NOT IDENT.
SN-117M	-8.182E-02	6.725E-02	5.519E-02	3.431E-02	NOT IDENT.
SB-122	1.913E+00	3.059E+00	2.704E+00	1.561E+00	NOT IDENT.
I-123	-3.238E+07	2.620E+07	0.000E+00	1.336E+07	SHORT HLIF
TE-123M	-4.071E-02	3.294E-02	2.699E-02	1.681E-02	NOT IDENT.
I-124	-7.017E-01	1.101E+00	7.490E-01	5.615E-01	NOT IDENT.
SB-124	-5.892E-02	6.064E-02	4.230E-02	3.094E-02	FAIL ABUN
SB-125	4.431E-02	1.020E-01	9.046E-02	5.205E-02	FAIL ABUN
TE-125M	-1.275E+00	1.073E+01	9.434E+00	5.473E+00	NOT IDENT.
I-126	-7.528E-02	2.141E-01	1.741E-01	1.092E-01	NOT IDENT.
SB-126	-5.568E-03	1.947E-01	1.459E-01	9.935E-02	NOT IDENT.
SN-126	1.328E-01	1.897E-01	1.021E-01	9.680E-02	FAIL ABUN
SB-127	-1.806E+00	1.854E+00	1.503E+00	9.458E-01	FAIL ABUN
XE-127	-1.410E-02	6.081E-02	4.843E-02	3.103E-02	NOT IDENT.
I-131	4.388E-02	1.406E-01	1.249E-01	7.172E-02	NOT IDENT.
TE-132	5.360E-01	1.023E+00	9.336E-01	5.219E-01	NOT IDENT.
BA-133	1.137E-02	5.135E-02	3.967E-02	2.620E-02	NOT IDENT.
I-133	1.617E+03	1.587E+04	0.000E+00	8.099E+03	SHORT HLIF
CS-134	7.835E-02	5.757E-02	4.848E-02	2.937E-02	FAIL ABUN
I-135	3.148E+16	9.396E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.785E-02	1.312E-01	1.089E-01	6.694E-02	NOT IDENT.
BA-137M	3.215E-02	3.975E-02	3.529E-02	2.028E-02	NOT IDENT.
CS-137	3.399E-02	4.202E-02	3.731E-02	2.144E-02	NOT IDENT.
CE-139	-8.709E-03	3.472E-02	2.971E-02	1.771E-02	NOT IDENT.
BA-140	-2.222E-01	3.055E-01	2.384E-01	1.559E-01	NOT IDENT.
LA-140	2.082E-02	9.655E-02	8.431E-02	4.926E-02	NOT IDENT.
CE-141	2.409E-02	7.311E-02	6.445E-02	3.730E-02	NOT IDENT.
CE-143	1.903E+03	6.112E+02	0.000E+00	3.119E+02	SHORT HLIF
CE-144	-1.127E-01	2.745E-01	2.050E-01	1.401E-01	NOT IDENT.
PM-144	-1.226E-02	3.940E-02	3.370E-02	2.010E-02	NOT IDENT.
PR-144	-8.315E-01	2.671E+00	2.285E+00	1.363E+00	NOT IDENT.
PM-146	-3.117E-03	5.035E-02	4.316E-02	2.569E-02	NOT IDENT.

ND-147	2.697E-01	6.670E-01	5.831E-01	3.403E-01	NOT IDENT.
PM-149	9.935E+01	1.470E+02	1.337E+02	7.498E+01	NOT IDENT.
EU-152	1.360E-01	1.635E-01	9.451E-02	8.342E-02	NOT IDENT.
GD-153	3.444E-02	1.014E-01	8.034E-02	5.173E-02	NOT IDENT.
EU-154	2.123E-02	1.469E-01	1.238E-01	7.493E-02	NOT IDENT.
EU-155	1.208E-02	1.269E-01	1.127E-01	6.474E-02	NOT IDENT.
TB-160	1.348E-02	1.468E-01	1.270E-01	7.491E-02	NOT IDENT.
HO-166M	-4.542E-02	6.249E-02	5.142E-02	3.188E-02	FAIL ABUN
TM-171	4.639E+00	5.092E+01	3.774E+01	2.598E+01	NOT IDENT.
LU-176	3.035E-03	3.038E-02	2.348E-02	1.550E-02	FAIL ABUN
LU-177	3.171E+00	1.906E+00	1.352E+00	9.727E-01	FAIL ABUN
LU-177M	-7.986E-02	1.961E-01	1.656E-01	1.001E-01	FAIL ABUN
HF-181	-5.069E-02	4.650E-02	3.662E-02	2.372E-02	NOT IDENT.
W-181	9.712E-02	6.424E-01	5.116E-01	3.277E-01	NOT IDENT.
TA-182	6.300E-02	2.266E-01	1.936E-01	1.156E-01	FAIL ABUN
RE-183	2.229E-02	1.279E-01	1.115E-01	6.528E-02	FAIL ABUN
RE-184	-1.827E-01	2.567E-01	2.215E-01	1.310E-01	NOT IDENT.
OS-185	-1.586E-03	4.880E-02	4.083E-02	2.490E-02	FAIL ABUN
RE-188	1.141E-01	1.987E-01	1.761E-01	1.014E-01	NOT IDENT.
W-188	-4.224E+00	9.548E+00	7.124E+00	4.871E+00	FAIL ABUN
IR-192	2.284E-03	4.049E-02	3.577E-02	2.066E-02	FAIL ABUN
AU-195	1.591E-01	2.788E-01	2.347E-01	1.422E-01	FAIL ABUN
TL-200	-2.669E+02	1.040E+03	0.000E+00	5.305E+02	SHORT HLIF
TL-201	-4.383E+00	1.015E+01	8.608E+00	5.179E+00	NOT IDENT.
TL-202	3.931E-02	7.479E-02	6.678E-02	3.816E-02	NOT IDENT.
HG-203	6.033E-02	4.831E-02	4.497E-02	2.465E-02	FAIL ABUN
BI-207	1.276E-02	5.771E-02	4.973E-02	2.945E-02	FAIL ABUN
TL-207	-1.268E-01	8.336E-01	6.293E-01	4.253E-01	FAIL ABUN
PO-209	-5.192E+00	8.445E+00	6.853E+00	4.309E+00	NOT IDENT.
BI-210	-1.089E+00	1.268E+01	1.130E+01	6.468E+00	NOT IDENT.
PB-210	-1.089E+00	1.268E+01	1.130E+01	6.468E+00	NOT IDENT.
PO-210	-1.089E+00	1.268E+01	1.130E+01	6.468E+00	NOT IDENT.
PB-211	-2.806E-01	1.077E+00	9.080E-01	5.495E-01	NOT IDENT.
BI-212	1.403E+00	5.562E-01	3.883E-01	2.838E-01	FAIL ABUN
PO-215	-1.268E-01	8.336E-01	6.293E-01	4.253E-01	FAIL ABUN
RN-219	-1.491E-01	4.457E-01	3.784E-01	2.274E-01	NOT IDENT.
RN-220	2.198E+00	2.898E+01	2.474E+01	1.479E+01	NOT IDENT.
RA-223	-1.268E-01	8.336E-01	6.293E-01	4.253E-01	FAIL ABUN
AC-227	3.156E-04	4.259E-01	3.799E-01	2.173E-01	FAIL ABUN
TH-227	3.156E-04	4.259E-01	3.799E-01	2.173E-01	FAIL ABUN
TH-229	-2.037E-02	6.050E-01	5.100E-01	3.087E-01	FAIL ABUN
PA-231	-2.950E-01	1.760E+00	1.548E+00	8.981E-01	FAIL ABUN
TH-231	-1.268E-01	8.336E-01	6.293E-01	4.253E-01	FAIL ABUN
U-231	4.284E-01	1.641E+00	1.295E+00	8.370E-01	FAIL ABUN
PA-233	1.815E-02	7.103E-02	6.342E-02	3.624E-02	FAIL ABUN
PA-234	-3.213E-01	3.287E-01	2.505E-01	1.677E-01	FAIL ABUN
PA-234M	1.373E+01	6.918E+00	5.123E+00	3.529E+00	FAIL ABUN
U-235	-5.220E-02	2.534E-01	2.159E-01	1.293E-01	FAIL ABUN
NP-236	5.111E-03	8.977E-02	7.794E-02	4.580E-02	NOT IDENT.
NP-237	5.530E-01	3.738E-01	2.912E-01	1.907E-01	NOT IDENT.
NP-239	-7.536E-02	2.258E-01	1.963E-01	1.152E-01	FAIL ABUN
AM-241	7.939E-02	2.932E-01	2.373E-01	1.496E-01	NOT IDENT.
CM-243	4.331E-02	1.155E-01	1.036E-01	5.892E-02	FAIL ABUN
AM-246	-7.317E-03	1.634E-01	1.374E-01	8.338E-02	NOT IDENT.
CM-247	-1.138E-02	4.036E-02	3.441E-02	2.059E-02	NOT IDENT.
CF-249	5.447E-03	4.455E-02	3.901E-02	2.273E-02	NOT IDENT.
CF-251	-3.889E-02	1.514E-01	1.291E-01	7.725E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
46.50	309.1648
46.50	309.1648
46.50	309.1648
48.70	322.6152
49.72	321.2876
51.35	310.7989
52.39	299.9441
52.97	297.3795
53.15	296.5169
53.44	301.4108
54.07	283.6351
56.28	312.3361
56.28	312.3374
57.37	0.0000
57.53	296.0428
57.53	296.0440
57.60	300.1591
57.98	297.2715
57.98	297.2715
59.32	290.2086
59.32	290.2086
59.40	290.2443
59.54	288.7700
59.72	288.8498
60.01	287.4400
61.10	301.7711
61.14	301.7890
61.30	301.8614
63.00	415.3398
63.29	389.2573
63.29	389.2573
63.58	397.1504
64.28	385.1825
65.12	373.2628
65.20	373.3058
65.20	373.3058
66.05	373.7633
66.72	374.5088
66.83	374.5692
66.91	374.6119
67.20	380.5919
67.20	380.5919
67.75	370.5237
67.85	370.5760
68.90	384.6199
68.90	384.6199
69.30	414.4382
69.67	388.1522
70.82	384.0852
70.82	384.0852
70.83	384.0912
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72.87	374.7890
72.87	374.7890
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74.81	375.7679
74.81	375.7679
74.97	375.8483
75.28	376.0031
75.70	376.2121
77.11	373.1709
77.11	373.1709

77.11	373.1709
77.11	373.1709
77.11	373.1709
77.11	373.1709
77.11	373.1709
78.38	365.9027
79.62	475.8827
79.80	475.9930
79.80	475.9930
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80.18	482.1528
80.30	482.2273
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81.07	478.7436
81.07	478.7436
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83.78	430.3548
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83.78	430.3548
83.78	430.3548
84.21	413.1071
84.90	423.0023
85.43	455.1038
86.29	473.1063
86.50	473.2278
86.54	473.2513
86.59	473.2803
86.72	473.3546
86.79	473.3945
86.94	473.4815
87.30	473.6900
87.30	473.6900
87.30	473.6900
87.30	473.6900
87.30	473.6900
87.30	473.6900
87.57	473.8441
87.88	474.0217
88.03	474.9069
88.36	475.0957
88.47	475.1593
89.95	496.0019
91.11	496.6868
92.29	365.8131
92.38	365.8521
92.38	365.8521
93.35	366.2667
94.00	331.1767
94.67	344.3031
94.67	344.3044
94.90	344.3958
94.90	344.3958
94.90	344.3958
94.90	344.3958
95.87	344.7811
95.87	344.7811
96.73	324.1561
97.43	327.6411
98.44	308.6263
98.44	308.6263
98.88	327.3705
99.55	351.8857
99.55	351.8857
99.86	352.0078
100.00	364.2023
100.10	380.4335
103.18	328.9389
103.76	359.6244
105.00	355.0243
105.31	362.2660
108.00	372.5007
109.28	350.5248

111.00	397.2314
111.00	397.2314
111.76	390.3759
112.95	323.1507
115.19	355.7737
116.30	363.3835
117.00	372.9141
117.00	372.9141
117.66	383.4717
121.11	364.1118
121.62	366.3670
121.78	366.4250
122.06	358.5391
122.32	360.9974
122.32	360.9974
122.32	360.9974
122.32	360.9974
123.07	358.1851
127.23	397.9341
129.76	330.4699
131.20	362.6750
133.02	375.0168
133.54	368.5000
135.34	325.0752
136.00	336.8159
136.25	334.7952
136.48	345.3632
140.51	374.0322
140.51	0.0000
142.18	345.0500
142.65	346.2516
143.76	370.8996
144.24	352.0290
144.24	352.0290
144.24	352.0290
144.24	352.0290
145.22	350.2203
145.44	338.6475
147.16	341.2824
152.43	298.1302
152.70	295.0057
153.22	291.9403
154.21	316.7136
154.21	316.7136
154.21	316.7136
154.21	316.7136
155.03	323.3384
156.02	346.0397
158.56	360.6979
159.00	0.0000
159.00	355.4755
160.31	311.9183
161.27	303.5851
162.32	323.1745
162.64	313.5961
163.35	310.5551
163.89	299.9433
165.85	331.6513
167.43	318.0615
171.28	303.9071
171.86	289.9823
172.10	291.1198
176.55	335.5877
176.60	335.5995
181.06	334.8047
184.41	339.1613
185.71	332.4977
186.00	313.3156
190.27	249.3528
192.34	326.4616
193.63	301.4675
197.04	271.3391
198.01	307.9575
198.60	323.5469
200.40	309.5975
201.83	336.4800
202.84	310.1401
205.31	300.0369

208.36	343.3854
208.81	334.8175
209.75	292.0750
209.75	292.0750
210.97	276.2811
215.65	330.8298
216.55	299.7191
218.09	275.4062
222.10	275.0362
223.80	294.4582
226.40	302.6276
227.00	312.6601
227.08	312.6770
227.20	312.7003
228.16	277.7339
228.18	277.7376
228.18	277.7376
231.56	0.0000
235.69	277.9036
236.00	271.9171
236.00	271.9171
238.63	261.4851
238.63	261.4851
238.63	261.4851
238.63	261.4851
239.00	261.5467
240.98	263.6993
241.98	271.4498
241.98	271.4498
241.98	271.4498
244.69	224.8274
245.39	218.8477
247.94	237.4674
248.90	224.8158
249.79	225.8564
252.40	225.3083
252.85	227.2037
252.85	227.2037
254.15	0.0000
256.20	219.4120
256.20	219.4120
260.50	218.1502
260.90	218.2038
262.80	215.4597
264.65	216.8529
268.24	189.5775
268.79	206.5997
269.46	197.1212
269.46	197.1212
269.46	197.1212
269.46	197.1212
271.23	203.8115
273.65	287.6014
276.40	202.8858
277.35	205.7096
277.60	204.5769
277.60	204.5769
278.00	194.3940
278.60	198.1846
279.20	201.9780
279.53	231.8053
280.46	255.2160
281.68	266.5819
283.67	210.8984
284.30	204.4410
285.00	215.7307
285.90	187.8094
286.10	182.2245
286.10	182.2245
287.40	187.0361
288.45	0.0000
290.67	207.6826
290.80	207.6989
291.72	189.0576
293.26	0.0000
293.70	175.1914
295.21	194.1259
295.21	194.1259

295.21	194.1259
295.96	150.3535
296.50	150.4004
297.23	150.4609
298.57	150.5742
299.80	150.6758
299.80	150.6758
300.09	160.1200
300.09	160.1200
300.09	160.1200
300.09	160.1200
300.12	160.1221
301.29	169.6509
302.84	166.6515
303.76	143.1410
303.91	143.1539
304.40	151.0586
304.40	151.0586
304.84	151.0957
306.84	160.7156
308.46	156.6513
311.98	165.9039
316.51	183.4160
318.01	186.4153
319.02	169.3868
319.41	177.9879
320.08	168.5303
323.87	171.7317
323.87	171.7317
323.87	171.7317
323.87	171.7317
325.23	167.0810
328.77	196.0863
333.44	201.3560
334.20	191.8433
334.20	191.8433
334.30	191.8530
338.28	179.7501
338.28	179.7501
338.28	179.7501
338.28	179.7501
338.32	179.7547
338.32	179.7547
338.32	179.7547
340.50	158.7823
340.57	158.7883
344.27	115.6992
345.85	144.7394
350.59	0.0000
351.07	142.2178
351.92	142.2771
351.92	142.2771
351.92	142.2771
355.39	0.0000
356.01	129.3115
364.48	137.3167
366.43	156.9436
367.43	154.0944
367.94	0.0000
369.80	135.7184
374.96	133.1180
383.85	146.4591
387.95	139.8454
388.63	134.9647
391.69	139.1033
391.69	139.1033
392.90	124.3742
398.62	134.5988
400.65	130.7609
401.10	132.7699
401.81	135.7859
402.60	137.8190
404.84	150.8607
410.95	138.3400
411.60	138.3790
413.65	140.4991
414.70	124.6140
415.30	112.6814

415.76	123.6761
417.63	0.0000
418.52	127.8219
423.70	121.1078
427.08	131.3118
427.89	117.3199
432.53	127.6046
433.93	132.7074
439.47	93.7220
439.56	93.7254
439.89	103.8185
443.98	107.0287
444.90	111.1105
445.03	111.1172
445.03	111.1172
445.03	111.1172
445.03	111.1172
453.90	128.7704
463.38	111.9739
468.07	107.0905
473.00	130.8125
475.06	109.4425
475.35	96.1572
476.78	100.3076
477.59	105.4593
477.96	108.5478
482.03	117.9564
484.57	102.6758
487.03	92.4994
490.36	0.0000
492.35	102.9944
497.08	99.0598
507.63	0.0000
510.53	0.0000
510.84	93.3673
511.00	93.3734
511.85	93.4041
511.85	93.4041
513.99	81.3626
513.99	81.3626
520.41	87.4638
520.65	91.6373
527.90	108.5957
528.96	0.0000
529.64	94.0386
529.87	0.0000
531.02	94.0869
537.32	104.7876
543.00	78.7573
546.56	0.0000
549.76	96.8493
552.65	86.4143
555.20	100.2069
563.23	85.6888
563.90	94.1736
568.70	102.8162
569.32	92.2378
569.50	92.2421
569.67	94.3691
573.80	106.1890
574.00	102.2139
574.64	127.4648
578.91	97.5167
579.30	0.0000
583.14	102.2789
585.48	97.7427
591.81	96.1787
592.07	106.8726
593.00	96.2183
595.88	90.9620
600.56	111.2070
602.52	0.0000
602.71	126.9339
602.71	126.9339
603.60	116.2415
604.41	100.1750
604.70	100.1852
609.31	96.7588



609.31	96.7588
609.31	96.7588
609.31	96.7588
610.33	80.6616
612.46	82.5121
614.37	95.1309
618.01	72.2442
621.84	79.8951
621.84	79.8951
631.29	93.1450
633.02	105.1204
633.10	105.1228
634.78	78.0732
635.90	77.0166
636.97	86.8105
645.85	94.6826
646.12	89.2491
656.30	99.3735
657.75	83.0322
657.90	0.0000
661.65	79.8544
661.65	79.8544
664.57	0.0000
666.33	95.3113
666.33	95.3113
675.00	92.2790
677.61	94.5559
685.20	104.6995
692.80	100.3469
695.00	95.8094
696.49	106.9139
696.49	106.9139
697.00	103.2432
697.49	108.7908
698.33	112.5060
698.50	105.1355
699.00	97.7727
702.63	96.0358
706.10	99.8350
706.58	0.0000
706.67	99.8525
709.31	95.3073
711.68	87.0426
713.82	65.7868
717.42	92.7592
720.50	89.1328
721.93	0.0000
722.20	73.2531
722.78	73.2660
722.78	73.2660
722.89	73.2692
722.95	73.2708
723.30	73.2788
724.18	78.0784
727.18	93.0339
733.00	73.4922
735.90	62.6814
739.58	75.6376
742.81	72.9060
744.21	76.6765
747.13	67.3828
751.79	66.5379
752.31	70.2972
753.82	67.5161
755.35	70.3598
756.15	76.9451
756.87	78.8389
763.93	69.3276
765.79	85.4965
766.42	79.0576
766.84	75.8406
776.49	80.9065
778.00	79.3225
778.57	76.8159
778.89	79.3430
783.80	69.9953
785.46	63.4041
792.07	71.5138

795.84	66.7079
796.30	65.0893
798.80	63.5069
801.93	83.2834
805.60	72.3293
810.29	82.9059
810.76	81.9652
815.85	70.6276
817.79	66.8455
818.51	66.8583
819.60	74.5215
826.30	57.4304
828.27	0.0000
831.60	85.3116
831.96	77.6514
834.83	86.3470
836.80	0.0000
846.75	57.7502
848.13	60.6608
856.28	0.0000
856.80	64.5244
860.37	74.5218
867.32	66.1971
867.82	70.7473
871.10	63.9388
873.19	55.2501
874.81	63.0309
875.33	0.0000
876.40	59.1769
879.36	58.2520
880.27	56.3244
880.51	58.2703
881.50	49.5422
883.24	52.4806
884.67	55.4171
889.25	71.0574
896.60	77.0440
898.02	80.9736
899.00	79.0439
903.28	60.0799
911.07	75.3723
911.07	75.3723
911.07	75.3723
919.63	57.6827
920.93	66.7300
925.00	53.0464
925.24	53.0497
926.50	63.8759
935.52	48.2623
937.48	69.9643
944.10	50.3391
946.00	71.1006
949.00	58.3062
962.29	66.2886
964.01	90.1214
966.15	88.4682
968.20	64.6816
969.11	61.2912
969.11	61.2912
969.11	61.2912
977.42	66.6756
980.50	51.7863
983.50	58.8007
989.30	50.8983
996.32	63.4092
1001.03	47.0382
1001.68	56.6267
1004.76	42.9304
1021.30	0.0000
1024.50	0.0000
1034.80	59.5186
1036.00	62.5626
1037.82	74.7046
1038.57	65.6295
1038.76	0.0000
1045.16	55.6177
1046.59	55.6356
1048.07	66.7842

1050.47	57.7097
1050.47	57.7097
1062.04	57.8628
1063.62	56.8682
1076.63	47.8702
1077.35	56.0272
1078.86	64.1971
1085.78	63.2765
1099.22	53.2314
1112.02	65.7005
1112.84	72.1675
1115.52	72.2076
1120.29	58.6212
1120.29	58.6212
1120.29	58.6212
1120.29	58.6212
1120.51	52.8934
1121.28	44.0848
1124.00	0.0000
1129.67	60.8029
1131.51	0.0000
1147.95	0.0000
1167.94	72.7344
1173.22	66.5755
1175.09	74.9268
1177.93	67.6819
1189.05	76.1902
1204.90	64.9239
1205.75	0.0000
1213.00	65.0324
1221.42	71.4504
1230.97	93.6970
1235.34	79.0283
1236.41	0.0000
1238.25	61.1530
1246.25	74.9810
1260.41	0.0000
1271.85	64.7529
1274.45	58.4129
1274.54	58.4129
1291.56	58.6121
1298.22	0.0000
1312.09	37.4481
1325.50	38.6177
1325.50	38.6177
1332.49	37.5962
1333.61	35.4559
1360.21	23.7572
1362.66	0.0000
1365.15	35.6694
1368.21	36.7711
1368.53	0.0000
1376.25	28.1614
1384.27	29.7533
1394.10	21.4245
1395.20	25.1562
1407.95	26.1494
1434.06	25.3360
1436.60	24.4095
1457.56	0.0000
1460.81	29.7015
1489.15	20.8491
1509.49	16.1687
1596.49	22.2034
1620.62	14.5386
1678.03	0.0000
1691.02	9.8043
1691.02	9.8043
1706.46	0.0000
1750.46	0.0000
1764.49	13.8862
1764.49	13.8862
1764.49	13.8862
1764.49	13.8862
1770.23	10.4238
1771.40	10.4257
1791.20	0.0000
1808.65	13.9805

1836.01

9.0248

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229014

Total Uranium Activity	7.3994E+00	ug/g
Total Uranium Counting Unc.	8.0571E+00	ug/g
Total Uranium Tpu	4.1108E-06	ug/g
Total Uranium Mda	5.6862E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GROSS GAMMA REPORT                            *
*
*****
*
*  BATCH ID      : 941239                SAMPLE ID   : G244229014                *
*  ANALYST       : MXR1                  DETECTOR    : GAM15                  *
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00          *
*  ANALYSIS DATE: 22-JAN-2010 16:50:37.25  SAMPLE ALQT: 140.370 GRAM          *
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.839E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.681E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.985E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.445E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 18:52:33.77

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229015.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:51:09
Sample ID          : G244229015      Sample quantity   : 1.18230E+02 GRAM
Detector name      : GAM18           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.56  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials  : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 941239          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	75.09*	380	409	1.13	149.31	142	15	5.28E-02	10.4	1.79E+00
2	2	77.30*	533	273	0.89	153.72	142	15	7.41E-02	6.6	
3	0	87.23	194	400	1.28	173.57	171	7	2.69E-02	18.5	
4	6	89.98	114	278	0.81	179.06	177	12	1.58E-02	23.8	3.28E+00
5	6	93.00*	172	398	1.48	185.10	177	12	2.40E-02	21.9	
6	0	129.41	98	290	1.33	257.90	254	8	1.36E-02	32.0	
7	0	185.97*	205	425	1.19	370.97	366	12	2.84E-02	22.0	
8	0	210.13	134	426	1.33	419.27	413	13	1.87E-02	32.8	
9	3	238.76*	1500	199	1.25	476.52	470	19	2.08E-01	3.1	1.63E+00
10	3	241.73	325	233	1.65	482.46	470	19	4.51E-02	12.0	
11	0	270.57	166	266	1.89	540.12	535	12	2.31E-02	21.2	
12	3	295.31*	424	179	1.32	589.59	584	20	5.89E-02	7.6	1.77E+00
13	3	300.23	102	174	1.45	599.42	584	20	1.42E-02	26.1	
14	0	328.50	69	204	0.90	655.94	651	10	9.61E-03	40.8	
15	0	338.37*	370	186	1.29	675.68	670	12	5.14E-02	9.1	
16	0	351.92*	825	208	1.33	702.77	695	16	1.15E-01	5.3	
17	0	462.95	80	123	1.01	924.76	920	11	1.11E-02	29.3	
18	0	510.78*	246	152	1.57	1020.40	1011	18	3.41E-02	15.4	
19	0	583.17*	497	99	1.58	1165.13	1160	10	6.90E-02	6.0	
20	0	609.19*	533	179	1.77	1217.16	1208	17	7.41E-02	7.4	
21	0	727.67*	92	123	1.23	1454.06	1447	14	1.28E-02	28.4	
22	0	795.16	85	69	1.66	1589.00	1581	13	1.19E-02	22.7	
23	0	860.40	108	44	2.71	1719.47	1713	12	1.49E-02	15.8	
24	0	911.01*	359	129	1.71	1820.66	1811	20	4.99E-02	9.6	
25	3	964.64	92	34	2.81	1927.89	1921	24	1.27E-02	19.8	1.42E+00
26	3	968.77*	208	48	1.80	1936.15	1921	24	2.89E-02	10.0	
27	0	1119.84*	180	71	1.60	2238.24	2230	17	2.51E-02	13.3	
28	0	1379.07	58	42	1.81	2756.64	2748	19	8.09E-03	31.0	
29	0	1460.15*	2016	16	2.34	2918.79	2907	22	2.80E-01	2.3	
30	0	1588.62	24	35	1.65	3175.71	3167	14	3.33E-03	56.1	
31	0	1764.10*	82	30	1.28	3526.65	3518	17	1.13E-02	19.9	

Flag: "\*" = Peak area was modified by background subtraction

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229015.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 22-JAN-2010 16:51:09  
 Sample ID : G244229015 Sample quantity : 118.23 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA18 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.56 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.168E+01	2.811E+00	3.448E-01	2.616E-02	91.882
CD-109	+	88.03	*	2.632E+00	1.003E+00	1.110E+00	1.026E-01	2.371
SN-126	+	64.28		1.267E-01	5.540E-01	9.214E-01	1.362E-01	0.138
	+	86.94		1.074E+00	5.969E-01	5.336E-01	2.213E-01	2.012
	+	87.57	*	2.583E-01	9.847E-02	1.258E-01	1.159E-02	2.053
TL-208	+	277.35		2.384E-01	3.243E-01	5.287E-01	5.552E-02	0.451
	+	510.84		8.373E-01	2.734E-01	1.641E-01	1.745E-02	5.103
	+	583.14	*	4.765E-01	6.841E-02	5.123E-02	4.016E-03	9.301
	+	860.37		9.398E-01	3.143E-01	3.587E-01	4.012E-02	2.620
BI-211	+	72.87		3.040E+00	2.937E+00	5.022E+00	4.146E-01	0.605
	+	351.07	*	3.715E+00	4.627E-01	2.458E-01	1.578E-02	15.110
PB-212	+	74.81		2.278E+00	5.522E-01	5.216E-01	6.538E-02	4.367
	+	77.11		1.788E+00	2.811E-01	2.918E-01	2.473E-02	6.128
	+	87.30		1.195E+00	4.708E-01	5.842E-01	7.935E-02	2.045
	+	238.63	*	1.572E+00	1.482E-01	7.563E-02	5.403E-03	20.786
	+	300.09		1.591E+00	8.404E-01	9.607E-01	7.889E-02	1.656
PO-212	+	74.81		2.278E+00	5.522E-01	5.216E-01	6.538E-02	4.367
	+	77.11		1.788E+00	2.811E-01	2.918E-01	2.473E-02	6.128
	+	87.30		1.195E+00	4.708E-01	5.842E-01	7.935E-02	2.045
	+	115.19		-1.595E+00	3.229E+00	5.084E+00	3.203E-01	-0.314
	+	238.63	*	1.572E+00	1.482E-01	7.563E-02	5.403E-03	20.786
	+	300.09		1.591E+00	8.404E-01	9.607E-01	7.889E-02	1.656
BI-214	+	609.31	*	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
	+	1120.29		1.625E+00	4.599E-01	3.710E-01	3.552E-02	4.379
	+	1764.49		9.673E-01	3.893E-01	3.286E-01	1.998E-02	2.944
PB-214	+	74.81		3.925E+00	9.247E-01	8.988E-01	1.003E-01	4.367
	+	77.11		3.066E+00	5.356E-01	5.003E-01	5.702E-02	6.128
	+	87.30		2.047E+00	7.960E-01	1.001E+00	1.201E-01	2.045
	+	241.98		2.039E+00	5.135E-01	4.546E-01	3.595E-02	4.486
	+	295.21		1.161E+00	2.020E-01	1.686E-01	1.430E-02	6.887
	+	351.92	*	1.292E+00	1.745E-01	8.568E-02	7.088E-03	15.082
PO-214	+	74.81		3.925E+00	9.247E-01	8.988E-01	1.003E-01	4.367
	+	77.11		3.066E+00	5.356E-01	5.003E-01	5.702E-02	6.128
	+	87.30		2.047E+00	7.960E-01	1.001E+00	1.201E-01	2.045



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.039E+00	5.135E-01	4.546E-01	3.595E-02	4.486
	+	295.21		1.161E+00	2.020E-01	1.686E-01	1.430E-02	6.887
	+	351.92	*	1.292E+00	1.745E-01	8.568E-02	7.088E-03	15.082
	+	74.81		2.278E+00	5.522E-01	5.216E-01	6.538E-02	4.367
	+	77.11		1.788E+00	2.811E-01	2.918E-01	2.473E-02	6.128
	+	87.30		1.195E+00	4.708E-01	5.842E-01	7.935E-02	2.045
PO-218	+	238.63	*	1.572E+00	1.482E-01	7.563E-02	5.403E-03	20.786
	+	300.09		1.591E+00	8.404E-01	9.607E-01	7.889E-02	1.656
	+	74.81		3.925E+00	9.247E-01	8.988E-01	1.003E-01	4.367
	+	77.11		3.066E+00	5.356E-01	5.003E-01	5.702E-02	6.128
	+	87.30		2.047E+00	7.960E-01	1.001E+00	1.201E-01	2.045
	+	241.98		2.039E+00	5.135E-01	4.546E-01	3.595E-02	4.486
RA-224	+	295.21		1.161E+00	2.020E-01	1.686E-01	1.430E-02	6.887
	+	351.92	*	1.292E+00	1.745E-01	8.568E-02	7.088E-03	15.082
	+	240.98	*	3.867E+00	9.492E-01	8.596E-01	4.788E-02	4.498
RA-226	+	609.31	*	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
	+	1120.29		1.625E+00	4.599E-01	3.710E-01	3.552E-02	4.379
	+	1764.49		9.673E-01	3.893E-01	3.286E-01	1.998E-02	2.944
AC-228	+	338.32		1.848E+00	8.256E-01	2.925E-01	1.192E-01	6.318
	+	911.07	*	1.480E+00	3.448E-01	1.665E-01	2.206E-02	8.890
	+	969.11		1.507E+00	4.710E-01	2.940E-01	7.041E-02	5.126
RA-228	+	338.32		1.848E+00	8.256E-01	2.925E-01	1.192E-01	6.318
	+	911.07	*	1.480E+00	3.448E-01	1.665E-01	2.206E-02	8.890
	+	969.11		1.507E+00	4.710E-01	2.940E-01	7.041E-02	5.126
TH-228	+	74.81		2.315E+00	5.184E-01	5.301E-01	4.467E-02	4.367
	+	77.11		1.817E+00	2.857E-01	2.966E-01	2.514E-02	6.128
	+	87.30		1.214E+00	4.628E-01	5.937E-01	5.457E-02	2.045
TH-230	+	238.63	*	1.597E+00	1.506E-01	7.686E-02	5.490E-03	20.786
	+	300.09		1.617E+00	1.273E+00	9.764E-01	5.754E-01	1.656
	+	609.31	*	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
TH-232	+	1120.29		1.625E+00	4.599E-01	3.710E-01	3.552E-02	4.379
	+	1764.49		9.673E-01	3.893E-01	3.286E-01	1.998E-02	2.944
	+	338.32		1.848E+00	3.545E-01	2.925E-01	1.692E-02	6.318
U-234	+	911.07	*	1.480E+00	3.448E-01	1.665E-01	2.206E-02	8.890
	+	969.11		1.507E+00	4.710E-01	2.940E-01	7.041E-02	5.126
	+	609.31	*	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
NP-237	+	1120.29		1.625E+00	4.599E-01	3.710E-01	3.552E-02	4.379
	+	1764.49		9.673E-01	3.893E-01	3.286E-01	1.998E-02	2.944
	+	86.50	*	7.585E-01	3.288E-01	3.753E-01	8.467E-02	2.021
AM-243	+	95.87		-6.124E-01	1.016E+00	1.414E+00	3.455E-01	-0.433
	+	74.67	*	3.693E-01	8.260E-02	8.490E-02	7.085E-03	4.349
	+	86.72		2.844E+01	1.084E+01	1.418E+01	1.296E+00	2.006
ANH-511	+	117.66		1.793E-02	3.365E+00	5.413E+00	3.330E-01	0.003
	+	142.18		2.703E+00	1.542E+01	2.468E+01	1.359E+00	0.110
	+	511.00	*	1.809E-01	5.709E-02	3.545E-02	2.341E-03	5.102

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	6.734E-02	2.542E-01	4.263E-01	3.089E-02	0.158

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	1274.54	*		-3.941E-04	3.910E-02	6.416E-02	4.366E-03	-0.006
NA-24	1368.53	*		-1.532E+00	3.910E-02	Half-Life too short		
AL-26	1129.67			-4.551E-01	1.531E+00	2.325E+00	1.553E-01	-0.196
	1808.65	*		8.540E-03	2.306E-02	4.009E-02	2.340E-03	0.213
TI-44	67.85			5.893E-03	4.714E-02	7.869E-02	6.328E-03	0.075
	78.38	*		3.300E-01	5.188E-02	7.735E-02	6.614E-03	4.266
SC-46	889.25	*		1.523E-02	3.255E-02	5.509E-02	6.145E-03	0.276
	1120.51	+		2.806E-01	7.723E-02	1.086E-01	7.506E-03	2.583
V-48	944.10			-2.721E-01	8.234E-01	1.302E+00	1.378E-01	-0.209
	983.50	*		-6.640E-02	6.345E-02	9.282E-02	9.181E-03	-0.715
	1312.09			8.197E-02	7.466E-02	1.331E-01	9.697E-03	0.616
CR-51	320.08	*		-1.591E-01	3.236E-01	5.063E-01	3.259E-02	-0.314
MN-52	744.21			-5.573E-02	2.249E-01	3.670E-01	3.236E-02	-0.152
	848.13			-5.324E-01	7.002E+00	1.143E+01	1.196E+00	-0.047
	935.52			8.324E-02	2.585E-01	4.132E-01	4.431E-02	0.201
	1246.25			-2.228E+00	7.561E+00	1.218E+01	7.833E-01	-0.183
	1333.61			2.478E+00	4.433E+00	7.662E+00	5.788E-01	0.323
	1434.06	*		2.119E-02	2.299E-01	3.770E-01	2.778E-02	0.056
MN-54	834.83	*		1.762E-02	3.244E-02	5.519E-02	5.653E-03	0.319
CO-56	846.75	*		5.703E-03	3.667E-02	6.083E-02	6.350E-03	0.094
	977.42			1.707E+00	2.781E+00	4.279E+00	4.280E-01	0.399
	1037.82			-6.872E-02	2.580E-01	4.229E-01	3.918E-02	-0.162
	1175.09			1.274E+00	1.889E+00	3.275E+00	1.818E-01	0.389
	1238.25			1.729E-01	8.382E-02	1.531E-01	1.020E-02	1.130
	1360.21			4.309E-01	8.833E-01	1.509E+00	1.134E-01	0.286
	1771.40			2.017E-01	2.319E-01	3.786E-01	2.288E-02	0.533
CO-57	122.06	*		1.533E-02	2.191E-02	3.628E-02	2.149E-03	0.423
	136.48			8.738E-02	1.853E-01	3.013E-01	1.972E-02	0.290
CO-58	810.76	*		-2.842E-02	3.164E-02	4.821E-02	4.759E-03	-0.590
FE-59	142.65			2.230E-01	2.468E+00	3.881E+00	2.135E-01	0.057
	192.34			-3.931E-01	8.234E-01	1.244E+00	1.443E-01	-0.316
	1099.22	*		-5.000E-02	7.758E-02	1.226E-01	1.009E-02	-0.408
	1291.56			-8.743E-02	1.004E-01	1.505E-01	1.265E-02	-0.581
CO-60	1173.22			1.438E-02	3.746E-02	6.372E-02	3.522E-03	0.226
	1332.49	*		1.367E-03	3.153E-02	5.179E-02	3.913E-03	0.026
ZN-65	1115.52	*		1.922E-02	8.966E-02	1.304E-01	9.182E-03	0.147
GE-68	1077.35	*		-6.593E-03	1.056E+00	1.760E+00	1.398E-01	-0.004
AS-73	53.44	*		-5.884E-01	1.042E+00	1.710E+00	1.356E-01	-0.344
AS-74	595.88	*		1.911E-03	8.282E-02	1.342E-01	9.644E-03	0.014
	634.78			2.721E-01	3.211E-01	5.458E-01	4.064E-02	0.498
SE-75	66.05			-1.086E+01	5.560E+00	8.173E+00	8.095E-01	-1.328
	96.73			-4.660E-01	8.111E-01	1.138E+00	1.501E-01	-0.409
	121.11			-4.107E-02	1.207E-01	1.906E-01	1.779E-02	-0.215
	136.00			1.115E-02	3.492E-02	5.643E-02	3.214E-03	0.198
	198.60			-6.895E-01	1.566E+00	2.533E+00	1.719E-01	-0.272
	264.65	*		-6.814E-03	3.824E-02	5.716E-02	3.269E-03	-0.119
	279.53			4.056E-02	9.323E-02	1.550E-01	9.575E-03	0.262
	303.91			-1.865E-01	1.969E+00	2.762E+00	2.628E-01	-0.068
	400.65			4.170E-02	2.034E-01	3.440E-01	3.134E-02	0.121

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	87.88		7.792E+02	2.970E+02	4.315E+02	3.987E+01	1.806
		200.40		1.037E+02	1.899E+02	3.236E+02	1.743E+01	0.320
	+	239.00		3.464E+02	2.872E+01	4.582E+01	2.549E+00	7.561
		249.79		1.128E+01	7.420E+01	1.227E+02	6.880E+00	0.092
		281.68		-1.045E+02	1.105E+02	1.711E+02	9.763E+00	-0.611
		297.23		4.473E+02	7.928E+01	1.482E+02	8.510E+00	3.018
		303.76		-3.548E+01	2.281E+02	3.185E+02	1.832E+01	-0.111
		439.47		2.324E+01	1.595E+02	2.671E+02	1.628E+01	0.087
		484.57		-1.591E+02	2.503E+02	3.948E+02	2.534E+01	-0.403
		520.65	*	1.862E+00	1.185E+01	1.959E+01	1.307E+00	0.095
		574.64		-2.792E+02	2.453E+02	3.659E+02	2.577E+01	-0.763
		578.91		8.672E+01	1.140E+02	1.706E+02	1.206E+01	0.508
		585.48		2.157E+03	3.298E+02	5.847E+02	4.160E+01	3.690
		755.35		6.938E+00	1.831E+02	3.046E+02	2.737E+01	0.023
		817.79		-2.255E+01	1.406E+02	2.286E+02	2.278E+01	-0.099
SR-82		698.33		5.121E+00	2.976E+01	5.021E+01	4.088E+00	0.102
		776.49	*	-2.965E-01	3.302E-01	5.095E-01	4.745E-02	-0.582
RB-83		1395.20		5.988E+00	9.945E+00	1.716E+01	1.279E+00	0.349
		520.41	*	1.261E-02	5.779E-02	9.595E-02	6.400E-03	0.131
		529.64		-7.758E-02	8.717E-02	1.317E-01	8.866E-03	-0.589
		552.65		-2.481E-02	1.615E-01	2.603E-01	1.794E-02	-0.095
RB-84		881.50	*	3.344E-02	5.875E-02	1.002E-01	1.104E-02	0.334
KR-85		513.99	*	1.937E+01	7.317E+00	1.222E+01	8.097E-01	1.585
SR-85		513.99	*	1.004E-01	3.795E-02	6.338E-02	4.199E-03	1.585
RB-86		1076.63	*	3.227E-01	6.895E-01	1.189E+00	9.467E-02	0.271
Y-88		898.02		1.530E-02	3.546E-02	5.975E-02	6.773E-03	0.256
		1836.01	*	1.281E-02	2.580E-02	4.563E-02	2.599E-03	0.281
ZR-88		392.90	*	1.962E-02	2.676E-02	4.644E-02	2.671E-03	0.423
Y-91		1204.90	*	1.686E+01	1.633E+01	2.880E+01	1.703E+00	0.585
NB-94		702.63	*	-3.313E-03	2.776E-02	4.598E-02	3.772E-03	-0.072
		871.10		1.660E-02	2.776E-02	4.751E-02	5.153E-03	0.349
NB-95		765.79	*	1.628E-02	3.693E-02	6.278E-02	5.743E-03	0.259
NB-95M		235.69	*	1.395E-01	1.216E-01	1.866E-01	1.369E-02	0.747
ZR-95		724.18		1.408E-01	9.286E-02	1.492E-01	1.383E-02	0.944
		756.15	*	-1.432E-02	5.693E-02	9.267E-02	9.119E-03	-0.155
NB-97		657.90	*	9.695E-02	5.693E-02	Half-Life too short		
		1024.50		-3.383E+00	5.693E-02	Half-Life too short		
ZR-97		254.15		-7.306E-01	5.693E-02	Half-Life too short		
		355.39		-1.737E+00	5.693E-02	Half-Life too short		
		507.63	*	1.417E+01	5.693E-02	Half-Life too short		
		602.52		-3.286E+00	5.693E-02	Half-Life too short		
		1021.30		4.329E+00	5.693E-02	Half-Life too short		
		1147.95		-1.217E+01	5.693E-02	Half-Life too short		
		1362.66		-1.102E+01	5.693E-02	Half-Life too short		
		1750.46		8.140E+00	5.693E-02	Half-Life too short		
MO-99		140.51		-2.927E+01	3.303E+01	4.812E+01	1.294E+01	-0.608
		181.06		1.243E+01	2.056E+01	3.132E+01	5.317E+00	0.397
		366.43		-1.879E+01	8.747E+01	1.456E+02	8.412E+00	-0.129
		739.58	*	1.620E+00	1.217E+01	2.041E+01	3.114E+00	0.079

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	778.00			-4.467E+01	3.689E+01	5.513E+01	5.147E+00	-0.810
TC-99M	140.51	*		-6.493E+11	3.689E+01	Half-Life too short		
RH-101	127.23			1.195E-02	3.226E-02	4.692E-02	2.710E-03	0.255
	198.01	*		-3.018E-03	2.775E-02	4.548E-02	2.445E-03	-0.066
	325.23			7.725E-02	2.195E-01	3.162E-01	1.827E-02	0.244
RH-102	418.52			-2.751E-02	2.287E-01	3.787E-01	2.250E-02	-0.073
	475.06	*		1.107E-02	2.343E-02	3.977E-02	2.526E-03	0.278
	631.29			-1.870E-02	4.953E-02	7.764E-02	5.762E-03	-0.241
	697.49			1.330E-02	6.516E-02	1.102E-01	8.956E-03	0.121
	766.84			9.015E-02	9.544E-02	1.662E-01	1.523E-02	0.542
	1046.59			8.458E-02	9.438E-02	1.677E-01	1.447E-02	0.504
	1112.84			-2.886E-02	2.151E-01	3.014E-01	2.140E-02	-0.096
RU-103	497.08	*		-7.038E-03	3.295E-02	5.338E-02	6.931E-03	-0.132
	610.33	+		1.056E+01	2.299E+00	2.373E+00	3.805E-01	4.449
RH-106	511.85	+		9.052E-01	2.858E-01	3.935E-01	2.601E-02	2.301
	621.84	*		-2.663E-01	2.762E-01	4.107E-01	5.167E-02	-0.648
	1050.47			6.062E-01	1.873E+00	3.208E+00	2.741E-01	0.189
RU-106	511.85	+		9.052E-01	2.858E-01	3.935E-01	2.601E-02	2.301
	621.84	*		-2.663E-01	2.749E-01	4.107E-01	3.023E-02	-0.648
	1050.47			6.062E-01	1.873E+00	3.208E+00	2.741E-01	0.189
AG-108M	433.93	*		-2.232E-04	2.675E-02	4.445E-02	2.904E-03	-0.005
	614.37			3.241E-02	3.382E-02	5.159E-02	3.975E-03	0.628
	722.95			2.943E-02	3.886E-02	5.956E-02	5.267E-03	0.494
AG-110M	657.75	*		1.227E-02	2.747E-02	4.740E-02	3.739E-03	0.259
	677.61			-1.620E-01	2.566E-01	4.113E-01	3.337E-02	-0.394
	706.67			4.791E-02	1.660E-01	2.821E-01	2.401E-02	0.170
	763.93			-1.899E-01	1.402E-01	2.091E-01	1.955E-02	-0.908
	884.67			-6.332E-03	4.234E-02	6.842E-02	7.727E-03	-0.093
	937.48			-8.829E-02	9.427E-02	1.406E-01	1.539E-02	-0.628
	1384.27			1.312E-01	1.434E-01	2.281E-01	1.768E-02	0.575
IN-111	171.28			7.722E-01	1.066E+00	1.848E+00	9.725E-02	0.418
	245.39	*		-1.397E-01	1.233E+00	1.764E+00	9.859E-02	-0.079
IN-113M	391.69	*		3.077E-02	3.871E-02	6.736E-02	4.132E-03	0.457
SN-113	391.69	*		3.077E-02	3.871E-02	6.736E-02	4.132E-03	0.457
IN-114M	190.27	*		-2.282E-02	1.629E-01	2.382E-01	1.272E-02	-0.096
CD-115	260.90			-2.296E+01	1.501E+02	2.438E+02	1.376E+01	-0.094
	492.35			-2.039E+01	4.123E+01	6.560E+01	4.247E+00	-0.311
	527.90	*		-1.275E+01	1.201E+01	1.781E+01	1.197E+00	-0.716
SN-117M	156.02			-6.094E-01	2.010E+00	3.370E+00	1.800E-01	-0.181
	158.56	*		1.474E-02	4.880E-02	8.360E-02	4.444E-03	0.176
SB-122	563.90	*		-6.866E-01	2.251E+00	3.584E+00	2.497E-01	-0.192
	692.80			2.033E+01	4.787E+01	8.206E+01	6.616E+00	0.248
I-123	159.00	*		-1.447E+00	4.787E+01	Half-Life too short		
	528.96			-1.606E+03	4.787E+01	Half-Life too short		
TE-123M	159.00	*		-1.819E-03	2.418E-02	4.085E-02	2.204E-03	-0.045
I-124	602.71	*		-8.265E-02	8.297E-01	1.135E+00	8.204E-02	-0.073
	722.78			3.239E+00	4.831E+00	7.355E+00	6.251E-01	0.440
	1325.50			1.659E+00	3.295E+01	5.417E+01	4.042E+00	0.031
	1376.25			6.375E+01	3.804E+01	6.356E+01	4.760E+00	1.003

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124		1509.49		1.790E+01	1.553E+01	2.882E+01	2.065E+00	0.621
		1691.02		9.777E-03	3.183E+00	5.259E+00	3.392E-01	0.002
		602.71		-4.063E-03	4.079E-02	5.577E-02	4.034E-03	-0.073
		645.85		-1.776E-01	4.301E-01	6.692E-01	5.425E-02	-0.265
		709.31		-7.985E-01	2.194E+00	3.566E+00	2.960E-01	-0.224
		713.82		-5.311E-01	1.250E+00	2.017E+00	2.392E-01	-0.263
		722.78		2.308E-01	3.443E-01	5.242E-01	4.554E-02	0.440
	+	968.20		1.571E+01	3.535E+00	6.378E+00	6.486E-01	2.463
		1045.16		4.592E-01	2.070E+00	3.520E+00	3.048E-01	0.130
		1325.50		1.263E-01	2.508E+00	4.123E+00	3.077E-01	0.031
SB-125		1368.21		-9.067E-01	1.656E+00	2.423E+00	3.099E-01	-0.374
		1436.60		7.679E-01	3.093E+00	5.166E+00	3.804E-01	0.149
		1691.02	*	1.643E-04	5.350E-02	8.840E-02	6.099E-03	0.002
		427.89	*	8.543E-03	7.117E-02	1.193E-01	7.454E-03	0.072
	+	463.38		5.367E-01	3.168E-01	4.321E-01	3.098E-02	1.242
		600.56		7.039E-03	1.785E-01	2.621E-01	2.087E-02	0.027
		635.90		4.550E-02	2.334E-01	3.807E-01	3.140E-02	0.120
		109.28	*	-7.624E+00	8.570E+00	1.326E+01	1.166E+00	-0.575
		388.63		-8.434E-02	1.843E-01	3.016E-01	1.734E-02	-0.280
		666.33	*	-3.479E-04	1.523E-01	2.554E-01	1.963E-02	-0.001
TE-125M I-126		753.82		-2.797E-01	1.298E+00	2.121E+00	1.901E-01	-0.132
		223.80		-1.283E+00	3.475E+00	5.654E+00	3.108E-01	-0.227
		278.60		9.679E-01	2.225E+00	3.699E+00	2.108E-01	0.262
	+	296.50		1.228E+01	1.995E+00	3.378E+00	1.939E-01	3.637
		414.70		-7.665E-03	6.512E-02	1.079E-01	6.383E-03	-0.071
		415.30		-1.150E+00	5.419E+00	8.932E+00	5.286E-01	-0.129
		555.20		5.841E-01	3.419E+00	5.633E+00	3.892E-01	0.104
		573.80		-9.021E-01	9.312E-01	1.407E+00	9.900E-02	-0.641
		593.00		-4.263E-01	8.153E-01	1.269E+00	9.095E-02	-0.336
		656.30		-2.025E+00	2.892E+00	4.628E+00	3.512E-01	-0.438
SB-126		666.33		-1.457E-04	6.381E-02	1.070E-01	8.224E-03	-0.001
		675.00		2.681E-01	1.744E+00	2.950E+00	2.304E-01	0.091
		695.00		5.601E-02	6.997E-02	1.223E-01	9.896E-03	0.458
		697.00		1.029E-01	2.394E-01	4.102E-01	3.332E-02	0.251
		720.50	*	1.235E-01	1.334E-01	2.088E-01	1.768E-02	0.592
		856.80		3.440E-02	5.086E-01	7.205E-01	7.641E-02	0.048
		989.30		5.031E-02	1.096E+00	1.780E+00	1.742E-01	0.028
		1034.80		6.935E-01	8.094E+00	1.313E+01	1.166E+00	0.053
		1213.00		3.977E-01	4.392E+00	7.291E+00	4.384E-01	0.055
		61.10		-7.080E+01	7.755E+01	1.245E+02	1.347E+01	-0.569
SB-127		252.40		1.542E-01	4.416E+00	7.257E+00	3.020E+00	0.021
		290.80		-2.111E+01	2.585E+01	3.442E+01	3.275E+00	-0.613
		411.60		3.116E+00	1.268E+01	2.142E+01	3.142E+00	0.145
		444.90		-1.181E+00	9.716E+00	1.537E+01	1.738E+00	-0.077
		473.00		5.238E-01	1.612E+00	2.713E+00	3.197E-01	0.193
		543.00		-6.373E+00	1.612E+01	2.553E+01	3.490E+00	-0.250
		603.60		-7.808E+00	1.478E+01	1.937E+01	2.308E+00	-0.403
		685.20	*	2.108E-01	1.349E+00	2.280E+00	2.559E-01	0.092
		698.50		1.141E+00	1.553E+01	2.606E+01	4.118E+00	0.044

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127	722.20			2.812E+01	3.176E+01	4.932E+01	5.619E+00	0.570
	783.80			4.847E+00	3.555E+00	6.328E+00	8.399E-01	0.766
	57.60			-5.474E+00	6.986E+00	1.131E+01	8.713E-01	-0.484
	145.22			9.578E-02	6.469E-01	1.019E+00	5.570E-02	0.094
	172.10			7.396E-02	1.003E-01	1.738E-01	9.152E-03	0.425
I-131	202.84	*		-9.731E-03	4.165E-02	6.879E-02	3.713E-03	-0.141
	374.96			1.017E-01	1.639E-01	2.842E-01	1.639E-02	0.358
	80.18			2.849E-01	5.193E+00	7.671E+00	6.693E-01	0.037
	284.30			1.103E+00	1.438E+00	2.424E+00	1.547E-01	0.455
	364.48	*		8.135E-03	9.969E-02	1.687E-01	1.091E-02	0.048
TE-132	636.97			6.708E-01	1.453E+00	2.412E+00	1.934E-01	0.278
	722.89			5.212E+00	7.171E+00	1.097E+01	9.392E-01	0.475
	49.72			1.145E+01	3.349E+01	5.725E+01	6.020E+00	0.200
	111.76			3.484E+01	3.305E+01	5.551E+01	5.341E+00	0.628
	116.30			2.008E+00	3.116E+01	5.029E+01	4.740E+00	0.040
BA-133	228.16	*		1.967E-01	7.063E-01	1.181E+00	1.710E-01	0.167
	53.15			-3.496E+00	4.490E+00	7.295E+00	5.788E-01	-0.479
	79.62			-9.732E-01	1.363E+00	1.925E+00	2.931E-01	-0.506
	81.00			2.416E-02	1.031E-01	1.533E-01	2.442E-02	0.158
	276.40			4.186E-01	3.453E-01	5.274E-01	6.813E-02	0.794
I-133	302.84			-7.225E-02	1.385E-01	1.877E-01	2.184E-02	-0.385
	356.01	*		-8.886E-03	4.028E-02	5.492E-02	6.345E-03	-0.162
	383.85			-2.263E-02	2.415E-01	4.033E-01	4.375E-02	-0.056
	510.53	+		4.383E+00	2.415E-01	Half-Life	too short	
	529.87	*		-1.138E-02	2.415E-01	Half-Life	too short	
CS-134	706.58			2.397E-01	2.415E-01	Half-Life	too short	
	856.28			-1.605E-01	2.415E-01	Half-Life	too short	
	875.33			5.363E-02	2.415E-01	Half-Life	too short	
	1236.41			1.080E+00	2.415E-01	Half-Life	too short	
	1298.22			-1.294E-02	2.415E-01	Half-Life	too short	
I-135	475.35			6.300E-01	1.519E+00	2.571E+00	1.634E-01	0.245
	563.23			-7.746E-02	2.873E-01	4.583E-01	3.238E-02	-0.169
	569.32			1.654E-01	1.621E-01	2.803E-01	2.004E-02	0.590
	604.70			-1.703E-02	3.474E-02	4.573E-02	3.325E-03	-0.372
	795.84	+	*	1.151E-01	5.347E-02	7.552E-02	7.304E-03	1.524
CS-135	801.93			-1.806E-01	3.801E-01	5.670E-01	5.532E-02	-0.319
	1038.57			-1.572E-01	3.167E+00	5.280E+00	4.646E-01	-0.030
	1167.94			-9.678E-01	2.117E+00	3.386E+00	1.920E-01	-0.286
	1365.15			-3.563E-01	1.079E+00	1.699E+00	1.351E-01	-0.210
	268.24	*		2.108E-01	1.507E-01	2.340E-01	1.769E-02	0.901
I-135	288.45			9.787E+10	1.507E-01	Half-Life	too short	
	417.63			8.008E+10	1.507E-01	Half-Life	too short	
	546.56			7.644E+10	1.507E-01	Half-Life	too short	
	836.80			7.427E+09	1.507E-01	Half-Life	too short	
	1038.76			-6.204E+10	1.507E-01	Half-Life	too short	
I-135	1124.00			8.934E+11	1.507E-01	Half-Life	too short	
	1131.51			-1.844E+10	1.507E-01	Half-Life	too short	
	1260.41	*		-2.948E+09	1.507E-01	Half-Life	too short	
	1457.56			1.852E+13	1.507E-01	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1678.03		-8.714E+10	1.507E-01	Half-Life	too short	
		1706.46		3.457E+10	1.507E-01	Half-Life	too short	
		1791.20		2.310E+10	1.507E-01	Half-Life	too short	
		66.91		-5.837E-01	9.044E-01	1.419E+00	2.142E-01	-0.411
	+	86.29		3.569E+00	1.402E+00	1.967E+00	2.593E-01	1.814
		153.22		4.785E-01	5.915E-01	1.032E+00	7.104E-02	0.464
		163.89		5.232E-01	9.466E-01	1.633E+00	1.116E-01	0.320
		176.55		-2.271E-01	3.130E-01	5.103E-01	3.093E-02	-0.445
		273.65		-1.377E-01	4.462E-01	6.231E-01	4.060E-02	-0.221
		340.57		5.124E-01	1.400E-01	2.365E-01	1.456E-02	2.166
		818.51		-1.156E-02	6.197E-02	1.005E-01	1.004E-02	-0.115
		1048.07	*	5.729E-02	9.499E-02	1.656E-01	1.485E-02	0.346
		1235.34		2.393E-01	6.162E-01	1.005E+00	1.033E-01	0.238
		661.65	*	6.804E-04	2.861E-02	4.807E-02	3.664E-03	0.014
BA-137M		661.65	*	7.193E-04	3.024E-02	5.081E-02	3.883E-03	0.014
CS-137		661.65	*	-5.152E-03	2.443E-02	4.093E-02	2.149E-03	-0.126
CE-139		165.85	*	5.794E-01	6.624E-01	1.156E+00	7.007E-02	0.501
BA-140		304.84		7.725E-01	1.263E+00	1.843E+00	5.029E-01	0.419
		423.70		1.472E-01	1.564E+00	2.618E+00	8.330E-01	0.056
LA-140		537.32	*	-3.097E-02	2.177E-01	3.516E-01	1.150E-01	-0.088
	+	328.77		4.550E-01	3.728E-01	4.764E-01	3.087E-02	0.955
		432.53		4.882E-01	1.740E+00	2.941E+00	1.950E-01	0.166
		487.03		9.450E-02	1.117E-01	1.938E-01	1.382E-02	0.488
		751.79		1.044E+00	1.528E+00	2.645E+00	2.599E-01	0.395
		815.85		3.136E-02	2.579E-01	4.291E-01	4.638E-02	0.073
		867.82		-3.454E-01	1.307E+00	1.928E+00	2.152E-01	-0.179
		919.63		-1.745E+00	2.986E+00	3.864E+00	4.882E-01	-0.452
		925.24		-2.120E-01	9.823E-01	1.570E+00	1.778E-01	-0.135
		1596.49	*	-2.965E-02	8.052E-02	1.138E-01	7.805E-03	-0.261
CE-141		145.44	*	5.721E-03	5.873E-02	9.228E-02	5.268E-03	0.062
CE-143		57.37		-1.129E-03	5.873E-02	Half-Life	too short	
		231.56		-8.154E-04	5.873E-02	Half-Life	too short	
		293.26	*	8.576E-04	5.873E-02	Half-Life	too short	
	+	350.59		5.089E-02	5.873E-02	Half-Life	too short	
		490.36		1.393E-03	5.873E-02	Half-Life	too short	
		664.57		-6.626E-04	5.873E-02	Half-Life	too short	
		721.93		1.693E-03	5.873E-02	Half-Life	too short	
CE-144		80.11		-3.437E-03	2.180E+00	3.211E+00	2.780E-01	-0.001
		133.54	*	-6.851E-02	2.010E-01	2.786E-01	3.939E-02	-0.246
PM-144		476.78		1.477E-03	5.355E-02	8.849E-02	6.566E-03	0.017
		618.01		-1.695E-03	2.730E-02	4.260E-02	3.243E-03	-0.040
		696.49	*	1.617E-02	2.938E-02	5.065E-02	4.112E-03	0.319
		778.57		-2.168E+00	1.902E+00	2.863E+00	2.676E-01	-0.757
PR-144		696.49	*	1.096E+00	1.992E+00	3.434E+00	2.787E-01	0.319
		1489.15		-1.278E+00	8.218E+00	1.297E+01	9.369E-01	-0.099
PM-146		453.90	*	5.362E-03	3.456E-02	5.777E-02	5.139E-03	0.093
		633.02		4.937E-01	1.243E+00	2.032E+00	7.542E-01	0.243
		735.90		7.656E-02	1.214E-01	1.994E-01	5.707E-02	0.384
		747.13		-6.164E-03	7.752E-02	1.280E-01	1.816E-02	-0.048

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	+	91.11		5.380E-01	2.610E-01	4.849E-01	4.561E-02	1.109
		319.41		-4.387E+00	3.050E+00	4.485E+00	2.590E-01	-0.978
		439.89		6.523E-01	5.028E+00	8.413E+00	5.133E-01	0.078
		531.02	*	2.050E-01	4.644E-01	7.812E-01	1.090E-01	0.262
PM-149		285.90	*	3.877E+01	1.143E+02	1.886E+02	2.668E+01	0.206
EU-152		121.78		-1.564E-02	6.580E-02	1.044E-01	8.047E-03	-0.150
		244.69		1.766E-01	2.897E-01	4.351E-01	2.430E-02	0.406
		344.27	*	1.797E-04	1.094E-01	1.272E-01	8.301E-03	0.001
		443.98		-3.779E-01	7.981E-01	1.236E+00	7.576E-02	-0.306
		778.89		-1.912E-01	2.140E-01	3.290E-01	3.077E-02	-0.581
		867.32		4.415E-02	7.350E-01	1.083E+00	1.168E-01	0.041
		964.01	+	7.634E-01	3.123E-01	4.944E-01	5.065E-02	1.544
		1085.78		-1.098E-02	3.252E-01	5.407E-01	4.190E-02	-0.020
		1112.02		-9.062E-02	3.102E-01	4.270E-01	3.040E-02	-0.212
		1407.95		-5.641E-02	1.562E-01	2.441E-01	1.813E-02	-0.231
		69.67		-5.296E-01	1.854E+00	2.718E+00	2.206E-01	-0.195
		83.37		3.186E+00	1.604E+01	2.345E+01	2.083E+00	0.136
GD-153		97.43	*	-3.816E-02	7.939E-02	1.203E-01	9.404E-03	-0.317
		103.18		-8.407E-02	9.794E-02	1.527E-01	1.101E-02	-0.551
		123.07		1.505E-02	4.609E-02	7.498E-02	7.091E-03	0.201
		247.94		-1.391E-02	3.123E-01	4.736E-01	4.462E-02	-0.029
EU-154		591.81		-3.164E-01	5.162E-01	7.975E-01	8.482E-02	-0.397
		723.30		1.721E-01	1.622E-01	2.544E-01	2.398E-02	0.677
		756.87		-1.506E-01	6.097E-01	9.925E-01	1.217E-01	-0.152
		873.19		7.286E-02	2.462E-01	4.121E-01	5.741E-02	0.177
		996.32		-2.061E-03	3.325E-01	5.374E-01	9.827E-02	-0.004
		1004.76		-2.395E-01	1.847E-01	2.611E-01	3.210E-02	-0.917
		1274.45	*	-3.248E-04	1.092E-01	1.793E-01	1.791E-02	-0.002
		48.70		-1.448E+00	3.489E+00	5.794E+00	4.395E-01	-0.250
		60.01		-1.423E+00	5.339E+00	8.832E+00	6.739E-01	-0.161
		86.54	+	3.112E-01	1.187E-01	1.738E-01	1.601E-02	1.791
TB-160	+	105.31	*	6.143E-02	9.804E-02	1.629E-01	1.165E-02	0.377
		86.79		8.397E-01	3.201E-01	4.714E-01	4.313E-02	1.781
		197.04		-1.901E-01	4.760E-01	7.707E-01	4.139E-02	-0.247
		215.65		2.930E-01	6.894E-01	1.032E+00	5.632E-02	0.284
		298.57		2.402E-01	9.966E-02	1.779E-01	1.022E-02	1.350
		879.36	*	-3.164E-02	1.158E-01	1.851E-01	2.034E-02	-0.171
		962.29		1.212E+00	4.875E-01	8.305E-01	8.532E-02	1.460
		966.15		1.477E+00	2.792E-01	4.902E-01	5.002E-02	3.013
		1177.93		-1.789E-01	3.179E-01	5.044E-01	2.816E-02	-0.355
		1271.85		2.201E-01	6.413E-01	1.081E+00	7.306E-02	0.204
		80.57		2.827E-01	2.747E-01	4.235E-01	3.680E-02	0.668
		184.41		5.618E-02	3.495E-02	5.692E-02	3.024E-03	0.987
		280.46		-1.019E-01	7.511E-02	1.136E-01	6.478E-03	-0.897
		410.95		9.453E-02	2.111E-01	3.603E-01	2.121E-02	0.262
HO-166M		711.68	*	1.347E-03	4.650E-02	7.769E-02	6.476E-03	0.017
		752.31		1.227E-01	2.268E-01	3.896E-01	3.484E-02	0.315
		810.29		-3.246E-02	4.780E-02	7.446E-02	7.331E-03	-0.436
		51.35		8.723E+00	3.978E+01	6.763E+01	5.360E+00	0.129
TM-171								



## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	+	52.39		-1.822E+01	2.009E+01	3.245E+01	2.578E+00	-0.561
		59.40		-2.098E+00	2.896E+01	4.831E+01	3.668E+00	-0.043
		66.72	*	-1.447E+01	3.075E+01	4.872E+01	3.895E+00	-0.297
		88.36		6.126E-01	2.335E-01	3.380E-01	3.104E-02	1.812
		201.83		3.031E-03	2.461E-02	4.123E-02	2.223E-03	0.074
LU-177	*	306.84		2.333E-02	2.006E-02	3.444E-02	1.983E-03	0.677
		401.10		4.683E-01	5.345E+00	8.984E+00	5.223E-01	0.052
		112.95		3.414E-01	1.642E+00	2.671E+00	1.721E-01	0.128
LU-177M	*	208.36		9.775E-01	1.224E+00	1.863E+00	1.011E-01	0.525
		52.97		-1.863E+00	2.049E+00	3.309E+00	2.627E-01	-0.563
HF-181		54.07		-1.317E-01	1.040E+00	1.738E+00	1.374E-01	-0.076
		61.30		-1.379E+00	1.646E+00	2.657E+00	2.053E-01	-0.519
		121.62		-8.511E-02	3.388E-01	5.374E-01	3.188E-02	-0.158
		147.16		-1.792E-01	5.892E-01	9.203E-01	5.008E-02	-0.195
		171.86		2.388E-01	3.994E-01	6.887E-01	3.625E-02	0.347
		218.09		1.087E-01	6.990E-01	1.167E+00	6.384E-02	0.093
		268.79		1.568E+00	8.158E-01	1.295E+00	7.342E-02	1.211
		319.02		-2.768E-01	2.205E-01	3.282E-01	1.895E-02	-0.843
		367.43		-1.589E-02	7.006E-01	1.178E+00	6.806E-02	-0.013
		413.65	*	-9.481E-02	1.512E-01	2.437E-01	1.439E-02	-0.389
		56.28		5.372E-01	1.099E+00	1.880E+00	1.464E-01	0.286
		57.53		-3.849E-01	5.848E-01	9.521E-01	7.342E-02	-0.404
		65.20		-1.634E+00	1.096E+00	1.664E+00	1.320E-01	-0.982
		133.02		1.125E-02	6.271E-02	8.998E-02	5.090E-03	0.125
		136.25		1.912E-01	4.104E-01	6.673E-01	3.737E-02	0.287
W-181	*	345.85		-3.585E-02	1.815E-01	2.489E-01	1.440E-02	-0.144
		482.03		5.875E-03	3.298E-02	5.500E-02	3.520E-03	0.107
		56.28		2.078E-01	4.253E-01	7.274E-01	5.666E-02	0.286
TA-182	*	57.53		-1.488E-01	2.265E-01	3.688E-01	2.844E-02	-0.403
		65.20		-6.277E-01	4.212E-01	6.394E-01	5.072E-02	-0.982
		67.75		-5.072E-02	1.199E-01	1.903E-01	1.530E-02	-0.267
RE-183		100.10		1.143E-01	1.626E-01	2.717E-01	2.043E-02	0.421
		152.43		1.771E-01	3.043E-01	4.932E-01	2.653E-02	0.359
		222.10		-1.940E-01	2.858E-01	4.586E-01	2.517E-02	-0.423
		1001.68		1.448E+00	1.914E+00	3.170E+00	3.026E-01	0.457
		1121.28	+	7.731E-01	2.128E-01	2.983E-01	2.055E-02	2.592
		1189.05		2.280E-02	2.722E-01	4.526E-01	2.588E-02	0.050
		1221.42	*	1.246E-01	1.667E-01	2.887E-01	1.766E-02	0.432
		1230.97		-7.893E-02	4.454E-01	7.256E-01	4.526E-02	-0.109
		57.98		-1.569E-01	2.257E-01	3.668E-01	2.818E-02	-0.428
		59.32		-1.531E-02	1.202E-01	2.000E-01	1.520E-02	-0.077
RE-184		67.20		-9.272E-02	2.178E-01	3.456E-01	2.770E-02	-0.268
		162.32	*	3.913E-02	9.297E-02	1.597E-01	8.431E-03	0.245
		208.81	+	2.331E+00	1.534E+00	1.525E+00	8.274E-02	1.529
		291.72		-9.525E-02	8.782E-01	1.236E+00	7.082E-02	-0.077
		57.98		-5.745E-01	8.266E-01	1.343E+00	1.032E-01	-0.428
RE-184		59.32		-5.603E-02	4.396E-01	7.318E-01	5.560E-02	-0.077
		67.20		-3.394E-01	7.971E-01	1.265E+00	1.014E-01	-0.268
		161.27		-2.478E-02	3.035E-01	5.121E-01	2.708E-02	-0.048

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		216.55		1.030E-01	2.359E-01	3.711E-01	2.028E-02	0.278
		252.85	*	3.494E-02	1.944E-01	3.216E-01	1.807E-02	0.109
		318.01		-6.513E-02	3.751E-01	5.983E-01	3.454E-02	-0.109
		792.07		7.354E-01	9.418E-01	1.437E+00	1.373E-01	0.512
		903.28		-6.795E-01	1.001E+00	1.284E+00	1.441E-01	-0.529
		920.93		2.525E-01	3.902E-01	6.251E-01	6.850E-02	0.404
		59.72		3.674E-02	3.199E-01	5.375E-01	4.088E-02	0.068
		61.14		-1.654E-01	1.824E-01	2.935E-01	2.265E-02	-0.564
		69.30		3.897E-02	3.346E-01	5.005E-01	4.054E-02	0.078
		592.07		-1.229E+00	2.126E+00	3.297E+00	2.361E-01	-0.373
		646.12	*	-9.293E-03	3.567E-02	5.615E-02	4.223E-03	-0.165
		717.42		-7.381E-01	7.082E-01	1.086E+00	9.145E-02	-0.680
		874.81		1.152E-01	4.820E-01	8.037E-01	8.767E-02	0.143
		880.27		2.661E-01	6.423E-01	1.084E+00	1.193E-01	0.245
RE-188		155.03	*	-2.482E-02	1.457E-01	2.457E-01	1.315E-02	-0.101
		477.96		2.632E-01	2.423E+00	4.024E+00	2.564E-01	0.065
W-188		633.10		6.658E-01	2.535E+00	4.151E+00	3.086E-01	0.160
		63.58		3.527E+01	5.855E+01	9.864E+01	7.750E+00	0.358
IR-192		227.08		9.083E+00	1.063E+01	1.823E+01	1.004E+00	0.498
		290.67	*	-6.158E+00	7.425E+00	9.899E+00	5.670E-01	-0.622
	+	295.96		8.945E-01	1.455E-01	2.500E-01	1.458E-02	3.578
		308.46		-6.379E-02	8.087E-02	1.246E-01	7.259E-03	-0.512
AU-195		316.51	*	5.854E-03	2.864E-02	4.671E-02	2.709E-03	0.125
		468.07		-2.569E-02	6.070E-02	8.351E-02	5.951E-03	-0.308
		604.41		-2.590E-01	4.793E-01	6.272E-01	7.621E-02	-0.413
		612.46		1.655E+00	8.043E-01	1.277E+00	1.120E-01	1.296
		65.12		-2.933E-01	1.948E-01	2.956E-01	2.343E-02	-0.992
		66.83		-6.688E-02	1.028E-01	1.618E-01	1.294E-02	-0.413
	+	75.70		1.200E+00	2.684E-01	4.354E-01	3.656E-02	2.756
		98.88	*	1.805E-01	2.100E-01	3.529E-01	2.700E-02	0.512
TL-200	+	129.76		4.956E+00	3.183E+00	4.272E+00	2.444E-01	1.160
		367.94	*	-2.395E-04	3.183E+00	Half-Life	too short	
		579.30		7.107E-03	3.183E+00	Half-Life	too short	
		828.27		-5.842E-03	3.183E+00	Half-Life	too short	
TL-201		1205.75		9.998E-04	3.183E+00	Half-Life	too short	
		68.90		2.435E+00	6.826E+00	1.033E+01	8.352E-01	0.236
		70.82		3.082E-01	3.865E+00	5.763E+00	4.705E-01	0.053
		80.30		4.909E+00	6.440E+00	9.829E+00	8.522E-01	0.499
TL-202		135.34		-1.235E+01	2.899E+01	4.527E+01	2.542E+00	-0.273
		167.43	*	-5.386E+00	7.300E+00	1.195E+01	6.273E-01	-0.451
		68.90		1.819E-01	5.099E-01	7.717E-01	6.239E-02	0.236
		70.82		2.296E-02	2.879E-01	4.293E-01	3.505E-02	0.053
HG-203		80.30		3.658E-01	4.799E-01	7.325E-01	6.351E-02	0.499
		439.56	*	8.716E-03	5.983E-02	1.002E-01	6.108E-03	0.087
		70.83		9.740E-02	1.192E+00	1.778E+00	2.369E-01	0.055
		72.87		6.145E-01	5.968E-01	1.015E+00	1.316E-01	0.605
BI-207		82.60		5.127E-01	1.066E+00	1.778E+00	2.467E-01	0.288
		279.20	*	1.786E-02	3.566E-02	5.944E-02	3.605E-03	0.300
		72.80		1.532E-01	1.706E-01	2.906E-01	2.398E-02	0.527

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207	+	74.97		6.629E-01	1.483E-01	2.220E-01	1.856E-02	2.987
		84.90		1.254E-01	1.983E-01	2.952E-01	2.656E-02	0.425
		569.67		2.906E-02	2.515E-02	4.382E-02	3.070E-03	0.663
		1063.62	*	-1.134E-02	4.387E-02	7.184E-02	5.930E-03	-0.158
		1770.23		3.428E-01	4.656E-01	7.425E-01	4.492E-02	0.462
		81.07		4.906E-02	2.270E-01	3.376E-01	2.944E-02	0.145
		83.78		-7.988E-02	1.392E-01	1.959E-01	1.746E-02	-0.408
		94.90		4.186E-01	2.421E-01	3.791E-01	3.086E-02	1.104
		122.32		1.327E+00	1.523E+00	2.538E+00	1.723E-01	0.523
		144.24		-2.594E-02	6.211E-01	9.704E-01	6.772E-02	-0.027
		154.21		-4.302E-03	3.311E-01	5.617E-01	3.738E-02	-0.008
	+	269.46		6.107E-01	2.618E-01	3.140E-01	1.866E-02	1.945
		323.87	*	6.953E-01	6.445E-01	9.643E-01	1.592E-01	0.721
	+	338.28		7.716E+00	1.628E+00	2.190E+00	2.305E-01	3.523
PO-209		445.03		-9.137E-01	1.901E+00	2.940E+00	3.076E-01	-0.311
		260.50		4.285E-01	7.806E+00	1.281E+01	7.231E-01	0.033
		262.80		1.773E-01	2.132E+01	3.489E+01	1.972E+00	0.005
		896.60	*	2.159E+00	6.247E+00	1.047E+01	1.181E+00	0.206
BI-210		46.50	*	2.474E+00	5.193E+00	8.950E+00	6.924E-01	0.276
PB-210		46.50	*	2.474E+00	5.193E+00	8.950E+00	6.924E-01	0.276
PO-210		46.50	*	2.474E+00	5.192E+00	8.950E+00	5.953E-01	0.276
PB-211		404.84	*	-5.274E-01	8.603E-01	1.283E+00	7.997E-01	-0.411
BI-212		427.08		1.506E-01	1.597E+00	2.669E+00	1.650E+00	0.056
		831.96		8.795E-02	1.014E+00	1.676E+00	1.054E+00	0.052
	+	727.18	*	7.428E-01	4.289E-01	5.390E-01	5.368E-02	1.378
		785.46		1.607E+00	1.424E+00	2.483E+00	2.347E-01	0.647
PO-215		1620.62		7.736E-01	1.037E+00	1.868E+00	1.263E-01	0.414
		81.07		4.906E-02	2.270E-01	3.376E-01	2.944E-02	0.145
		83.78		-7.988E-02	1.392E-01	1.959E-01	1.746E-02	-0.408
		94.90		4.186E-01	2.421E-01	3.791E-01	3.086E-02	1.104
		122.32		1.327E+00	1.523E+00	2.538E+00	1.723E-01	0.523
		144.24		-2.594E-02	6.211E-01	9.704E-01	6.772E-02	-0.027
		154.21		-4.302E-03	3.311E-01	5.617E-01	3.738E-02	-0.008
	+	269.46		6.107E-01	2.618E-01	3.140E-01	1.866E-02	1.945
		323.87	*	6.953E-01	6.445E-01	9.643E-01	1.592E-01	0.721
	+	338.28		7.716E+00	1.628E+00	2.190E+00	2.305E-01	3.523
RN-219		445.03		-9.137E-01	1.901E+00	2.940E+00	3.076E-01	-0.311
	+	271.23		7.836E-01	3.386E-01	4.069E-01	3.262E-02	1.926
RN-220		401.81	*	4.656E-02	3.295E-01	5.553E-01	7.559E-02	0.084
RA-223		549.76	*	-4.131E-01	2.132E+01	3.469E+01	2.384E+00	-0.012
		81.07		4.906E-02	2.270E-01	3.376E-01	2.944E-02	0.145
		83.78		-7.988E-02	1.392E-01	1.959E-01	1.746E-02	-0.408
		94.90		4.186E-01	2.421E-01	3.791E-01	3.086E-02	1.104
		122.32		1.327E+00	1.523E+00	2.538E+00	1.723E-01	0.523
		144.24		-2.594E-02	6.211E-01	9.704E-01	6.772E-02	-0.027
		154.21		-4.302E-03	3.311E-01	5.617E-01	3.738E-02	-0.008
	+	269.46		6.107E-01	2.618E-01	3.140E-01	1.866E-02	1.945
		323.87	*	6.953E-01	6.445E-01	9.643E-01	1.592E-01	0.721
	+	338.28		7.716E+00	1.628E+00	2.190E+00	2.305E-01	3.523

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		445.03		-9.137E-01	1.901E+00	2.940E+00	3.076E-01	-0.311
		79.80		-4.254E-01	1.675E+00	2.433E+00	5.233E-01	-0.175
		236.00		5.464E-01	2.460E-01	3.864E-01	3.986E-02	1.414
		256.20	*	-4.520E-02	3.167E-01	5.153E-01	7.157E-02	-0.088
		286.10		4.236E-01	1.360E+00	2.243E+00	2.584E-01	0.189
+ TH-227		299.80		2.948E+00	1.612E+00	2.183E+00	3.550E-01	1.351
		304.40		8.029E-01	1.721E+00	2.512E+00	4.341E-01	0.320
		334.20		-4.295E-01	2.545E+00	2.926E+00	5.362E-01	-0.147
		79.80		-4.254E-01	1.675E+00	2.433E+00	5.300E-01	-0.175
		94.00		5.618E+00	2.744E+00	3.550E+00	7.682E-01	1.583
+ TH-229		236.00		5.464E-01	2.443E-01	3.864E-01	3.439E-02	1.414
		256.20	*	-4.520E-02	3.167E-01	5.153E-01	8.678E-02	-0.088
		286.10		4.236E-01	1.424E+00	2.243E+00	2.247E+00	0.189
		299.80		2.948E+00	1.612E+00	2.183E+00	3.550E-01	1.351
		304.40		8.029E-01	1.721E+00	2.512E+00	4.341E-01	0.320
+ TH-229		334.20		-4.295E-01	2.545E+00	2.926E+00	5.362E-01	-0.147
		85.43		2.856E-01	1.936E-01	2.973E-01	2.687E-02	0.961
		88.47		3.527E-01	1.344E-01	1.948E-01	1.785E-02	1.810
		100.00		1.364E-01	1.685E-01	2.827E-01	2.129E-02	0.483
		193.63	*	-7.654E-02	4.041E-01	6.703E-01	3.589E-02	-0.114
+ PA-231		210.97		1.806E+00	1.188E+00	1.218E+00	6.624E-02	1.482
		283.67	*	2.417E-01	1.349E+00	2.212E+00	3.040E-01	0.109
+ TH-231		301.29		1.179E+00	6.276E-01	8.568E-01	8.931E-02	1.376
		81.07		4.906E-02	2.270E-01	3.376E-01	2.944E-02	0.145
		83.78		-7.988E-02	1.392E-01	1.959E-01	1.746E-02	-0.408
		94.90		4.186E-01	2.421E-01	3.791E-01	3.086E-02	1.104
		122.32		1.327E+00	1.523E+00	2.538E+00	1.723E-01	0.523
		144.24		-2.594E-02	6.211E-01	9.704E-01	6.772E-02	-0.027
		154.21		-4.302E-03	3.311E-01	5.617E-01	3.738E-02	-0.008
+ U-231		269.46		6.107E-01	2.618E-01	3.140E-01	1.866E-02	1.945
		323.87	*	6.953E-01	6.445E-01	9.643E-01	1.592E-01	0.721
		338.28		7.716E+00	1.628E+00	2.190E+00	2.305E-01	3.523
		445.03		-9.137E-01	1.901E+00	2.940E+00	3.076E-01	-0.311
		84.21		4.464E-01	6.933E+00	1.007E+01	9.008E-01	0.044
+ PA-233		92.29		6.637E+00	2.957E+00	4.338E+00	3.693E-01	1.530
		95.87	*	-8.300E-01	1.364E+00	1.917E+00	1.536E-01	-0.433
+ PA-233		108.00		-1.364E+00	2.194E+00	3.446E+00	2.344E-01	-0.396
		75.28		1.934E+01	4.975E+00	6.579E+00	1.001E+00	2.940
		86.59		5.057E+00	2.316E+00	2.831E+00	7.640E-01	1.786
		300.12		8.219E-01	4.429E-01	5.998E-01	8.046E-02	1.370
		311.98	*	-1.676E-02	5.189E-02	8.215E-02	5.032E-03	-0.204
+ PA-234		340.50		2.547E+00	8.618E-01	1.108E+00	2.545E-01	2.298
		398.62		-1.495E+00	1.731E+00	2.685E+00	6.941E-01	-0.557
		415.76		-1.802E-01	1.336E+00	2.210E+00	4.557E-01	-0.082
		63.00		1.242E+00	1.740E+00	2.930E+00	4.417E-01	0.424
		94.67		3.967E-01	1.810E-01	2.819E-01	3.410E-02	1.407
		98.44		6.035E-02	9.102E-02	1.417E-01	7.884E-02	0.426
		99.86		4.089E-01	4.298E-01	7.244E-01	5.465E-02	0.564
		111.00		4.081E-02	1.654E-01	2.699E-01	2.895E-02	0.151

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		131.20		5.749E-02	9.831E-02	1.447E-01	8.237E-03	0.397
		152.70		2.081E-01	2.937E-01	4.759E-01	7.452E-02	0.437
	+	186.00		4.252E+00	2.276E+00	2.268E+00	6.909E-01	1.875
		226.40		2.902E-01	3.324E-01	5.682E-01	6.487E-02	0.511
		227.20		3.572E-01	3.529E-01	6.087E-01	3.355E-02	0.587
		248.90		-4.030E-02	6.575E-01	1.076E+00	2.307E-01	-0.037
		293.70		4.178E+00	1.062E+00	1.435E+00	2.304E-01	2.912
		369.80		-6.365E-01	6.943E-01	1.089E+00	2.266E-01	-0.585
		568.70		9.635E-01	8.294E-01	1.444E+00	1.011E-01	0.667
		569.50		2.578E-01	2.231E-01	3.888E-01	2.724E-02	0.663
		574.00		-1.351E+00	1.262E+00	1.891E+00	1.331E-01	-0.714
		699.00		-1.372E-01	6.070E-01	9.988E-01	1.885E-01	-0.137
		706.10		4.533E-01	8.396E-01	1.410E+00	6.276E-01	0.322
		733.00		-3.826E-01	3.540E-01	4.317E-01	9.586E-02	-0.886
		742.81		-2.076E-01	1.099E+00	1.785E+00	1.201E+00	-0.116
	+	796.30		2.235E+00	1.185E+00	1.509E+00	4.134E-01	1.480
		805.60		8.011E-01	8.797E-01	1.483E+00	4.595E-01	0.540
		819.60		-7.053E-01	1.023E+00	1.532E+00	5.877E-01	-0.460
		826.30		1.124E-01	6.750E-01	1.122E+00	5.053E-01	0.100
		831.60		-2.195E-01	5.418E-01	8.585E-01	2.604E-01	-0.256
		876.40		-3.275E-01	7.739E-01	1.097E+00	1.130E+00	-0.299
		880.51		2.124E-01	2.258E-01	3.950E-01	4.346E-02	0.538
		883.24		1.371E-01	2.504E-01	3.983E-01	2.691E-01	0.344
		899.00		2.311E-01	7.027E-01	1.165E+00	5.162E-01	0.198
		925.00		-2.301E-01	9.605E-01	1.532E+00	1.669E-01	-0.150
		926.50		-2.944E-02	1.463E-01	2.340E-01	6.114E-02	-0.126
		946.00	*	-9.228E-02	2.653E-01	4.183E-01	8.252E-02	-0.221
		949.00		2.428E-01	3.873E-01	6.580E-01	6.911E-02	0.369
		980.50		-6.852E-02	6.047E-01	9.696E-01	9.644E-02	-0.071
		1394.10		8.705E-01	1.177E+00	1.823E+00	1.184E+00	0.477
PA-234M		766.42		1.213E+01	1.157E+01	1.740E+01	8.845E+00	0.697
		1001.03	*	4.447E+00	4.365E+00	7.337E+00	7.915E-01	0.606
TH-234		63.29	*	9.591E-01	1.474E+00	2.474E+00	4.361E-01	0.388
	+	92.38		1.454E+00	6.877E-01	9.538E-01	1.719E-01	1.524
U-235	+	89.95		2.001E+00	1.135E+00	1.736E+00	5.370E-01	1.153
	+	93.35		1.748E+00	9.076E-01	1.140E+00	3.185E-01	1.533
		105.00		8.338E-01	9.871E-01	1.607E+00	4.729E-01	0.519
		143.76	*	-3.875E-02	1.925E-01	2.985E-01	4.834E-02	-0.130
		163.35		2.709E-01	3.989E-01	6.868E-01	1.224E-01	0.394
	+	185.71		1.575E-01	6.981E-02	8.401E-02	4.468E-03	1.874
		205.31		-2.779E-01	5.076E-01	7.172E-01	1.281E-01	-0.388
NP-236		94.67		3.025E-01	1.347E-01	2.140E-01	1.749E-02	1.413
		98.44		4.559E-02	6.404E-02	1.071E-01	8.247E-03	0.426
		111.00		3.087E-02	1.251E-01	2.041E-01	1.343E-02	0.151
		160.31	*	-3.610E-02	6.775E-02	1.124E-01	5.953E-03	-0.321
U-238		63.29	*	9.591E-01	1.474E+00	2.474E+00	4.361E-01	0.388
	+	92.38		1.454E+00	6.477E-01	9.538E-01	8.107E-02	1.524
NP-239		99.55		1.700E-01	1.446E-01	2.455E-01	1.860E-02	0.692
		117.00	*	7.900E-02	1.683E-01	2.765E-01	1.711E-02	0.286

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	209.75		1.819E+00	1.197E+00	1.234E+00	6.703E-02	1.474
		228.18		4.905E-02	1.832E-01	3.064E-01	1.690E-02	0.160
		277.60		1.168E-01	1.563E-01	2.554E-01	1.455E-02	0.457
		334.30		-2.154E-01	1.443E+00	1.663E+00	9.618E-02	-0.130
AM-241		59.54	*	3.896E-03	1.683E-01	2.818E-01	2.337E-02	0.014
CM-243		99.55		1.749E-01	1.488E-01	2.527E-01	1.915E-02	0.692
		103.76	*	2.551E-03	8.757E-02	1.422E-01	1.018E-02	0.018
		117.00		8.128E-02	1.732E-01	2.845E-01	1.761E-02	0.286
	+	209.75		1.793E+00	1.180E+00	1.217E+00	6.608E-02	1.474
		228.18		4.956E-02	1.851E-01	3.097E-01	1.708E-02	0.160
		277.60		1.178E-01	1.576E-01	2.575E-01	1.467E-02	0.457
AM-246		798.80		-2.327E-02	1.327E-01	1.846E-01	1.784E-02	-0.126
		1036.00		1.207E-02	2.425E-01	4.076E-01	3.608E-02	0.030
		1062.04		-4.670E-02	1.875E-01	3.071E-01	2.546E-02	-0.152
		1078.86	*	-7.303E-03	1.177E-01	1.954E-01	1.546E-02	-0.037
CM-247		278.00		5.901E-01	6.256E-01	1.064E+00	6.062E-02	0.555
		287.40		2.926E-02	1.079E+00	1.756E+00	1.004E-01	0.017
		402.60	*	-7.135E-03	2.999E-02	4.949E-02	2.883E-03	-0.144
CF-249		252.85		1.305E-01	7.261E-01	1.202E+00	6.749E-02	0.109
		333.44		1.231E-01	2.018E-01	2.206E-01	1.276E-02	0.558
		387.95	*	-3.161E-03	3.363E-02	5.613E-02	3.226E-03	-0.056
CF-251		176.60	*	-7.259E-02	1.020E-01	1.664E-01	8.787E-03	-0.436
		227.00		2.708E-01	3.157E-01	5.412E-01	2.982E-02	0.500
		285.00		1.261E+00	1.554E+00	2.623E+00	1.499E-01	0.481

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229015
* Acquisition date   : 22-JAN-2010 16:51:09 Detector SN#
* Detector ID        : GAM18                      Sensitivity      : 5.000
* Geometry           : CAN                        Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00              Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.56              Half life ratio  : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244229015                 Analyst initials: MXR1
* Batch Number       : 941239                     Sample Quantity : 1.1823E+02 GRAM
* Recovery           : 1.00000                     Carrier Weight  : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope
* MSD DPM             : 0.000                      MSD Isotope
* LCS DPM             : 0.000                      LCS Isotope
* LCSD DPM            : 0.000                      LCSD Isotope
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.168E+01	2.754E+00	3.437E-01	0.000E+00
CD-109	2.632E+00	9.834E-01	1.141E+00	0.000E+00
SN-126	2.583E-01	9.650E-02	1.294E-01	0.000E+00
TL-208	4.765E-01	6.705E-02	5.160E-02	0.000E+00
BI-211	3.715E+00	4.534E-01	2.490E-01	0.000E+00
PB-212	1.572E+00	1.452E-01	7.692E-02	0.000E+00
PO-212	1.572E+00	1.452E-01	7.692E-02	0.000E+00
BI-214	9.591E-01	1.620E-01	9.476E-02	0.000E+00
PB-214	1.292E+00	1.710E-01	8.678E-02	0.000E+00
PO-214	1.292E+00	1.710E-01	8.678E-02	0.000E+00
PO-216	1.572E+00	1.452E-01	7.692E-02	0.000E+00
PO-218	1.292E+00	1.710E-01	8.678E-02	0.000E+00
RA-224	3.867E+00	9.302E-01	8.742E-01	0.000E+00
RA-226	9.591E-01	1.620E-01	9.476E-02	0.000E+00
AC-228	1.480E+00	3.379E-01	1.669E-01	0.000E+00
RA-228	1.480E+00	3.379E-01	1.669E-01	0.000E+00
TH-228	1.597E+00	1.476E-01	7.817E-02	0.000E+00
TH-230	9.591E-01	1.620E-01	9.476E-02	0.000E+00
TH-232	1.480E+00	3.379E-01	1.669E-01	0.000E+00
U-234	9.591E-01	1.620E-01	9.476E-02	0.000E+00
NP-237	7.585E-01	3.222E-01	3.859E-01	0.000E+00
AM-243	3.693E-01	8.094E-02	8.743E-02	0.000E+00
ANH-511	1.809E-01	5.595E-02	3.576E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	6.734E-02	2.491E-01	4.303E-01	0.000E+00 NOT IDENT.
NA-22	-3.941E-04	3.832E-02	6.407E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.347E+06	0.000E+00	0.000E+00 SHORT HLIF
AL-26	8.540E-03	2.260E-02	3.987E-02	0.000E+00 NOT IDENT.

TI-44	0.000E+00	5.085E-02	7.962E-02	0.000E+00	FAIL ABUN
SC-46	1.523E-02	3.190E-02	5.524E-02	0.000E+00	FAIL ABUN
V-48	-6.640E-02	6.218E-02	9.295E-02	0.000E+00	NOT IDENT.
CR-51	-1.591E-01	3.171E-01	5.133E-01	0.000E+00	NOT IDENT.
MN-52	2.119E-02	2.253E-01	3.759E-01	0.000E+00	NOT IDENT.
MN-54	1.762E-02	3.180E-02	5.537E-02	0.000E+00	NOT IDENT.
CO-56	5.703E-03	3.594E-02	6.102E-02	0.000E+00	NOT IDENT.
CO-57	1.533E-02	2.147E-02	3.716E-02	0.000E+00	NOT IDENT.
CO-58	-2.842E-02	3.101E-02	4.838E-02	0.000E+00	NOT IDENT.
FE-59	-5.000E-02	7.603E-02	1.226E-01	0.000E+00	NOT IDENT.
CO-60	1.367E-03	3.090E-02	5.168E-02	0.000E+00	NOT IDENT.
ZN-65	1.922E-02	8.787E-02	1.304E-01	0.000E+00	NOT IDENT.
GE-68	-6.593E-03	1.034E+00	1.761E+00	0.000E+00	NOT IDENT.
AS-73	-5.884E-01	1.021E+00	1.767E+00	0.000E+00	NOT IDENT.
AS-74	1.911E-03	8.117E-02	1.352E-01	0.000E+00	NOT IDENT.
SE-75	-6.814E-03	3.748E-02	5.808E-02	0.000E+00	NOT IDENT.
BR-77	1.862E+00	1.161E+01	1.976E+01	0.000E+00	FAIL ABUN
SR-82	-2.965E-01	3.236E-01	5.116E-01	0.000E+00	NOT IDENT.
RB-83	1.261E-02	5.664E-02	9.677E-02	0.000E+00	NOT IDENT.
RB-84	3.344E-02	5.757E-02	1.005E-01	0.000E+00	NOT IDENT.
KR-85	0.000E+00	7.171E+00	1.233E+01	0.000E+00	NOT IDENT.
SR-85	0.000E+00	3.719E-02	6.393E-02	0.000E+00	NOT IDENT.
RB-86	3.227E-01	6.758E-01	1.190E+00	0.000E+00	NOT IDENT.
Y-88	1.281E-02	2.528E-02	4.537E-02	0.000E+00	NOT IDENT.
ZR-88	1.962E-02	2.623E-02	4.698E-02	0.000E+00	NOT IDENT.
Y-91	1.686E+01	1.600E+01	2.878E+01	0.000E+00	NOT IDENT.
NB-94	-3.313E-03	2.720E-02	4.622E-02	0.000E+00	NOT IDENT.
NB-95	1.628E-02	3.619E-02	6.305E-02	0.000E+00	NOT IDENT.
NB-95M	1.395E-01	1.191E-01	1.898E-01	0.000E+00	NOT IDENT.
ZR-95	-1.432E-02	5.579E-02	9.308E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.176E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	4.586E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.620E+00	1.192E+01	2.050E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.236E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.018E-03	2.719E-02	4.635E-02	0.000E+00	NOT IDENT.
RH-102	1.107E-02	2.296E-02	4.015E-02	0.000E+00	NOT IDENT.
RU-103	-7.038E-03	3.229E-02	5.386E-02	0.000E+00	FAIL ABUN
RH-106	-2.663E-01	2.707E-01	4.134E-01	0.000E+00	FAIL ABUN
RU-106	-2.663E-01	2.694E-01	4.134E-01	0.000E+00	FAIL ABUN
AG-108M	-2.232E-04	2.621E-02	4.491E-02	0.000E+00	NOT IDENT.
AG-110M	1.227E-02	2.692E-02	4.769E-02	0.000E+00	NOT IDENT.
IN-111	-1.397E-01	1.208E+00	1.794E+00	0.000E+00	NOT IDENT.
IN-113M	3.077E-02	3.794E-02	6.814E-02	0.000E+00	NOT IDENT.
SN-113	3.077E-02	3.794E-02	6.814E-02	0.000E+00	NOT IDENT.
IN-114M	-2.282E-02	1.597E-01	2.429E-01	0.000E+00	NOT IDENT.
CD-115	-1.275E+01	1.177E+01	1.796E+01	0.000E+00	NOT IDENT.
SN-117M	1.474E-02	4.782E-02	8.541E-02	0.000E+00	NOT IDENT.
SB-122	-6.866E-01	2.206E+00	3.611E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.885E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.819E-03	2.370E-02	4.173E-02	0.000E+00	NOT IDENT.
I-124	-8.265E-02	8.131E-01	1.142E+00	0.000E+00	NOT IDENT.
SB-124	1.643E-04	5.243E-02	8.799E-02	0.000E+00	FAIL ABUN
SB-125	8.543E-03	6.975E-02	1.206E-01	0.000E+00	FAIL ABUN
TE-125M	-7.624E+00	8.399E+00	1.361E+01	0.000E+00	NOT IDENT.
I-126	-3.479E-04	1.493E-01	2.568E-01	0.000E+00	NOT IDENT.
SB-126	1.235E-01	1.307E-01	2.099E-01	0.000E+00	FAIL ABUN
SB-127	2.108E-01	1.322E+00	2.292E+00	0.000E+00	NOT IDENT.
XE-127	-9.731E-03	4.082E-02	7.009E-02	0.000E+00	NOT IDENT.
I-131	8.135E-03	9.770E-02	1.708E-01	0.000E+00	NOT IDENT.
TE-132	1.967E-01	6.922E-01	1.202E+00	0.000E+00	NOT IDENT.
BA-133	-8.886E-03	3.947E-02	5.562E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.178E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.240E-02	7.580E-02	0.000E+00	FAIL ABUN
CS-135	2.108E-01	1.477E-01	2.377E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	6.623E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	5.729E-02	9.309E-02	1.657E-01	0.000E+00	FAIL ABUN
BA-137M	6.804E-04	2.803E-02	4.835E-02	0.000E+00	NOT IDENT.
CS-137	7.193E-04	2.963E-02	5.111E-02	0.000E+00	NOT IDENT.
CE-139	-5.152E-03	2.395E-02	4.180E-02	0.000E+00	NOT IDENT.
BA-140	-3.097E-02	2.134E-01	3.545E-01	0.000E+00	NOT IDENT.
LA-140	-2.965E-02	7.891E-02	1.133E-01	0.000E+00	FAIL ABUN
CE-141	5.721E-03	5.756E-02	9.436E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	3.166E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-6.851E-02	1.970E-01	2.852E-01	0.000E+00	NOT IDENT.
PM-144	1.617E-02	2.879E-02	5.092E-02	0.000E+00	NOT IDENT.
PR-144	1.096E+00	1.952E+00	3.452E+00	0.000E+00	NOT IDENT.
PM-146	5.362E-03	3.386E-02	5.835E-02	0.000E+00	NOT IDENT.
ND-147	2.050E-01	4.551E-01	7.876E-01	0.000E+00	FAIL ABUN



PM-149	3.877E+01	1.120E+02	1.915E+02	0.000E+00	NOT IDENT.
EU-152	1.797E-04	1.073E-01	1.289E-01	0.000E+00	FAIL ABUN
GD-153	-3.816E-02	7.780E-02	1.235E-01	0.000E+00	NOT IDENT.
EU-154	-3.248E-04	1.070E-01	1.791E-01	0.000E+00	NOT IDENT.
EU-155	6.143E-02	9.608E-02	1.672E-01	0.000E+00	FAIL ABUN
TB-160	-3.164E-02	1.135E-01	1.856E-01	0.000E+00	FAIL ABUN
HO-166M	1.347E-03	4.557E-02	7.808E-02	0.000E+00	NOT IDENT.
TM-171	-1.447E+01	3.013E+01	5.023E+01	0.000E+00	NOT IDENT.
LU-176	2.333E-02	1.966E-02	3.493E-02	0.000E+00	FAIL ABUN
LU-177	9.775E-01	1.199E+00	1.898E+00	0.000E+00	NOT IDENT.
LU-177M	-9.481E-02	1.482E-01	2.464E-01	0.000E+00	NOT IDENT.
HF-181	5.875E-03	3.232E-02	5.551E-02	0.000E+00	NOT IDENT.
W-181	-6.277E-01	4.127E-01	6.594E-01	0.000E+00	NOT IDENT.
TA-182	1.246E-01	1.634E-01	2.885E-01	0.000E+00	FAIL ABUN
RE-183	3.913E-02	9.111E-02	1.631E-01	0.000E+00	FAIL ABUN
RE-184	3.494E-02	1.905E-01	3.270E-01	0.000E+00	NOT IDENT.
OS-185	-9.293E-03	3.496E-02	5.650E-02	0.000E+00	NOT IDENT.
RE-188	-2.482E-02	1.428E-01	2.511E-01	0.000E+00	NOT IDENT.
W-188	-6.158E+00	7.276E+00	1.005E+01	0.000E+00	NOT IDENT.
IR-192	5.854E-03	2.807E-02	4.737E-02	0.000E+00	FAIL ABUN
AU-195	1.805E-01	2.058E-01	3.623E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	6.928E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-5.386E+00	7.154E+00	1.220E+01	0.000E+00	NOT IDENT.
TL-202	8.716E-03	5.863E-02	1.012E-01	0.000E+00	NOT IDENT.
HG-203	1.786E-02	3.494E-02	6.035E-02	0.000E+00	NOT IDENT.
BI-207	-1.134E-02	4.300E-02	7.188E-02	0.000E+00	FAIL ABUN
TL-207	6.953E-01	6.316E-01	9.775E-01	0.000E+00	FAIL ABUN
PO-209	2.159E+00	6.122E+00	1.049E+01	0.000E+00	NOT IDENT.
BI-210	2.474E+00	5.089E+00	9.263E+00	0.000E+00	NOT IDENT.
PB-210	2.474E+00	5.089E+00	9.263E+00	0.000E+00	NOT IDENT.
PO-210	2.474E+00	5.088E+00	9.263E+00	0.000E+00	NOT IDENT.
PB-211	-5.274E-01	8.431E-01	1.297E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.203E-01	5.416E-01	0.000E+00	FAIL ABUN
PO-215	6.953E-01	6.316E-01	9.775E-01	0.000E+00	FAIL ABUN
RN-219	4.656E-02	3.229E-01	5.616E-01	0.000E+00	FAIL ABUN
RN-220	-4.131E-01	2.089E+01	3.497E+01	0.000E+00	NOT IDENT.
RA-223	6.953E-01	6.316E-01	9.775E-01	0.000E+00	FAIL ABUN
AC-227	-4.520E-02	3.104E-01	5.237E-01	0.000E+00	FAIL ABUN
TH-227	-4.520E-02	3.104E-01	5.237E-01	0.000E+00	FAIL ABUN
TH-229	-7.654E-02	3.960E-01	6.833E-01	0.000E+00	FAIL ABUN
PA-231	2.417E-01	1.322E+00	2.246E+00	0.000E+00	FAIL ABUN
TH-231	6.953E-01	6.316E-01	9.775E-01	0.000E+00	FAIL ABUN
U-231	-8.300E-01	1.337E+00	1.969E+00	0.000E+00	FAIL ABUN
PA-233	-1.676E-02	5.086E-02	8.331E-02	0.000E+00	FAIL ABUN
PA-234	-9.228E-02	2.600E-01	4.191E-01	0.000E+00	FAIL ABUN
PA-234M	4.447E+00	4.277E+00	7.346E+00	0.000E+00	NOT IDENT.
TH-234	9.591E-01	1.444E+00	2.552E+00	0.000E+00	FAIL ABUN
U-235	-3.875E-02	1.886E-01	3.052E-01	0.000E+00	FAIL ABUN
NP-236	-3.610E-02	6.640E-02	1.148E-01	0.000E+00	NOT IDENT.
U-238	9.591E-01	1.444E+00	2.552E+00	0.000E+00	FAIL ABUN
NP-239	7.900E-02	1.650E-01	2.834E-01	0.000E+00	FAIL ABUN
AM-241	3.896E-03	1.649E-01	2.909E-01	0.000E+00	NOT IDENT.
CM-243	2.551E-03	8.582E-02	1.459E-01	0.000E+00	FAIL ABUN
AM-246	-7.303E-03	1.154E-01	1.955E-01	0.000E+00	NOT IDENT.
CM-247	-7.135E-03	2.939E-02	5.006E-02	0.000E+00	NOT IDENT.
CF-249	-3.161E-03	3.296E-02	5.679E-02	0.000E+00	NOT IDENT.
CF-251	-7.259E-02	9.995E-02	1.698E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                          *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229015.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:51:09
Sample ID       : G244229015           Sample quantity  : 1.18230E+02 GRAM
Detector name   : GAM18                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00        Elapsed real time: 0 02:00:01.56  0.0%
Energy tolerance: 1.50000 keV           Analyst Initials : MXR1
Abundance limit : 75.00000              Sensitivity      : 5.00000
Batch ID        : 941239                Detector SN#     :
Matrix Spike ID :                       LCS ID          : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	2016	10.67*	1.893E+00	3.168E+01	3.168E+01	8.87
CD-109	88.03	194	3.72*	6.440E+00	2.569E+00	2.632E+00	38.12
SN-126	64.28	-----	9.60	3.245E+00	-----	Line Not Found	-----
	86.94	194	8.90	6.440E+00	1.074E+00	1.074E+00	55.58
	87.57	194	37.00*	6.440E+00	2.583E-01	2.583E-01	38.12
TL-208	277.35	-----	6.80	6.258E+00	-----	Line Not Found	-----
	510.84	246	21.60	4.310E+00	8.373E-01	8.373E-01	32.65
	583.14	497	84.20*	3.933E+00	4.765E-01	4.765E-01	14.36
	860.37	108	12.46	2.915E+00	9.398E-01	9.398E-01	33.44
BI-211	72.87	-----	1.27	4.622E+00	-----	Line Not Found	-----
	351.07	825	12.94*	5.451E+00	3.715E+00	3.715E+00	12.45
PB-212	74.81	380	10.70	4.950E+00	2.278E+00	2.278E+00	24.24
	77.11	533	18.00	5.260E+00	1.788E+00	1.788E+00	15.72
	87.30	194	8.00	6.440E+00	1.195E+00	1.195E+00	39.41
	238.63	1500	44.60*	6.792E+00	1.572E+00	1.572E+00	9.43
	300.09	102	3.41	5.983E+00	1.591E+00	1.591E+00	52.83
PO-212	74.81	380	10.70	4.950E+00	2.278E+00	2.278E+00	24.24
	77.11	533	18.00	5.260E+00	1.788E+00	1.788E+00	15.72
	87.30	194	8.00	6.440E+00	1.195E+00	1.195E+00	39.41
	115.19	-----	0.60	8.058E+00	-----	Line Not Found	-----
	238.63	1500	44.60*	6.792E+00	1.572E+00	1.572E+00	9.43
	300.09	102	3.41	5.983E+00	1.591E+00	1.591E+00	52.83
BI-214	609.31	533	46.30*	3.812E+00	9.591E-01	9.591E-01	17.24
	1120.29	180	15.10	2.335E+00	1.625E+00	1.625E+00	28.31
	1764.49	82	15.80	1.695E+00	9.673E-01	9.673E-01	40.24
PB-214	74.81	380	6.21	4.950E+00	3.925E+00	3.925E+00	23.56
	77.11	533	10.50	5.260E+00	3.066E+00	3.066E+00	17.47
	87.30	194	4.67	6.440E+00	2.047E+00	2.047E+00	38.89
	241.98	325	7.49	6.747E+00	2.039E+00	2.039E+00	25.18
	295.21	424	19.20	6.040E+00	1.161E+00	1.161E+00	17.40
	351.92	825	37.20*	5.451E+00	1.292E+00	1.292E+00	13.50
PO-214	74.81	380	6.21	4.950E+00	3.925E+00	3.925E+00	23.56

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	77.11	533	10.50	5.260E+00	3.066E+00	3.066E+00	17.47
	87.30	194	4.67	6.440E+00	2.047E+00	2.047E+00	38.89
	241.98	325	7.49	6.747E+00	2.039E+00	2.039E+00	25.18
	295.21	424	19.20	6.040E+00	1.161E+00	1.161E+00	17.40
	351.92	825	37.20*	5.451E+00	1.292E+00	1.292E+00	13.50
PO-216	74.81	380	10.70	4.950E+00	2.278E+00	2.278E+00	24.24
	77.11	533	18.00	5.260E+00	1.788E+00	1.788E+00	15.72
	87.30	194	8.00	6.440E+00	1.195E+00	1.195E+00	39.41
	238.63	1500	44.60*	6.792E+00	1.572E+00	1.572E+00	9.43
	300.09	102	3.41	5.983E+00	1.591E+00	1.591E+00	52.83
PO-218	74.81	380	6.21	4.950E+00	3.925E+00	3.925E+00	23.56
	77.11	533	10.50	5.260E+00	3.066E+00	3.066E+00	17.47
	87.30	194	4.67	6.440E+00	2.047E+00	2.047E+00	38.89
	241.98	325	7.49	6.747E+00	2.039E+00	2.039E+00	25.18
	295.21	424	19.20	6.040E+00	1.161E+00	1.161E+00	17.40
	351.92	825	37.20*	5.451E+00	1.292E+00	1.292E+00	13.50
RA-224	240.98	325	3.95*	6.747E+00	3.867E+00	3.867E+00	24.55
RA-226	609.31	533	46.30*	3.812E+00	9.591E-01	9.591E-01	17.24
	1120.29	180	15.10	2.335E+00	1.625E+00	1.625E+00	28.31
	1764.49	82	15.80	1.695E+00	9.673E-01	9.673E-01	40.24
AC-228	338.32	370	11.40	5.580E+00	1.848E+00	1.848E+00	44.68
	911.07	359	27.70*	2.779E+00	1.480E+00	1.480E+00	23.29
	969.11	208	16.60	2.639E+00	1.507E+00	1.507E+00	31.25
RA-228	338.32	370	11.40	5.580E+00	1.848E+00	1.848E+00	44.68
	911.07	359	27.70*	2.779E+00	1.480E+00	1.480E+00	23.29
	969.11	208	16.60	2.639E+00	1.507E+00	1.507E+00	31.25
TH-228	74.81	380	10.70	4.950E+00	2.278E+00	2.315E+00	22.40
	77.11	533	18.00	5.260E+00	1.788E+00	1.817E+00	15.72
	87.30	194	8.00	6.440E+00	1.195E+00	1.214E+00	38.12
	238.63	1500	44.60*	6.792E+00	1.572E+00	1.597E+00	9.43
	300.09	102	3.41	5.983E+00	1.591E+00	1.617E+00	78.72
TH-230	609.31	533	46.30*	3.812E+00	9.591E-01	9.591E-01	17.24
	1120.29	180	15.10	2.335E+00	1.625E+00	1.625E+00	28.31
	1764.49	82	15.80	1.695E+00	9.673E-01	9.673E-01	40.24
TH-232	338.32	370	11.40	5.580E+00	1.848E+00	1.848E+00	19.18
	911.07	359	27.70*	2.779E+00	1.480E+00	1.480E+00	23.29
	969.11	208	16.60	2.639E+00	1.507E+00	1.507E+00	31.25
U-234	609.31	533	46.30*	3.812E+00	9.591E-01	9.591E-01	17.24
	1120.29	180	15.10	2.335E+00	1.625E+00	1.625E+00	28.31
	1764.49	82	15.80	1.695E+00	9.673E-01	9.673E-01	40.24
NP-237	86.50	194	12.60*	6.440E+00	7.585E-01	7.585E-01	43.35
	95.87	-----	2.60	7.180E+00	-----	Line Not Found	-----
AM-243	74.67	380	66.00*	4.950E+00	3.693E-01	3.693E-01	22.37
	86.72	194	0.34	6.440E+00	2.844E+01	2.844E+01	38.12
	117.66	-----	0.55	8.112E+00	-----	Line Not Found	-----
	142.18	-----	0.13	8.232E+00	-----	Line Not Found	-----
ANH-511	511.00	246	100.00*	4.310E+00	1.809E-01	1.809E-01	31.57

Flag: "\*" = Keyline

Total number of lines in spectrum 31  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 29 93.55%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.168E+01	3.168E+01	0.281E+01	8.87	
CD-109	464.00D	1.02	2.569E+00	2.632E+00	1.003E+00	38.12	
SN-126	1.00E+05Y	1.00	2.583E-01	2.583E-01	0.985E-01	38.12	
TL-208	1.41E+10Y	1.00	4.765E-01	4.765E-01	0.684E-01	14.36	
BI-211	7.04E+08Y	1.00	3.715E+00	3.715E+00	0.463E+00	12.45	
PB-212	1.41E+10Y	1.00	1.572E+00	1.572E+00	0.148E+00	9.43	
PO-212	1.41E+10Y	1.00	1.572E+00	1.572E+00	0.148E+00	9.43	
BI-214	1600.00Y	1.00	9.591E-01	9.591E-01	1.653E-01	17.24	
PB-214	1600.00Y	1.00	1.292E+00	1.292E+00	0.174E+00	13.50	
PO-214	1600.00Y	1.00	1.292E+00	1.292E+00	0.174E+00	13.50	
PO-216	1.41E+10Y	1.00	1.572E+00	1.572E+00	0.148E+00	9.43	
PO-218	1600.00Y	1.00	1.292E+00	1.292E+00	0.174E+00	13.50	
RA-224	1.41E+10Y	1.00	3.867E+00	3.867E+00	0.949E+00	24.55	
RA-226	1600.00Y	1.00	9.591E-01	9.591E-01	1.653E-01	17.24	
AC-228	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.345E+00	23.29	
RA-228	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.345E+00	23.29	
TH-228	1.91Y	1.02	1.572E+00	1.597E+00	0.151E+00	9.43	
TH-230	4.47E+09Y	1.00	9.591E-01	9.591E-01	1.653E-01	17.24	
TH-232	1.41E+10Y	1.00	1.480E+00	1.480E+00	0.345E+00	23.29	
U-234	4.47E+09Y	1.00	9.591E-01	9.591E-01	1.653E-01	17.24	
NP-237	2.14E+06Y	1.00	7.585E-01	7.585E-01	3.288E-01	43.35	
AM-243	7380.00Y	1.00	3.693E-01	3.693E-01	0.826E-01	22.37	
ANH-511	1.00E+09Y	1.00	1.809E-01	1.809E-01	0.571E-01	31.57	

Total Activity : 6.231E+01 6.240E+01

Grand Total Activity : 6.231E+01 6.240E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244229015

Page : 4  
Acquisition date : 22-JAN-2010 16:51:09

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
6	89.98	114	278	0.81	179.06	177	12	1.58E-02	47.6	6.70E+00	T
6	93.00	172	398	1.48	185.10	177	12	2.40E-02	43.8	6.96E+00	T
0	129.41	98	290	1.33	257.90	254	8	1.36E-02	64.0	8.25E+00	T
0	185.97	205	425	1.19	370.97	366	12	2.84E-02	44.0	7.65E+00	T
0	210.13	134	426	1.33	419.27	413	13	1.87E-02	65.6	7.24E+00	T
0	270.57	166	266	1.89	540.12	535	12	2.31E-02	42.5	6.35E+00	T
0	328.50	69	204	0.90	655.94	651	10	9.61E-03	81.7	5.68E+00	T
0	462.95	80	123	1.01	924.76	920	11	1.11E-02	58.6	4.60E+00	T
0	727.67	92	123	1.23	1454.06	1447	14	1.28E-02	56.9	3.34E+00	T
0	795.16	85	69	1.66	1589.00	1581	13	1.19E-02	45.4	3.11E+00	T
3	964.64	92	34	2.81	1927.89	1921	24	1.27E-02	39.6	2.65E+00	T
0	1379.07	58	42	1.81	2756.64	2748	19	8.09E-03	62.0	1.97E+00	
0	1588.62	24	35	1.65	3175.71	3167	14	3.33E-03	****	1.79E+00	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244229015.CNF;1
* Acquisition date   : 22-JAN-2010 16:51:09   Detector SN#      :
* Detector ID        : GAM18                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.56          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244229015             Analyst initials: MXR1
* Batch Number       : 941239                 Sample Quantity : 1.18230E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23.2MS Isotope         :
* MSD ID              :                      MSD Isotope         :
* LCS ID              : 1032-A               LCS Isotope         :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.168E+01	2.811E+00	3.448E-01	2.616E-02	91.882
CD-109	2.632E+00	1.003E+00	1.110E+00	1.026E-01	2.371
SN-126	2.583E-01	9.847E-02	1.258E-01	1.159E-02	2.053
TL-208	4.765E-01	6.841E-02	5.123E-02	4.016E-03	9.301
BI-211	3.715E+00	4.627E-01	2.458E-01	1.578E-02	15.110
PB-212	1.572E+00	1.482E-01	7.563E-02	5.403E-03	20.786
PO-212	1.572E+00	1.482E-01	7.563E-02	5.403E-03	20.786
BI-214	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
PB-214	1.292E+00	1.745E-01	8.568E-02	7.088E-03	15.082
PO-214	1.292E+00	1.745E-01	8.568E-02	7.088E-03	15.082
PO-216	1.572E+00	1.482E-01	7.563E-02	5.403E-03	20.786
PO-218	1.292E+00	1.745E-01	8.568E-02	7.088E-03	15.082
RA-224	3.867E+00	9.492E-01	8.596E-01	4.788E-02	4.498
RA-226	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
AC-228	1.480E+00	3.448E-01	1.665E-01	2.206E-02	8.890
RA-228	1.480E+00	3.448E-01	1.665E-01	2.206E-02	8.890
TH-228	1.597E+00	1.506E-01	7.686E-02	5.490E-03	20.786
TH-230	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.480E+00	3.448E-01	1.665E-01	2.206E-02	8.890
U-234	9.591E-01	1.653E-01	9.413E-02	8.408E-03	10.190
NP-237	7.585E-01	3.288E-01	3.753E-01	8.467E-02	2.021
AM-243	3.693E-01	8.260E-02	8.490E-02	7.085E-03	4.349
ANH-511	1.809E-01	5.709E-02	3.545E-02	2.341E-03	5.102

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	6.734E-02		2.542E-01	4.263E-01	3.089E-02	0.158
NA-22	-3.941E-04		3.910E-02	6.416E-02	4.366E-03	-0.006
NA-24	-1.532E+00		1.198E+00	Half-Life	too short	
AL-26	8.540E-03		2.306E-02	4.009E-02	2.340E-03	0.213
TI-44	3.300E-01	+	5.188E-02	7.735E-02	6.614E-03	4.266
SC-46	1.523E-02		3.255E-02	5.509E-02	6.145E-03	0.276
V-48	-6.640E-02		6.345E-02	9.282E-02	9.181E-03	-0.715
CR-51	-1.591E-01		3.236E-01	5.063E-01	3.259E-02	-0.314
MN-52	2.119E-02		2.299E-01	3.770E-01	2.778E-02	0.056
MN-54	1.762E-02		3.244E-02	5.519E-02	5.653E-03	0.319
CO-56	5.703E-03		3.667E-02	6.083E-02	6.350E-03	0.094
CO-57	1.533E-02		2.191E-02	3.628E-02	2.149E-03	0.423
CO-58	-2.842E-02		3.164E-02	4.821E-02	4.759E-03	-0.590
FE-59	-5.000E-02		7.758E-02	1.226E-01	1.009E-02	-0.408
CO-60	1.367E-03		3.153E-02	5.179E-02	3.913E-03	0.026
ZN-65	1.922E-02		8.966E-02	1.304E-01	9.182E-03	0.147
GE-68	-6.593E-03		1.056E+00	1.760E+00	1.398E-01	-0.004
AS-73	-5.884E-01		1.042E+00	1.710E+00	1.356E-01	-0.344
AS-74	1.911E-03		8.282E-02	1.342E-01	9.644E-03	0.014
SE-75	-6.814E-03		3.824E-02	5.716E-02	3.269E-03	-0.119
BR-77	1.862E+00		1.185E+01	1.959E+01	1.307E+00	0.095
SR-82	-2.965E-01		3.302E-01	5.095E-01	4.745E-02	-0.582
RB-83	1.261E-02		5.779E-02	9.595E-02	6.400E-03	0.131
RB-84	3.344E-02		5.875E-02	1.002E-01	1.104E-02	0.334
KR-85	1.937E+01		7.317E+00	1.222E+01	8.097E-01	1.585
SR-85	1.004E-01		3.795E-02	6.338E-02	4.199E-03	1.585
RB-86	3.227E-01		6.895E-01	1.189E+00	9.467E-02	0.271
Y-88	1.281E-02		2.580E-02	4.563E-02	2.599E-03	0.281
ZR-88	1.962E-02		2.676E-02	4.644E-02	2.671E-03	0.423
Y-91	1.686E+01		1.633E+01	2.880E+01	1.703E+00	0.585
NB-94	-3.313E-03		2.776E-02	4.598E-02	3.772E-03	-0.072
NB-95	1.628E-02		3.693E-02	6.278E-02	5.743E-03	0.259
NB-95M	1.395E-01		1.216E-01	1.866E-01	1.369E-02	0.747
ZR-95	-1.432E-02		5.693E-02	9.267E-02	9.119E-03	-0.155
NB-97	9.695E-02		1.110E-01	Half-Life	too short	
ZR-97	1.417E+01		2.340E+00	Half-Life	too short	
MO-99	1.620E+00		1.217E+01	2.041E+01	3.114E+00	0.079
TC-99M	-6.493E+11		3.692E+11	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RH-101	-3.018E-03		2.775E-02	4.548E-02	2.445E-03	-0.066
RH-102	1.107E-02		2.343E-02	3.977E-02	2.526E-03	0.278
RU-103	-7.038E-03		3.295E-02	5.338E-02	6.931E-03	-0.132
RH-106	-2.663E-01		2.762E-01	4.107E-01	5.167E-02	-0.648
RU-106	-2.663E-01		2.749E-01	4.107E-01	3.023E-02	-0.648
AG-108M	-2.232E-04		2.675E-02	4.445E-02	2.904E-03	-0.005
AG-110M	1.227E-02		2.747E-02	4.740E-02	3.739E-03	0.259
IN-111	-1.397E-01		1.233E+00	1.764E+00	9.859E-02	-0.079
IN-113M	3.077E-02		3.871E-02	6.736E-02	4.132E-03	0.457
SN-113	3.077E-02		3.871E-02	6.736E-02	4.132E-03	0.457
IN-114M	-2.282E-02		1.629E-01	2.382E-01	1.272E-02	-0.096
CD-115	-1.275E+01		1.201E+01	1.781E+01	1.197E+00	-0.716
SN-117M	1.474E-02		4.880E-02	8.360E-02	4.444E-03	0.176
SB-122	-6.866E-01		2.251E+00	3.584E+00	2.497E-01	-0.192
I-123	-1.447E+00		9.619E+00	Half-Life	too short	
TE-123M	-1.819E-03		2.418E-02	4.085E-02	2.204E-03	-0.045
I-124	-8.265E-02		8.297E-01	1.135E+00	8.204E-02	-0.073
SB-124	1.643E-04		5.350E-02	8.840E-02	6.099E-03	0.002
SB-125	8.543E-03		7.117E-02	1.193E-01	7.454E-03	0.072
TE-125M	-7.624E+00		8.570E+00	1.326E+01	1.166E+00	-0.575
I-126	-3.479E-04		1.523E-01	2.554E-01	1.963E-02	-0.001
SB-126	1.235E-01		1.334E-01	2.088E-01	1.768E-02	0.592
SB-127	2.108E-01		1.349E+00	2.280E+00	2.559E-01	0.092
XE-127	-9.731E-03		4.165E-02	6.879E-02	3.713E-03	-0.141
I-131	8.135E-03		9.969E-02	1.687E-01	1.091E-02	0.048
TE-132	1.967E-01		7.063E-01	1.181E+00	1.710E-01	0.167
BA-133	-8.886E-03		4.028E-02	5.492E-02	6.345E-03	-0.162
I-133	-1.138E-02		6.011E-03	Half-Life	too short	
CS-134	1.151E-01	+	5.347E-02	7.552E-02	7.304E-03	1.524
CS-135	2.108E-01		1.507E-01	2.340E-01	1.769E-02	0.901
I-135	-2.948E+09		3.379E+10	Half-Life	too short	
CS-136	5.729E-02		9.499E-02	1.656E-01	1.485E-02	0.346
BA-137M	6.804E-04		2.861E-02	4.807E-02	3.664E-03	0.014
CS-137	7.193E-04		3.024E-02	5.081E-02	3.883E-03	0.014
CE-139	-5.152E-03		2.443E-02	4.093E-02	2.149E-03	-0.126
BA-140	-3.097E-02		2.177E-01	3.516E-01	1.150E-01	-0.088
LA-140	-2.965E-02		8.052E-02	1.138E-01	7.805E-03	-0.261
CE-141	5.721E-03		5.873E-02	9.228E-02	5.268E-03	0.062
CE-143	8.576E-04		1.615E-04	Half-Life	too short	
CE-144	-6.851E-02		2.010E-01	2.786E-01	3.939E-02	-0.246
PM-144	1.617E-02		2.938E-02	5.065E-02	4.112E-03	0.319
PR-144	1.096E+00		1.992E+00	3.434E+00	2.787E-01	0.319
PM-146	5.362E-03		3.456E-02	5.777E-02	5.139E-03	0.093
ND-147	2.050E-01		4.644E-01	7.812E-01	1.090E-01	0.262
PM-149	3.877E+01		1.143E+02	1.886E+02	2.668E+01	0.206
EU-152	1.797E-04		1.094E-01	1.272E-01	8.301E-03	0.001
GD-153	-3.816E-02		7.939E-02	1.203E-01	9.404E-03	-0.317
EU-154	-3.248E-04		1.092E-01	1.793E-01	1.791E-02	-0.002



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	6.143E-02		9.804E-02	1.629E-01	1.165E-02	0.377
TB-160	-3.164E-02		1.158E-01	1.851E-01	2.034E-02	-0.171
HO-166M	1.347E-03		4.650E-02	7.769E-02	6.476E-03	0.017
TM-171	-1.447E+01		3.075E+01	4.872E+01	3.895E+00	-0.297
LU-176	2.333E-02		2.006E-02	3.444E-02	1.983E-03	0.677
LU-177	9.775E-01		1.224E+00	1.863E+00	1.011E-01	0.525
LU-177M	-9.481E-02		1.512E-01	2.437E-01	1.439E-02	-0.389
HF-181	5.875E-03		3.298E-02	5.500E-02	3.520E-03	0.107
W-181	-6.277E-01		4.212E-01	6.394E-01	5.072E-02	-0.982
TA-182	1.246E-01		1.667E-01	2.887E-01	1.766E-02	0.432
RE-183	3.913E-02		9.297E-02	1.597E-01	8.431E-03	0.245
RE-184	3.494E-02		1.944E-01	3.216E-01	1.807E-02	0.109
OS-185	-9.293E-03		3.567E-02	5.615E-02	4.223E-03	-0.165
RE-188	-2.482E-02		1.457E-01	2.457E-01	1.315E-02	-0.101
W-188	-6.158E+00		7.425E+00	9.899E+00	5.670E-01	-0.622
IR-192	5.854E-03		2.864E-02	4.671E-02	2.709E-03	0.125
AU-195	1.805E-01		2.100E-01	3.529E-01	2.700E-02	0.512
TL-200	-2.395E-04		3.535E-04	Half-Life too short		
TL-201	-5.386E+00		7.300E+00	1.195E+01	6.273E-01	-0.451
TL-202	8.716E-03		5.983E-02	1.002E-01	6.108E-03	0.087
HG-203	1.786E-02		3.566E-02	5.944E-02	3.605E-03	0.300
BI-207	-1.134E-02		4.387E-02	7.184E-02	5.930E-03	-0.158
TL-207	6.953E-01		6.445E-01	9.643E-01	1.592E-01	0.721
PO-209	2.159E+00		6.247E+00	1.047E+01	1.181E+00	0.206
BI-210	2.474E+00		5.193E+00	8.950E+00	6.924E-01	0.276
PB-210	2.474E+00		5.193E+00	8.950E+00	6.924E-01	0.276
PO-210	2.474E+00		5.192E+00	8.950E+00	5.953E-01	0.276
PB-211	-5.274E-01		8.603E-01	1.283E+00	7.997E-01	-0.411
BI-212	7.428E-01	+	4.289E-01	5.390E-01	5.368E-02	1.378
PO-215	6.953E-01		6.445E-01	9.643E-01	1.592E-01	0.721
RN-219	4.656E-02		3.295E-01	5.553E-01	7.559E-02	0.084
RN-220	-4.131E-01		2.132E+01	3.469E+01	2.384E+00	-0.012
RA-223	6.953E-01		6.445E-01	9.643E-01	1.592E-01	0.721
AC-227	-4.520E-02		3.167E-01	5.153E-01	7.157E-02	-0.088
TH-227	-4.520E-02		3.167E-01	5.153E-01	8.678E-02	-0.088
TH-229	-7.654E-02		4.041E-01	6.703E-01	3.589E-02	-0.114
PA-231	2.417E-01		1.349E+00	2.212E+00	3.040E-01	0.109
TH-231	6.953E-01		6.445E-01	9.643E-01	1.592E-01	0.721
U-231	-8.300E-01		1.364E+00	1.917E+00	1.536E-01	-0.433
PA-233	-1.676E-02		5.189E-02	8.215E-02	5.032E-03	-0.204
PA-234	-9.228E-02		2.653E-01	4.183E-01	8.252E-02	-0.221
PA-234M	4.447E+00		4.365E+00	7.337E+00	7.915E-01	0.606
TH-234	9.591E-01		1.474E+00	2.474E+00	4.361E-01	0.388
U-235	-3.875E-02		1.925E-01	2.985E-01	4.834E-02	-0.130
NP-236	-3.610E-02		6.775E-02	1.124E-01	5.953E-03	-0.321
U-238	9.591E-01		1.474E+00	2.474E+00	4.361E-01	0.388
NP-239	7.900E-02		1.683E-01	2.765E-01	1.711E-02	0.286
AM-241	3.896E-03		1.683E-01	2.818E-01	2.337E-02	0.014

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	2.551E-03		8.757E-02	1.422E-01	1.018E-02	0.018
AM-246	-7.303E-03		1.177E-01	1.954E-01	1.546E-02	-0.037
CM-247	-7.135E-03		2.999E-02	4.949E-02	2.883E-03	-0.144
CF-249	-3.161E-03		3.363E-02	5.613E-02	3.226E-03	-0.056
CF-251	-7.259E-02		1.020E-01	1.664E-01	8.787E-03	-0.436

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244229015          *
* Acquisition date   : 22-JAN-2010 16:51:09 Detector SN#      :             *
* Detector ID        : GAM18                                           Sensitivity      : 5.000          *
* Geometry           : CAN                                           Energy tolerance: 1.500          *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000          *
* Elapsed real time  : 0 02:00:01.56                               Half life ratio  : 8.000          *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244229015                               Analyst initials: MXR1           *
* Batch Number       : 941239                                   Sample Quantity : 1.1823E+02 GRAM *
* Recovery           : 1.00000                                Carrier Weight  : 0.00000          *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 23-APR-2009 11:59:23 MS Isotope           :             *
* MSD DPM             : 0.000                                       MSD Isotope      :             *
* LCS DPM             : 0.000                                       LCS Isotope      :             *
* LCSD DPM            : 0.000                                       LCSD Isotope     :             *
*****

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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.168E+01	2.754E+00	1.720E-01	1.405E+00
CD-109	2.632E+00	9.834E-01	5.710E-01	5.017E-01
SN-126	2.583E-01	9.650E-02	6.472E-02	4.923E-02
TL-208	4.765E-01	6.705E-02	2.582E-02	3.421E-02
BI-211	3.715E+00	4.534E-01	1.246E-01	2.313E-01
PB-212	1.572E+00	1.452E-01	3.848E-02	7.408E-02
PO-212	1.572E+00	1.452E-01	3.848E-02	7.408E-02
BI-214	9.591E-01	1.620E-01	4.741E-02	8.266E-02
PB-214	1.292E+00	1.710E-01	4.342E-02	8.725E-02
PO-214	1.292E+00	1.710E-01	4.342E-02	8.725E-02
PO-216	1.572E+00	1.452E-01	3.848E-02	7.408E-02
PO-218	1.292E+00	1.710E-01	4.342E-02	8.725E-02
RA-224	3.867E+00	9.302E-01	4.374E-01	4.746E-01
RA-226	9.591E-01	1.620E-01	4.741E-02	8.266E-02
AC-228	1.480E+00	3.379E-01	8.350E-02	1.724E-01
RA-228	1.480E+00	3.379E-01	8.350E-02	1.724E-01
TH-228	1.597E+00	1.476E-01	3.911E-02	7.528E-02
TH-230	9.591E-01	1.620E-01	4.741E-02	8.266E-02
TH-232	1.480E+00	3.379E-01	8.350E-02	1.724E-01
U-234	9.591E-01	1.620E-01	4.741E-02	8.266E-02
NP-237	7.585E-01	3.222E-01	1.930E-01	1.644E-01
AM-243	3.693E-01	8.094E-02	4.374E-02	4.130E-02
ANH-511	1.809E-01	5.595E-02	1.789E-02	2.855E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	6.734E-02	2.491E-01	2.153E-01	1.271E-01 NOT IDENT.
NA-22	-3.941E-04	3.832E-02	3.205E-02	1.955E-02 NOT IDENT.
NA-24	-1.532E+06	2.347E+06	0.000E+00	1.198E+06 SHORT HLIF
AL-26	8.540E-03	2.260E-02	1.995E-02	1.153E-02 NOT IDENT.

TI-44	3.300E-01	5.085E-02	3.983E-02	2.594E-02	FAIL ABUN
SC-46	1.523E-02	3.190E-02	2.763E-02	1.627E-02	FAIL ABUN
V-48	-6.640E-02	6.218E-02	4.650E-02	3.173E-02	NOT IDENT.
CR-51	-1.591E-01	3.171E-01	2.568E-01	1.618E-01	NOT IDENT.
MN-52	2.119E-02	2.253E-01	1.881E-01	1.149E-01	NOT IDENT.
MN-54	1.762E-02	3.180E-02	2.770E-02	1.622E-02	NOT IDENT.
CO-56	5.703E-03	3.594E-02	3.053E-02	1.834E-02	NOT IDENT.
CO-57	1.533E-02	2.147E-02	1.859E-02	1.095E-02	NOT IDENT.
CO-58	-2.842E-02	3.101E-02	2.421E-02	1.582E-02	NOT IDENT.
FE-59	-5.000E-02	7.603E-02	6.136E-02	3.879E-02	NOT IDENT.
CO-60	1.367E-03	3.090E-02	2.586E-02	1.577E-02	NOT IDENT.
ZN-65	1.922E-02	8.787E-02	6.522E-02	4.483E-02	NOT IDENT.
GE-68	-6.593E-03	1.034E+00	8.809E-01	5.278E-01	NOT IDENT.
AS-73	-5.884E-01	1.021E+00	8.841E-01	5.210E-01	NOT IDENT.
AS-74	1.911E-03	8.117E-02	6.762E-02	4.141E-02	NOT IDENT.
SE-75	-6.814E-03	3.748E-02	2.906E-02	1.912E-02	NOT IDENT.
BR-77	1.862E+00	1.161E+01	9.886E+00	5.923E+00	FAIL ABUN
SR-82	-2.965E-01	3.236E-01	2.559E-01	1.651E-01	NOT IDENT.
RB-83	1.261E-02	5.664E-02	4.842E-02	2.890E-02	NOT IDENT.
RB-84	3.344E-02	5.757E-02	5.027E-02	2.937E-02	NOT IDENT.
KR-85	1.937E+01	7.171E+00	6.167E+00	3.659E+00	NOT IDENT.
SR-85	1.004E-01	3.719E-02	3.198E-02	1.897E-02	NOT IDENT.
RB-86	3.227E-01	6.758E-01	5.952E-01	3.448E-01	NOT IDENT.
Y-88	1.281E-02	2.528E-02	2.270E-02	1.290E-02	NOT IDENT.
ZR-88	1.962E-02	2.623E-02	2.350E-02	1.338E-02	NOT IDENT.
Y-91	1.686E+01	1.600E+01	1.440E+01	8.164E+00	NOT IDENT.
NB-94	-3.313E-03	2.720E-02	2.312E-02	1.388E-02	NOT IDENT.
NB-95	1.628E-02	3.619E-02	3.154E-02	1.846E-02	NOT IDENT.
NB-95M	1.395E-01	1.191E-01	9.498E-02	6.078E-02	NOT IDENT.
ZR-95	-1.432E-02	5.579E-02	4.657E-02	2.846E-02	NOT IDENT.
NB-97	9.695E+04	2.176E+05	0.000E+00	1.110E+05	SHORT HLIF
ZR-97	1.417E+07	4.586E+06	0.000E+00	2.340E+06	SHORT HLIF
MO-99	1.620E+00	1.192E+01	1.026E+01	6.084E+00	NOT IDENT.
TC-99M	-6.493E+17	7.236E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-3.018E-03	2.719E-02	2.319E-02	1.387E-02	NOT IDENT.
RH-102	1.107E-02	2.296E-02	2.009E-02	1.171E-02	NOT IDENT.
RU-103	-7.038E-03	3.229E-02	2.695E-02	1.648E-02	FAIL ABUN
RH-106	-2.663E-01	2.707E-01	2.068E-01	1.381E-01	FAIL ABUN
RU-106	-2.663E-01	2.694E-01	2.068E-01	1.374E-01	FAIL ABUN
AG-108M	-2.232E-04	2.621E-02	2.247E-02	1.337E-02	NOT IDENT.
AG-110M	1.227E-02	2.692E-02	2.386E-02	1.373E-02	NOT IDENT.
IN-111	-1.397E-01	1.208E+00	8.974E-01	6.166E-01	NOT IDENT.
IN-113M	3.077E-02	3.794E-02	3.409E-02	1.936E-02	NOT IDENT.
SN-113	3.077E-02	3.794E-02	3.409E-02	1.936E-02	NOT IDENT.
IN-114M	-2.282E-02	1.597E-01	1.215E-01	8.147E-02	NOT IDENT.
CD-115	-1.275E+01	1.177E+01	8.985E+00	6.005E+00	NOT IDENT.
SN-117M	1.474E-02	4.782E-02	4.273E-02	2.440E-02	NOT IDENT.
SB-122	-6.866E-01	2.206E+00	1.807E+00	1.126E+00	NOT IDENT.
I-123	-1.447E+06	1.885E+07	0.000E+00	9.619E+06	SHORT HLIF
TE-123M	-1.819E-03	2.370E-02	2.088E-02	1.209E-02	NOT IDENT.
I-124	-8.265E-02	8.131E-01	5.715E-01	4.149E-01	NOT IDENT.
SB-124	1.643E-04	5.243E-02	4.402E-02	2.675E-02	FAIL ABUN
SB-125	8.543E-03	6.975E-02	6.032E-02	3.558E-02	FAIL ABUN
TE-125M	-7.624E+00	8.399E+00	6.807E+00	4.285E+00	NOT IDENT.
I-126	-3.479E-04	1.493E-01	1.285E-01	7.616E-02	NOT IDENT.
SB-126	1.235E-01	1.307E-01	1.050E-01	6.670E-02	FAIL ABUN
SB-127	2.108E-01	1.322E+00	1.147E+00	6.747E-01	NOT IDENT.
XE-127	-9.731E-03	4.082E-02	3.506E-02	2.083E-02	NOT IDENT.
I-131	8.135E-03	9.770E-02	8.547E-02	4.985E-02	NOT IDENT.
TE-132	1.967E-01	6.922E-01	6.014E-01	3.532E-01	NOT IDENT.
BA-133	-8.886E-03	3.947E-02	2.783E-02	2.014E-02	NOT IDENT.
I-133	-1.138E+04	1.178E+04	0.000E+00	6.011E+03	SHORT HLIF
CS-134	1.151E-01	5.240E-02	3.792E-02	2.673E-02	FAIL ABUN
CS-135	2.108E-01	1.477E-01	1.189E-01	7.536E-02	NOT IDENT.
I-135	-2.948E+15	6.623E+16	0.000E+00	0.000E+00	SHORT HLIF
CS-136	5.729E-02	9.309E-02	8.292E-02	4.749E-02	FAIL ABUN
BA-137M	6.804E-04	2.803E-02	2.419E-02	1.430E-02	NOT IDENT.
CS-137	7.193E-04	2.963E-02	2.557E-02	1.512E-02	NOT IDENT.
CE-139	-5.152E-03	2.395E-02	2.091E-02	1.222E-02	NOT IDENT.
BA-140	-3.097E-02	2.134E-01	1.774E-01	1.089E-01	NOT IDENT.
LA-140	-2.965E-02	7.891E-02	5.669E-02	4.026E-02	FAIL ABUN
CE-141	5.721E-03	5.756E-02	4.721E-02	2.937E-02	NOT IDENT.
CE-143	8.576E+02	3.166E+02	0.000E+00	1.615E+02	SHORT HLIF
CE-144	-6.851E-02	1.970E-01	1.427E-01	1.005E-01	NOT IDENT.
PM-144	1.617E-02	2.879E-02	2.547E-02	1.469E-02	NOT IDENT.
PR-144	1.096E+00	1.952E+00	1.727E+00	9.960E-01	NOT IDENT.
PM-146	5.362E-03	3.386E-02	2.919E-02	1.728E-02	NOT IDENT.
ND-147	2.050E-01	4.551E-01	3.941E-01	2.322E-01	FAIL ABUN

PM-149	3.877E+01	1.120E+02	9.579E+01	5.714E+01	NOT IDENT.
EU-152	1.797E-04	1.073E-01	6.448E-02	5.472E-02	FAIL ABUN
GD-153	-3.816E-02	7.780E-02	6.179E-02	3.969E-02	NOT IDENT.
EU-154	-3.248E-04	1.070E-01	8.958E-02	5.461E-02	NOT IDENT.
EU-155	6.143E-02	9.608E-02	8.363E-02	4.902E-02	FAIL ABUN
TB-160	-3.164E-02	1.135E-01	9.286E-02	5.788E-02	FAIL ABUN
HO-166M	1.347E-03	4.557E-02	3.906E-02	2.325E-02	NOT IDENT.
TM-171	-1.447E+01	3.013E+01	2.513E+01	1.537E+01	NOT IDENT.
LU-176	2.333E-02	1.966E-02	1.748E-02	1.003E-02	FAIL ABUN
LU-177	9.775E-01	1.199E+00	9.495E-01	6.119E-01	NOT IDENT.
LU-177M	-9.481E-02	1.482E-01	1.233E-01	7.560E-02	NOT IDENT.
HF-181	5.875E-03	3.232E-02	2.777E-02	1.649E-02	NOT IDENT.
W-181	-6.277E-01	4.127E-01	3.299E-01	2.106E-01	NOT IDENT.
TA-182	1.246E-01	1.634E-01	1.443E-01	8.336E-02	FAIL ABUN
RE-183	3.913E-02	9.111E-02	8.162E-02	4.648E-02	FAIL ABUN
RE-184	3.494E-02	1.905E-01	1.636E-01	9.718E-02	NOT IDENT.
OS-185	-9.293E-03	3.496E-02	2.827E-02	1.784E-02	NOT IDENT.
RE-188	-2.482E-02	1.428E-01	1.256E-01	7.287E-02	NOT IDENT.
W-188	-6.158E+00	7.276E+00	5.026E+00	3.712E+00	NOT IDENT.
IR-192	5.854E-03	2.807E-02	2.370E-02	1.432E-02	FAIL ABUN
AU-195	1.805E-01	2.058E-01	1.813E-01	1.050E-01	FAIL ABUN
TL-200	-2.395E+02	6.928E+02	0.000E+00	3.535E+02	SHORT HLIF
TL-201	-5.386E+00	7.154E+00	6.104E+00	3.650E+00	NOT IDENT.
TL-202	8.716E-03	5.863E-02	5.065E-02	2.991E-02	NOT IDENT.
HG-203	1.786E-02	3.494E-02	3.019E-02	1.783E-02	NOT IDENT.
BI-207	-1.134E-02	4.300E-02	3.596E-02	2.194E-02	FAIL ABUN
TL-207	6.953E-01	6.316E-01	4.891E-01	3.222E-01	FAIL ABUN
PO-209	2.159E+00	6.122E+00	5.250E+00	3.123E+00	NOT IDENT.
BI-210	2.474E+00	5.089E+00	4.634E+00	2.597E+00	NOT IDENT.
PB-210	2.474E+00	5.089E+00	4.634E+00	2.597E+00	NOT IDENT.
PO-210	2.474E+00	5.088E+00	4.634E+00	2.596E+00	NOT IDENT.
PB-211	-5.274E-01	8.431E-01	6.490E-01	4.301E-01	NOT IDENT.
BI-212	7.428E-01	4.203E-01	2.710E-01	2.144E-01	FAIL ABUN
PO-215	6.953E-01	6.316E-01	4.891E-01	3.222E-01	FAIL ABUN
RN-219	4.656E-02	3.229E-01	2.810E-01	1.648E-01	FAIL ABUN
RN-220	-4.131E-01	2.089E+01	1.749E+01	1.066E+01	NOT IDENT.
RA-223	6.953E-01	6.316E-01	4.891E-01	3.222E-01	FAIL ABUN
AC-227	-4.520E-02	3.104E-01	2.620E-01	1.583E-01	FAIL ABUN
TH-227	-4.520E-02	3.104E-01	2.620E-01	1.584E-01	FAIL ABUN
TH-229	-7.654E-02	3.960E-01	3.419E-01	2.021E-01	FAIL ABUN
PA-231	2.417E-01	1.322E+00	1.124E+00	6.744E-01	FAIL ABUN
TH-231	6.953E-01	6.316E-01	4.891E-01	3.222E-01	FAIL ABUN
U-231	-8.300E-01	1.337E+00	9.852E-01	6.819E-01	FAIL ABUN
PA-233	-1.676E-02	5.086E-02	4.168E-02	2.595E-02	FAIL ABUN
PA-234	-9.228E-02	2.600E-01	2.097E-01	1.327E-01	FAIL ABUN
PA-234M	4.447E+00	4.277E+00	3.675E+00	2.182E+00	NOT IDENT.
TH-234	9.591E-01	1.444E+00	1.277E+00	7.368E-01	FAIL ABUN
U-235	-3.875E-02	1.886E-01	1.527E-01	9.623E-02	FAIL ABUN
NP-236	-3.610E-02	6.640E-02	5.742E-02	3.388E-02	NOT IDENT.
U-238	9.591E-01	1.444E+00	1.277E+00	7.368E-01	FAIL ABUN
NP-239	7.900E-02	1.650E-01	1.418E-01	8.417E-02	FAIL ABUN
AM-241	3.896E-03	1.649E-01	1.455E-01	8.414E-02	NOT IDENT.
CM-243	2.551E-03	8.582E-02	7.300E-02	4.379E-02	FAIL ABUN
AM-246	-7.303E-03	1.154E-01	9.782E-02	5.886E-02	NOT IDENT.
CM-247	-7.135E-03	2.939E-02	2.504E-02	1.499E-02	NOT IDENT.
CF-249	-3.161E-03	3.296E-02	2.841E-02	1.681E-02	NOT IDENT.
CF-251	-7.259E-02	9.995E-02	8.495E-02	5.099E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT             *
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ENERGY	MDA COUNTS
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46.50	255.1802
46.50	255.1802
46.50	255.1802
48.70	285.2159
49.72	256.7611
51.35	250.2845
52.39	278.5107
52.97	280.0391
53.15	277.5015
53.44	273.2536
54.07	258.3832
56.28	243.9370
56.28	243.9397
57.37	0.0000
57.53	281.1120
57.53	281.1136
57.60	285.8071
57.98	287.1238
57.98	287.1238
59.32	282.9095
59.32	282.9095
59.40	282.9891
59.54	283.1283
59.72	279.5792
60.01	292.9232
61.10	351.1553
61.14	351.2039
61.30	349.5234
63.00	309.1416
63.29	312.2738
63.29	312.2738
63.58	312.5777
64.28	328.4550
65.12	385.3719
65.20	385.4737
65.20	385.4737
66.05	401.7831
66.72	334.9111
66.83	347.4411
66.91	347.5300
67.20	335.4324
67.20	335.4324
67.75	337.9398
67.85	345.7104
68.90	340.1413
68.90	340.1413
69.30	352.1164
69.67	364.0880
70.82	369.7434
70.82	369.7434
70.83	369.7551
72.80	342.3374
72.87	342.4108
72.87	342.4108
74.67	344.2728
74.81	344.4169
74.81	344.4169
74.81	344.4169
74.81	344.4169
74.81	344.4169
74.81	344.4169
74.81	344.4169
74.97	344.5807
75.28	344.8994
75.70	345.3291
77.11	346.7614
77.11	346.7614

77.11	346.7614
77.11	346.7614
77.11	346.7614
77.11	346.7614
77.11	346.7614
78.38	378.1985
79.62	384.0120
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81.07	370.6472
81.07	370.6472
81.07	370.6472
82.60	370.2334
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83.78	421.6385
83.78	421.6385
84.21	384.4455
84.90	354.9599
85.43	326.7307
86.29	415.4276
86.50	415.6617
86.54	415.7056
86.59	415.7621
86.72	425.0137
86.79	425.0906
86.94	425.2637
87.30	416.5522
87.30	416.5522
87.30	416.5522
87.30	416.5522
87.30	416.5522
87.30	416.5522
87.57	416.8512
87.88	316.7020
88.03	316.8290
88.36	317.1051
88.47	317.1971
89.95	318.4318
91.11	331.6761
92.29	332.6847
92.38	332.7621
92.38	332.7621
93.35	336.6732
94.00	337.2287
94.67	313.0005
94.67	313.0051
94.90	313.1854
94.90	313.1854
94.90	313.1854
94.90	313.1854
95.87	355.9081
95.87	355.9081
96.73	333.3089
97.43	340.7468
98.44	285.7010
98.44	285.7010
98.88	283.9199
99.55	270.7902
99.55	270.7902
99.86	273.0857
100.00	273.1786
100.10	273.2463
103.18	321.6611
103.76	285.1378
105.00	267.9594
105.31	276.6328
108.00	299.6773
109.28	316.5927

111.00	281.3121
111.00	281.3121
111.76	254.8996
112.95	289.0002
115.19	303.4231
116.30	281.3415
117.00	261.0950
117.00	261.0950
117.66	271.2698
121.11	273.2544
121.62	280.1371
121.78	280.2305
122.06	239.7093
122.32	239.8379
122.32	239.8379
122.32	239.8379
122.32	239.8379
123.07	266.6569
127.23	290.0427
129.76	258.0063
131.20	241.9409
133.02	249.5490
133.54	280.1807
135.34	296.9666
136.00	273.5990
136.25	268.0739
136.48	270.4553
140.51	321.5530
140.51	0.0000
142.18	287.0960
142.65	282.7671
143.76	302.8464
144.24	296.2234
144.24	296.2234
144.24	296.2234
144.24	296.2234
145.22	291.0025
145.44	291.1209
147.16	309.3407
152.43	283.1267
152.70	282.0945
153.22	286.1450
154.21	298.0344
154.21	298.0344
154.21	298.0344
154.21	298.0344
155.03	304.6046
156.02	305.1261
158.56	283.4955
159.00	0.0000
159.00	295.1957
160.31	310.9089
161.27	299.8786
162.32	279.0765
162.64	263.2185
163.35	274.2138
163.89	274.4605
165.85	277.1391
167.43	286.8213
171.28	245.3213
171.86	254.5771
172.10	249.2553
176.55	273.7549
176.60	273.7756
181.06	256.4438
184.41	281.3240
185.71	268.4099
186.00	268.5276
190.27	246.6555
192.34	258.3369
193.63	253.8483
197.04	263.5447
198.01	258.2762
198.60	282.9338
200.40	270.4683
201.83	288.9575
202.84	305.4444
205.31	309.7279



208.36	309.5155
208.81	273.6629
209.75	274.0155
209.75	274.0155
210.97	274.4731
215.65	230.9802
216.55	238.9672
218.09	240.4247
222.10	257.2303
223.80	243.2079
226.40	221.5775
227.00	221.7490
227.08	221.7715
227.20	214.9663
228.16	226.9714
228.18	226.9767
228.18	226.9767
231.56	0.0000
235.69	265.4900
236.00	287.7253
236.00	287.7253
238.63	240.8865
238.63	240.8865
238.63	240.8865
238.63	240.8865
239.00	240.9959
240.98	241.5836
241.98	241.8802
241.98	241.8802
241.98	241.8802
244.69	190.1487
245.39	203.1039
247.94	199.1835
248.90	199.7470
249.79	200.9644
252.40	211.6679
252.85	206.7376
252.85	206.7376
254.15	0.0000
256.20	212.6156
256.20	212.6156
260.50	195.3633
260.90	203.5980
262.80	187.7201
264.65	190.8423
268.24	193.8098
268.79	213.6526
269.46	184.2066
269.46	184.2066
269.46	184.2066
269.46	184.2066
271.23	194.6669
273.65	219.7715
276.40	180.6616
277.35	200.2867
277.60	200.3397
277.60	200.3397
278.00	195.0913
278.60	210.7965
279.20	210.9328
279.53	206.8493
280.46	255.9660
281.68	249.0106
283.67	211.9581
284.30	196.4281
285.00	200.7598
285.90	210.3728
286.10	210.4157
286.10	210.4157
287.40	211.7585
288.45	0.0000
290.67	232.2686
290.80	232.3022
291.72	193.7733
293.26	0.0000
293.70	211.0596
295.21	175.4581
295.21	175.4581

295.21	175.4581
295.96	175.5948
296.50	175.6936
297.23	175.8253
298.57	176.0710
299.80	176.2939
299.80	176.2939
300.09	176.3471
300.09	176.3471
300.09	176.3471
300.09	176.3471
300.12	176.3522
301.29	185.4969
302.84	204.5420
303.76	182.5557
303.91	182.5818
304.40	165.6010
304.40	165.6010
304.84	163.9688
306.84	146.5429
308.46	190.7112
311.98	169.8809
316.51	163.0849
318.01	174.1432
319.02	200.3000
319.41	207.9580
320.08	186.4164
323.87	161.8690
323.87	161.8690
323.87	161.8690
323.87	161.8690
325.23	188.2222
328.77	190.6116
333.44	136.1302
334.20	172.8468
334.20	172.8468
334.30	172.8636
338.28	158.8052
338.28	158.8052
338.28	158.8052
338.28	158.8052
338.32	158.8118
338.32	158.8118
338.32	158.8118
340.50	152.0621
340.57	152.0726
344.27	153.7762
345.85	158.1445
350.59	0.0000
351.07	138.3666
351.92	138.4745
351.92	138.4745
351.92	138.4745
355.39	0.0000
356.01	154.2268
364.48	146.3557
366.43	151.1317
367.43	141.3007
367.94	0.0000
369.80	168.8213
374.96	144.9594
383.85	153.4068
387.95	169.6048
388.63	179.8466
391.69	159.0370
391.69	159.0370
392.90	159.1966
398.62	166.4556
400.65	141.5797
401.10	147.2243
401.81	146.3759
402.60	157.6639
404.84	183.1853
410.95	167.1770
411.60	166.3243
413.65	177.8889
414.70	150.7188
415.30	151.7335

415.76	147.0746
417.63	0.0000
418.52	140.7788
423.70	128.0687
427.08	126.5010
427.89	124.6771
432.53	127.0303
433.93	138.6403
439.47	133.4617
439.56	133.4702
439.89	131.5832
443.98	135.8399
444.90	124.3641
445.03	135.9466
445.03	135.9466
445.03	135.9466
445.03	135.9466
453.90	124.2234
463.38	114.0063
468.07	129.0983
473.00	115.1205
475.06	116.2729
475.35	115.3118
476.78	120.3603
477.59	112.5319
477.96	114.5358
482.03	106.9414
484.57	128.9526
487.03	96.3831
490.36	0.0000
492.35	128.6488
497.08	119.0596
507.63	0.0000
510.53	0.0000
510.84	107.0378
511.00	107.0487
511.85	107.1096
511.85	107.1096
513.99	123.1132
513.99	123.1132
520.41	117.8748
520.65	117.8946
527.90	116.4075
528.96	0.0000
529.64	122.6719
529.87	0.0000
531.02	96.1779
537.32	109.9232
543.00	114.4417
546.56	0.0000
549.76	112.8586
552.65	112.0236
555.20	107.0058
563.23	114.8447
563.90	123.2460
568.70	101.6108
569.32	101.6487
569.50	98.5141
569.67	98.5256
573.80	135.5476
574.00	137.6651
574.64	141.9247
578.91	112.4245
579.30	0.0000
583.14	132.0801
585.48	89.9390
591.81	121.0749
592.07	121.0944
593.00	117.9700
595.88	124.5582
600.56	143.3474
602.52	0.0000
602.71	137.1656
602.71	137.1656
603.60	147.9282
604.41	147.9991
604.70	144.4559
609.31	126.5994

609.31	126.5994
609.31	126.5994
609.31	126.5994
610.33	112.7186
612.46	136.1419
614.37	86.0781
618.01	110.2158
621.84	128.5816
621.84	128.5816
631.29	129.2643
633.02	111.9899
633.10	116.3442
634.78	99.0403
635.90	107.8123
636.97	102.4292
645.85	111.6870
646.12	105.1336
656.30	120.2113
657.75	96.4273
657.90	0.0000
661.65	109.5143
661.65	109.5143
664.57	0.0000
666.33	107.9403
666.33	107.9403
675.00	106.5818
677.61	118.7917
685.20	102.4917
692.80	108.5046
695.00	107.6908
696.49	113.3956
696.49	113.3956
697.00	112.4878
697.49	119.0806
698.33	120.0677
698.50	120.0781
699.00	126.6779
702.63	117.5105
706.10	93.2314
706.58	0.0000
706.67	99.8538
709.31	103.7583
711.68	92.5489
713.82	94.5394
717.42	108.9168
720.50	78.0519
721.93	0.0000
722.20	82.9995
722.78	97.6758
722.78	97.6758
722.89	97.6800
722.95	97.6821
723.30	92.8158
724.18	99.3718
727.18	98.0231
733.00	107.9843
735.90	77.9892
739.58	90.9586
742.81	95.8964
744.21	102.6766
747.13	105.7054
751.79	93.4201
752.31	92.4805
753.82	105.0793
755.35	94.5447
756.15	95.5457
756.87	94.6125
763.93	134.6449
765.79	116.3428
766.42	106.6789
766.84	116.3989
776.49	114.0031
778.00	112.1315
778.57	112.1620
778.89	104.3746
783.80	75.2815
785.46	76.8516
792.07	89.1676

795.84	97.7476
796.30	87.6539
798.80	97.8790
801.93	103.8397
805.60	83.9330
810.29	94.9941
810.76	95.0156
815.85	71.4229
817.79	77.4430
818.51	81.4395
819.60	90.4224
826.30	83.7146
828.27	0.0000
831.60	106.8846
831.96	94.9130
834.83	100.0325
836.80	0.0000
846.75	106.5844
848.13	104.6369
856.28	0.0000
856.80	100.4097
860.37	77.8788
867.32	76.0788
867.82	85.2271
871.10	71.1208
873.19	77.2849
874.81	76.3199
875.33	0.0000
876.40	88.5895
879.36	83.6016
880.27	74.4540
880.51	64.2612
881.50	72.4517
883.24	70.4614
884.67	87.8739
889.25	73.7095
896.60	79.0663
898.02	80.1407
899.00	78.1168
903.28	97.0806
911.07	75.4030
911.07	75.4030
911.07	75.4030
919.63	92.3947
920.93	64.9871
925.00	78.9425
925.24	78.9502
926.50	82.1084
935.52	77.1872
937.48	96.0374
944.10	92.1017
946.00	93.2171
949.00	78.6469
962.29	54.2076
964.01	63.2849
966.15	76.0049
968.20	76.0635
969.11	76.0913
969.11	76.0913
969.11	76.0913
977.42	69.9719
980.50	76.4224
983.50	92.4481
989.30	72.4174
996.32	92.8959
1001.03	77.0156
1001.68	79.1730
1004.76	99.6166
1021.30	0.0000
1024.50	0.0000
1034.80	77.9766
1036.00	75.2256
1037.82	81.7787
1038.57	78.0820
1038.76	0.0000
1045.16	77.3377
1046.59	67.1233
1048.07	72.7550

1050.47	72.8176
1050.47	72.8176
1062.04	81.5534
1063.62	85.3506
1076.63	75.3795
1077.35	82.9358
1078.86	80.1529
1085.78	77.5099
1099.22	91.1652
1112.02	90.1329
1112.84	85.1505
1115.52	93.5840
1120.29	78.4308
1120.29	78.4308
1120.29	78.4308
1120.29	78.4308
1120.51	78.4365
1121.28	92.0908
1124.00	0.0000
1129.67	91.5894
1131.51	0.0000
1147.95	0.0000
1167.94	96.1997
1173.22	82.7380
1175.09	78.8925
1177.93	104.3131
1189.05	98.8160
1204.90	83.5829
1205.75	0.0000
1213.00	105.4886
1221.42	87.9725
1230.97	127.8932
1235.34	133.0326
1236.41	0.0000
1238.25	99.3652
1246.25	106.5858
1260.41	0.0000
1271.85	76.2995
1274.45	81.3814
1274.54	81.3842
1291.56	69.6810
1298.22	0.0000
1312.09	53.8503
1325.50	48.9609
1325.50	48.9609
1332.49	49.0614
1333.61	39.8746
1360.21	47.3926
1362.66	0.0000
1365.15	53.6504
1368.21	57.8262
1368.53	0.0000
1376.25	43.4692
1384.27	30.8602
1394.10	39.5268
1395.20	42.6602
1407.95	51.1636
1434.06	41.0145
1436.60	35.7811
1457.56	0.0000
1460.81	22.2444
1489.15	24.5466
1509.49	30.0420
1596.49	36.2947
1620.62	26.0664
1678.03	0.0000
1691.02	17.6726
1691.02	17.6726
1706.46	0.0000
1750.46	0.0000
1764.49	35.5035
1764.49	35.5035
1764.49	35.5035
1764.49	35.5035
1770.23	21.3294
1771.40	19.5573
1791.20	0.0000
1808.65	16.1348

1836.01

15.2174

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244229015

Total Uranium Activity	2.8355E+00	ug/g
Total Uranium Counting Unc.	4.2973E+00	ug/g
Total Uranium Tpu	2.1925E-06	ug/g
Total Uranium Mda	3.7993E+00	ug/g



```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941239                          SAMPLE ID   : G244229015
*  ANALYST       : MXR1                             DETECTOR    : GAM18
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE: 22-JAN-2010 16:51:09.35          SAMPLE ALQT: 118.230 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.977E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.133E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 2.107E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.019E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 18:53:29.91

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014507.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 16:51:45
Sample ID         : G1202014507      Sample quantity  : 1.45700E+02 GRAM
Detector name     : GAM22            Detector geometry: CAN
Elapsed live time : 0 02:00:00.00    Elapsed real time: 0 02:00:00.98  0.0%
Energy tolerance  : 1.50000 keV      Analyst Initials : MXR1
Abundance limit   : 75.00000         Sensitivity      : 5.00000
Batch ID          : 941239           Detector SN#     :
Matrix Spike ID   :                  LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	511.25*	27	126	2.46	1022.00	1014	21	3.76E-03	130.7	
2	0	583.81*	16	46	2.36	1167.03	1162	9	2.23E-03	102.9	
3	0	911.82*	21	48	1.94	1822.76	1815	19	2.90E-03	90.4	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014507.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 16:51:45
Sample ID        : G1202014507 Sample quantity : 145.70 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA22 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:00.98 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type  : Empirical Efficiencies at : Peak Energy
Abundance limit  : 75.00 WTM error limit : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-208		277.35		-5.493E-02	2.015E-01	3.162E-01	5.213E-02	-0.174
	+	510.84		7.511E-02	1.965E-01	1.209E-01	1.575E-02	0.621
	+	583.14	*	1.254E-02	2.582E-02	2.723E-02	2.953E-03	0.460
		860.37		-1.617E-02	1.441E-01	2.372E-01	2.764E-02	-0.068
ANH-511	+	511.00	*	1.622E-02	4.243E-02	2.611E-02	2.616E-03	0.621

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	5.501E-02	1.551E-01	2.578E-01	2.690E-02	0.213
NA-22		1274.54	*	8.433E-03	1.688E-02	2.983E-02	2.571E-03	0.283
NA-24		1368.53	*	-4.476E-05	1.688E-02	Half-Life too short		
AL-26		1129.67		1.645E-01	7.363E-01	1.226E+00	1.068E-01	0.134
		1808.65	*	-3.043E-03	1.662E-02	2.641E-02	2.160E-03	-0.115
K-40		1460.81	*	-2.879E-01	2.633E-01	4.175E-01	3.824E-02	-0.690
TI-44		67.85		6.801E-04	1.833E-02	2.922E-02	2.231E-03	0.023
		78.38	*	-2.447E-03	1.392E-02	2.123E-02	1.800E-03	-0.115
SC-46		889.25	*	-6.087E-03	1.837E-02	2.941E-02	3.292E-03	-0.207
		1120.51		8.091E-03	2.419E-02	4.064E-02	3.593E-03	0.199
V-48		944.10		3.948E-02	3.010E-01	5.037E-01	5.463E-02	0.078
		983.50	*	6.730E-03	2.227E-02	3.791E-02	3.976E-03	0.178
		1312.09		1.057E-02	2.556E-02	4.450E-02	3.921E-03	0.238
CR-51		320.08	*	1.387E-02	1.655E-01	2.783E-01	3.604E-02	0.050
MN-52		744.21		-4.576E-02	5.877E-02	7.329E-02	7.964E-03	-0.624
		848.13		5.265E-01	1.469E+00	2.521E+00	2.807E-01	0.209
		935.52		-2.366E-02	4.466E-02	6.895E-02	7.528E-03	-0.343
		1246.25		-3.744E-01	1.090E+00	1.724E+00	1.457E-01	-0.217
		1333.61		1.328E-01	9.333E-01	1.567E+00	1.398E-01	0.085
		1434.06	*	-5.543E-03	5.022E-02	8.084E-02	7.225E-03	-0.069
MN-54		834.83	*	1.842E-04	1.692E-02	2.826E-02	3.139E-03	0.007
CO-56		846.75	*	9.914E-03	2.023E-02	3.507E-02	3.904E-03	0.283
		977.42		-2.971E-01	1.237E+00	1.973E+00	2.081E-01	-0.151
		1037.82		1.181E-01	1.331E-01	2.389E-01	2.463E-02	0.494

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1175.09			3.281E-01	8.873E-01	1.541E+00	1.241E-01	0.213
	1238.25			-6.571E-03	3.584E-02	5.656E-02	4.901E-03	-0.116
	1360.21			-6.892E-02	4.236E-01	6.791E-01	6.066E-02	-0.101
	1771.40			-1.849E-01	1.548E-01	2.093E-01	1.739E-02	-0.883
CO-57	122.06	*		-9.728E-03	1.414E-02	2.008E-02	1.656E-03	-0.484
	136.48			-4.858E-02	1.033E-01	1.703E-01	1.580E-02	-0.285
CO-58	810.76	*		-2.304E-02	1.829E-02	2.645E-02	2.929E-03	-0.871
FE-59	142.65			-4.686E-01	1.357E+00	2.085E+00	1.845E-01	-0.225
	192.34			-2.618E-01	4.552E-01	7.241E-01	1.075E-01	-0.362
	1099.22	*		-4.298E-02	3.474E-02	4.596E-02	4.504E-03	-0.935
	1291.56			1.871E-02	4.990E-02	8.624E-02	8.499E-03	0.217
CO-60	1173.22			-5.909E-05	1.830E-02	3.052E-02	2.455E-03	-0.002
	1332.49	*		-7.760E-03	1.846E-02	2.860E-02	2.550E-03	-0.271
ZN-65	1115.52	*		-2.817E-02	4.118E-02	6.128E-02	5.467E-03	-0.460
GE-68	1077.35	*		-3.200E-01	5.299E-01	7.908E-01	7.455E-02	-0.405
AS-73	53.44	*		-2.930E-01	3.190E-01	4.800E-01	3.627E-02	-0.610
AS-74	595.88	*		-2.181E-02	3.746E-02	5.911E-02	6.126E-03	-0.369
	634.78			1.011E-01	1.293E-01	2.276E-01	2.385E-02	0.444
SE-75	66.05			-4.242E+00	2.007E+00	2.724E+00	2.598E-01	-1.557
	96.73			1.592E-02	3.480E-01	5.626E-01	7.743E-02	0.028
	121.11			5.046E-03	7.353E-02	1.102E-01	1.205E-02	0.046
	136.00			9.429E-03	1.880E-02	3.257E-02	2.826E-03	0.289
	198.60			-8.155E-02	1.045E+00	1.605E+00	1.876E-01	-0.051
	264.65	*		-2.130E-02	2.427E-02	3.646E-02	4.908E-03	-0.584
	279.53			2.752E-02	5.593E-02	9.225E-02	1.309E-02	0.298
	303.91			-9.048E-03	1.076E+00	1.807E+00	2.754E-01	-0.005
	400.65			-5.846E-02	1.231E-01	1.942E-01	2.273E-02	-0.301
BR-77	87.88			-8.845E+00	8.853E+00	1.271E+01	1.205E+00	-0.696
	200.40			-1.043E+01	1.045E+01	1.614E+01	1.775E+00	-0.646
	239.00			-5.202E-02	6.836E-01	1.091E+00	1.357E-01	-0.048
	249.79			2.180E+00	4.184E+00	6.967E+00	8.957E-01	0.313
	281.68			-4.414E+00	5.778E+00	8.689E+00	1.210E+00	-0.508
	297.23			1.719E+00	2.965E+00	5.150E+00	6.925E-01	0.334
	303.76			1.516E-02	1.102E+01	1.852E+01	2.449E+00	0.001
	439.47			2.253E+00	9.189E+00	1.523E+01	1.466E+00	0.148
	484.57			4.449E+00	1.412E+01	2.338E+01	2.311E+00	0.190
	520.65	*		3.600E-01	7.134E-01	1.090E+00	1.097E-01	0.330
	574.64			-8.973E+00	1.227E+01	1.910E+01	1.966E+00	-0.470
	578.91			-2.280E-01	5.462E+00	7.774E+00	8.012E-01	-0.029
	585.48			1.640E+01	1.200E+01	1.940E+01	2.004E+00	0.845
	755.35			6.530E+00	9.475E+00	1.636E+01	1.784E+00	0.399
	817.79			1.611E+00	7.270E+00	1.242E+01	1.375E+00	0.130
SR-82	698.33			-5.103E+00	1.543E+01	2.450E+01	2.621E+00	-0.208
	776.49	*		-1.711E-02	1.627E-01	2.603E-01	2.854E-02	-0.066
	1395.20			4.011E-01	4.397E+00	7.306E+00	6.533E-01	0.055
RB-83	520.41	*		2.083E-02	3.872E-02	5.935E-02	5.973E-03	0.351
	529.64			1.533E-02	5.153E-02	8.826E-02	8.919E-03	0.174
	552.65			1.307E-02	9.251E-02	1.562E-01	1.594E-02	0.084
RB-84	881.50	*		8.299E-04	2.921E-02	4.863E-02	5.439E-03	0.017

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
KR-85	513.99	*		1.789E+01	5.234E+00	9.506E+00	9.538E-01	1.882
SR-85	513.99	*		8.483E-02	2.482E-02	4.508E-02	4.524E-03	1.882
RB-86	1076.63	*		-1.199E-01	2.640E-01	4.038E-01	3.810E-02	-0.297
Y-88	898.02	*		-3.429E-03	1.801E-02	2.921E-02	3.281E-03	-0.117
	1836.01	*		3.092E-03	1.939E-02	3.268E-02	2.642E-03	0.095
ZR-88	392.90	*		6.120E-03	1.484E-02	2.513E-02	2.340E-03	0.244
Y-91	1204.90	*		-2.220E+00	7.273E+00	1.168E+01	9.605E-01	-0.190
NB-94	702.63	*		1.832E-02	1.821E-02	3.200E-02	3.430E-03	0.572
	871.10	*		-1.502E-03	1.776E-02	2.927E-02	3.270E-03	-0.051
NB-95	765.79	*		1.832E-02	1.887E-02	3.319E-02	3.629E-03	0.552
NB-95M	235.69	*		-8.122E-02	6.249E-02	9.212E-02	1.218E-02	-0.882
ZR-95	724.18	*		1.851E-02	3.967E-02	6.743E-02	7.688E-03	0.274
	756.15	*		1.880E-02	3.185E-02	5.459E-02	6.336E-03	0.344
NB-97	657.90	*		-1.425E-05	3.185E-02	Half-Life	too short	
	1024.50	*		-2.433E-03	3.185E-02	Half-Life	too short	
ZR-97	254.15	*		7.125E-05	3.185E-02	Half-Life	too short	
	355.39	*		-1.157E-03	3.185E-02	Half-Life	too short	
	507.63	*		1.725E-03	3.185E-02	Half-Life	too short	
	602.52	*		2.941E-04	3.185E-02	Half-Life	too short	
	1021.30	*		5.046E-04	3.185E-02	Half-Life	too short	
	1147.95	*		1.938E-04	3.185E-02	Half-Life	too short	
	1362.66	*		8.712E-04	3.185E-02	Half-Life	too short	
	1750.46	*		1.569E-03	3.185E-02	Half-Life	too short	
MO-99	140.51	*		-3.044E-01	2.217E+00	3.519E+00	9.761E-01	-0.087
	181.06	*		-6.612E-01	1.374E+00	2.207E+00	4.225E-01	-0.300
	366.43	*		-2.939E+00	7.341E+00	1.180E+01	1.252E+00	-0.249
	739.58	*		7.788E-01	9.119E-01	1.588E+00	2.628E-01	0.491
	778.00	*		2.477E-01	2.826E+00	4.606E+00	5.053E-01	0.054
TC-99M	140.51	*		-3.624E+00	2.826E+00	Half-Life	too short	
RH-101	127.23	*		5.049E-03	1.641E-02	2.643E-02	2.209E-03	0.191
	198.01	*		1.674E-03	2.006E-02	3.112E-02	3.394E-03	0.054
	325.23	*		-8.029E-02	1.147E-01	1.822E-01	2.265E-02	-0.441
RH-102	418.52	*		3.920E-02	1.447E-01	2.417E-01	2.294E-02	0.162
	475.06	*		1.946E-03	1.575E-02	2.459E-02	2.418E-03	0.079
	631.29	*		-1.530E-02	2.701E-02	4.210E-02	4.408E-03	-0.363
	697.49	*		1.260E-02	4.102E-02	6.871E-02	7.350E-03	0.183
	766.84	*		2.128E-02	5.273E-02	8.851E-02	9.682E-03	0.240
	1046.59	*		-3.237E-02	5.608E-02	8.524E-02	8.360E-03	-0.380
	1112.84	*		-1.205E-01	1.002E-01	1.357E-01	1.214E-02	-0.888
RU-103	497.08	*		-1.040E-02	1.929E-02	2.948E-02	4.425E-03	-0.353
	610.33	*		-2.784E-01	4.032E-01	6.497E-01	1.148E-01	-0.429
RH-106	511.85	*		7.991E-02	2.090E-01	2.653E-01	2.659E-02	0.301
	621.84	*		8.132E-02	1.661E-01	2.847E-01	4.157E-02	0.286
	1050.47	*		9.292E-01	1.038E+00	1.862E+00	1.817E-01	0.499
RU-106	511.85	*		7.991E-02	2.090E-01	2.653E-01	2.659E-02	0.301
	621.84	*		8.132E-02	1.659E-01	2.847E-01	2.974E-02	0.286
	1050.47	*		9.292E-01	1.038E+00	1.862E+00	1.817E-01	0.499
AG-108M	433.93	*		-1.820E-03	1.673E-02	2.703E-02	2.676E-03	-0.067
	614.37	*		-4.501E-02	2.205E-02	2.943E-02	3.150E-03	-1.530

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CD-109 AG-110M	722.95			-8.166E-03	2.128E-02	3.297E-02	3.648E-03	-0.248
	88.03	*		-3.293E-01	3.528E-01	5.096E-01	4.835E-02	-0.646
	657.75	*		-8.325E-03	1.667E-02	2.604E-02	2.799E-03	-0.320
	677.61			3.463E-02	1.515E-01	2.533E-01	2.739E-02	0.137
	706.67			2.069E-02	1.111E-01	1.842E-01	2.012E-02	0.112
	763.93			3.351E-02	7.933E-02	1.336E-01	1.485E-02	0.251
	884.67			8.914E-03	2.412E-02	4.147E-02	4.729E-03	0.215
IN-111	937.48			-8.959E-03	4.833E-02	7.802E-02	8.699E-03	-0.115
	1384.27			-5.032E-02	8.010E-02	1.193E-01	1.095E-02	-0.422
	171.28			-5.914E-03	8.608E-02	1.427E-01	1.424E-02	-0.041
	245.39	*		-7.341E-02	9.851E-02	1.513E-01	1.920E-02	-0.485
	391.69	*		3.696E-03	2.272E-02	3.781E-02	3.611E-03	0.098
IN-113M	391.69	*		3.696E-03	2.272E-02	3.781E-02	3.611E-03	0.098
IN-114M	190.27	*		-4.910E-02	8.747E-02	1.397E-01	1.485E-02	-0.352
CD-115	260.90			2.771E+00	7.095E+00	1.170E+01	1.554E+00	0.237
	492.35			7.203E-01	1.887E+00	3.139E+00	3.116E-01	0.229
	527.90	*		4.219E-01	5.543E-01	9.800E-01	9.896E-02	0.430
SN-117M	156.02			6.205E-02	7.747E-01	1.303E+00	1.222E-01	0.048
	158.56	*		1.296E-03	1.902E-02	3.194E-02	3.029E-03	0.041
SB-122	563.90	*		-6.805E-02	1.635E-01	2.633E-01	2.699E-02	-0.258
	692.80			8.015E-01	3.392E+00	5.657E+00	6.041E-01	0.142
I-123	159.00	*		2.547E-05	3.392E+00	Half-Life too short		
	528.96			2.354E-03	3.392E+00	Half-Life too short		
TE-123M	159.00	*		1.448E-03	1.370E-02	2.305E-02	2.201E-03	0.063
I-124	602.71	*		-2.348E-02	1.159E-01	1.892E-01	1.965E-02	-0.124
	722.78			-2.884E-01	6.470E-01	9.953E-01	1.074E-01	-0.290
SB-124	1325.50			-1.000E-01	4.535E+00	7.454E+00	6.620E-01	-0.013
	1376.25			1.229E-01	4.599E+00	7.360E+00	6.578E-01	0.017
	1509.49			1.160E+00	2.247E+00	3.940E+00	3.502E-01	0.294
	1691.02			1.734E-01	6.634E-01	1.142E+00	9.763E-02	0.152
	602.71			-4.285E-03	2.115E-02	3.453E-02	3.587E-03	-0.124
	645.85			-7.680E-02	2.259E-01	3.536E-01	3.868E-02	-0.217
	709.31			-8.637E-01	1.383E+00	2.124E+00	2.281E-01	-0.407
	713.82			2.420E-01	7.470E-01	1.254E+00	1.712E-01	0.193
	722.78			-7.628E-02	1.711E-01	2.633E-01	2.881E-02	-0.290
	968.20			-2.179E-01	1.294E+00	2.105E+00	2.238E-01	-0.104
	1045.16			-7.503E-01	1.088E+00	1.625E+00	1.596E-01	-0.462
	1325.50			-2.825E-02	1.281E+00	2.106E+00	1.870E-01	-0.013
	1368.21			-1.000E-01	7.802E-01	1.258E+00	1.721E-01	-0.080
	1436.60			7.699E-01	1.762E+00	3.060E+00	2.734E-01	0.252
	1691.02	*		1.082E-02	4.139E-02	7.123E-02	6.336E-03	0.152
SB-125	427.89	*		1.931E-02	4.753E-02	7.998E-02	7.761E-03	0.241
	463.38			-3.091E-02	1.403E-01	2.230E-01	2.313E-02	-0.139
	600.56			1.406E-01	1.022E-01	1.834E-01	2.002E-02	0.766
	635.90			9.202E-03	1.321E-01	2.192E-01	2.425E-02	0.042
TE-125M	109.28	*		2.332E+00	4.412E+00	6.815E+00	6.891E-01	0.342
I-126	388.63			4.973E-05	7.191E-02	1.184E-01	1.121E-02	0.000
	666.33	*		-3.505E-02	6.034E-02	9.344E-02	9.872E-03	-0.375
	753.82			2.932E-01	4.952E-01	8.478E-01	9.239E-02	0.346

---- Non-Identified Nuclides ----

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SB-126	223.80			-5.104E-01	1.370E+00	2.178E+00	2.584E-01	-0.234
	278.60			1.800E-01	8.738E-01	1.417E+00	1.981E-01	0.127
	296.50			1.435E-01	4.410E-01	7.562E-01	1.019E-01	0.190
	414.70			-2.150E-03	2.398E-02	3.896E-02	3.687E-03	-0.055
	415.30			3.329E-01	1.974E+00	3.275E+00	3.101E-01	0.102
	555.20			-6.627E-01	1.308E+00	2.085E+00	2.129E-01	-0.318
	573.80			-1.721E-01	3.573E-01	5.702E-01	5.866E-02	-0.302
	593.00			-2.504E-01	3.137E-01	4.823E-01	4.994E-02	-0.519
	656.30			2.015E-01	1.075E+00	1.796E+00	1.892E-01	0.112
	666.33			-1.440E-02	2.479E-02	3.839E-02	4.056E-03	-0.375
	675.00			-1.750E-01	6.892E-01	1.103E+00	1.170E-01	-0.159
	695.00			1.001E-03	2.745E-02	4.500E-02	4.809E-03	0.022
	697.00			-1.254E-03	9.487E-02	1.548E-01	1.655E-02	-0.008
	720.50	*		-1.875E-02	4.692E-02	7.330E-02	7.905E-03	-0.256
	856.80			-8.095E-02	1.533E-01	2.415E-01	2.693E-02	-0.335
	989.30			-1.585E-01	3.801E-01	5.917E-01	6.172E-02	-0.268
	1034.80			-2.225E+00	2.865E+00	4.236E+00	4.212E-01	-0.525
	1213.00			4.218E-01	1.339E+00	2.301E+00	1.902E-01	0.183
SN-126	64.28			-3.263E-01	2.194E-01	3.344E-01	4.857E-02	-0.976
	86.94			-2.334E-01	1.795E-01	2.113E-01	8.775E-02	-1.104
	87.57	*		-4.944E-02	3.586E-02	5.007E-02	4.728E-03	-0.987
SB-127	61.10			-9.750E+00	5.884E+00	8.630E+00	6.940E-01	-1.130
	252.40			-3.597E-01	6.502E-01	9.812E-01	4.190E-01	-0.367
	290.80			-2.832E-01	2.812E+00	4.711E+00	6.655E-01	-0.060
	411.60			6.796E-01	1.501E+00	2.544E+00	3.816E-01	0.267
	444.90			1.042E-01	1.432E+00	2.341E+00	2.759E-01	0.045
	473.00			-1.483E-01	2.271E-01	3.447E-01	4.230E-02	-0.430
	543.00			7.760E-01	2.078E+00	3.578E+00	5.048E-01	0.217
	603.60			-2.042E+00	1.861E+00	2.816E+00	3.483E-01	-0.725
	685.20	*		-5.998E-02	1.811E-01	2.867E-01	3.288E-02	-0.209
	698.50			-7.043E-01	2.226E+00	3.535E+00	5.626E-01	-0.199
	722.20			-4.645E+00	4.074E+00	5.766E+00	6.563E-01	-0.806
	783.80			4.744E-01	4.835E-01	8.481E-01	1.084E-01	0.559
XE-127	57.60			-1.087E+00	1.974E+00	3.163E+00	2.272E-01	-0.344
	145.22			-6.941E-02	3.311E-01	5.098E-01	4.559E-02	-0.136
	172.10			2.242E-02	5.425E-02	9.214E-02	9.222E-03	0.243
	202.84	*		7.765E-03	2.064E-02	3.461E-02	3.836E-03	0.224
I-131	374.96			1.056E-02	9.462E-02	1.574E-01	1.603E-02	0.067
	80.18			-9.816E-01	9.273E-01	1.403E+00	1.216E-01	-0.699
	284.30			-1.093E-01	4.472E-01	7.018E-01	9.904E-02	-0.156
	364.48	*		2.309E-02	3.397E-02	5.857E-02	6.472E-03	0.394
	636.97			1.294E-01	4.031E-01	6.831E-01	7.414E-02	0.190
TE-132	722.89			-7.658E-01	1.888E+00	2.918E+00	3.153E-01	-0.262
	49.72			3.175E-01	1.519E+00	2.587E+00	2.248E-01	0.123
	111.76			1.832E-01	3.086E+00	4.942E+00	4.442E-01	0.037
	116.30			-6.926E-01	3.064E+00	4.808E+00	4.295E-01	-0.144
BA-133	228.16	*		-7.735E-03	7.369E-02	1.191E-01	2.011E-02	-0.065
	53.15			-1.838E+00	1.475E+00	2.158E+00	1.638E-01	-0.852
	79.62			-4.654E-01	4.958E-01	7.523E-01	1.144E-01	-0.619

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-133	+	81.00		-2.208E-02	3.762E-02	5.881E-02	9.374E-03	-0.375
		276.40		5.699E-02	1.965E-01	3.204E-01	5.797E-02	0.178
		302.84		-1.712E-03	7.530E-02	1.264E-01	2.107E-02	-0.014
		356.01	*	-3.036E-02	2.319E-02	3.411E-02	5.097E-03	-0.890
		383.85		-2.327E-02	1.631E-01	2.660E-01	3.559E-02	-0.088
		510.53		4.388E-04	1.631E-01	Half-Life	too short	
		529.87	*	6.066E-07	1.631E-01	Half-Life	too short	
		706.58		1.155E-04	1.631E-01	Half-Life	too short	
		856.28		-5.575E-04	1.631E-01	Half-Life	too short	
		875.33		5.218E-05	1.631E-01	Half-Life	too short	
CS-134		1236.41		4.042E-04	1.631E-01	Half-Life	too short	
		1298.22		1.684E-04	1.631E-01	Half-Life	too short	
		475.35		3.234E-01	1.029E+00	1.633E+00	1.607E-01	0.198
		563.23		-3.175E-02	1.806E-01	2.966E-01	3.060E-02	-0.107
		569.32		7.843E-02	1.054E-01	1.846E-01	1.914E-02	0.425
		604.70		-2.338E-02	2.034E-02	3.074E-02	3.200E-03	-0.761
		795.84	*	4.891E-03	2.179E-02	3.596E-02	3.980E-03	0.136
		801.93		-9.039E-02	2.269E-01	3.488E-01	3.862E-02	-0.259
		1038.57		2.022E+00	1.714E+00	3.168E+00	3.137E-01	0.638
		1167.94		5.213E-02	9.323E-01	1.567E+00	1.274E-01	0.033
CS-135		1365.15		9.355E-02	5.538E-01	9.336E-01	8.695E-02	0.100
		268.24	*	9.688E-02	8.631E-02	1.466E-01	2.121E-02	0.661
		288.45		-3.728E+01	8.631E-02	Half-Life	too short	
		417.63		-4.938E+01	8.631E-02	Half-Life	too short	
		546.56		-2.383E+01	8.631E-02	Half-Life	too short	
		836.80		5.296E+01	8.631E-02	Half-Life	too short	
		1038.76		6.428E+01	8.631E-02	Half-Life	too short	
		1124.00		6.278E+01	8.631E-02	Half-Life	too short	
		1131.51		6.955E+00	8.631E-02	Half-Life	too short	
		1260.41	*	1.736E+01	8.631E-02	Half-Life	too short	
I-135		1457.56		5.419E+01	8.631E-02	Half-Life	too short	
		1678.03		-5.959E+00	8.631E-02	Half-Life	too short	
		1706.46		-1.027E+01	8.631E-02	Half-Life	too short	
		1791.20		-3.367E+01	8.631E-02	Half-Life	too short	
		66.91		-1.160E-01	2.070E-01	3.159E-01	4.698E-02	-0.367
		86.29		-2.266E-01	3.171E-01	4.658E-01	6.199E-02	-0.486
		153.22		9.996E-02	2.151E-01	3.693E-01	3.769E-02	0.271
		163.89		-1.439E-01	3.941E-01	6.048E-01	6.437E-02	-0.238
		176.55		-2.629E-03	1.355E-01	2.247E-01	2.377E-02	-0.012
		273.65		-5.973E-02	1.676E-01	2.619E-01	3.705E-02	-0.228
CS-136		340.57		2.249E-03	4.309E-02	7.197E-02	8.619E-03	0.031
		818.51		-1.233E-02	2.422E-02	3.834E-02	4.246E-03	-0.322
		1048.07	*	2.045E-02	3.313E-02	5.790E-02	5.852E-03	0.353
		1235.34		1.307E-01	1.517E-01	2.746E-01	3.207E-02	0.476
		661.65	*	9.696E-04	1.690E-02	2.790E-02	2.942E-03	0.035
		661.65	*	1.025E-03	1.786E-02	2.949E-02	3.114E-03	0.035
		165.85	*	7.115E-03	1.451E-02	2.481E-02	2.434E-03	0.287
		162.64		-1.251E-01	2.748E-01	4.198E-01	4.245E-02	-0.298
		304.84		3.504E-01	4.665E-01	7.982E-01	2.375E-01	0.439
BA-137M								
CS-137								
CE-139								
BA-140								



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LA-140	423.70			-1.013E-01	6.937E-01	1.119E+00	3.657E-01	-0.091
	537.32	*		2.457E-02	8.480E-02	1.446E-01	4.854E-02	0.170
	328.77			2.218E-02	1.010E-01	1.708E-01	2.158E-02	0.130
	432.53			-6.511E-01	7.217E-01	1.083E+00	1.079E-01	-0.601
	487.03			1.427E-02	4.913E-02	8.114E-02	8.411E-03	0.176
	751.79			-3.522E-02	5.831E-01	9.401E-01	1.094E-01	-0.037
	815.85			-9.088E-03	1.007E-01	1.669E-01	1.979E-02	-0.054
	867.82			-8.169E-03	4.899E-01	8.133E-01	9.371E-02	-0.010
	919.63			9.388E-01	9.807E-01	1.587E+00	2.014E-01	0.591
	925.24			1.729E-01	3.817E-01	6.587E-01	7.529E-02	0.263
CE-141	1596.49	*		7.607E-03	3.262E-02	5.598E-02	4.907E-03	0.136
	145.44	*		4.982E-03	2.636E-02	4.479E-02	4.077E-03	0.111
CE-143	57.37			6.911E-01	9.298E+00	1.557E+01	1.341E+00	0.044
	231.56			-4.343E+00	3.080E+01	4.955E+01	1.621E+01	-0.088
CE-144	293.26	*		-9.135E-01	1.526E+00	2.450E+00	5.846E-01	-0.373
	350.59			3.301E+01	2.228E+01	3.614E+01	1.152E+01	0.913
	490.36			-8.880E+00	3.726E+01	5.867E+01	1.874E+01	-0.151
	664.57			-4.189E+00	1.519E+01	2.418E+01	7.949E+00	-0.173
	721.93			-1.891E+01	1.788E+01	2.430E+01	7.259E+00	-0.778
	80.11			-8.546E-01	7.937E-01	1.200E+00	1.037E-01	-0.712
	133.54	*		2.929E-02	9.689E-02	1.664E-01	2.584E-02	0.176
	476.78			1.356E-02	3.633E-02	5.793E-02	6.114E-03	0.234
	618.01			1.524E-02	1.613E-02	2.860E-02	3.040E-03	0.533
	696.49	*		3.647E-04	1.811E-02	2.964E-02	3.169E-03	0.012
PM-144	778.57			1.232E-01	1.238E+00	2.020E+00	2.217E-01	0.061
	696.49	*		2.461E-02	1.222E+00	2.000E+00	2.139E-01	0.012
PR-144	1489.15			-1.110E+00	6.313E+00	1.000E+01	8.910E-01	-0.111
	453.90	*		2.583E-03	2.266E-02	3.712E-02	4.314E-03	0.070
PM-146	633.02			3.808E-01	6.632E-01	1.126E+00	4.262E-01	0.338
	735.90			5.196E-02	7.835E-02	1.328E-01	3.897E-02	0.391
	747.13			-2.464E-02	4.459E-02	6.783E-02	1.053E-02	-0.363
	91.11			1.029E-01	8.024E-02	1.343E-01	1.327E-02	0.766
	319.41			2.969E-01	1.100E+00	1.871E+00	2.368E-01	0.159
	439.89			2.584E-01	2.030E+00	3.337E+00	3.213E-01	0.077
	531.02	*		-1.222E-01	1.863E-01	2.943E-01	4.667E-02	-0.415
	285.90	*		2.133E+00	4.997E+00	8.185E+00	1.547E+00	0.261
	121.78			-1.581E-02	4.158E-02	6.040E-02	5.798E-03	-0.262
	244.69			-1.296E-01	1.850E-01	2.853E-01	3.612E-02	-0.454
PM-149	344.27	*		3.827E-03	4.840E-02	8.093E-02	9.728E-03	0.047
	443.98			-1.204E-01	5.413E-01	8.654E-01	8.354E-02	-0.139
	778.89			4.257E-02	1.437E-01	2.385E-01	2.617E-02	0.178
	867.32			9.616E-02	4.423E-01	7.498E-01	8.372E-02	0.128
	964.01			-6.038E-02	1.453E-01	2.295E-01	2.449E-02	-0.263
	1085.78			1.281E-01	1.844E-01	3.236E-01	3.016E-02	0.396
	1112.02			-9.078E-02	1.367E-01	2.019E-01	1.809E-02	-0.450
	1407.95			-8.435E-02	1.140E-01	1.453E-01	1.299E-02	-0.581
	69.67			-2.149E-02	6.008E-01	9.873E-01	7.663E-02	-0.022
	83.37			2.182E-01	6.540E+00	9.910E+00	8.894E-01	0.022
EU-152	97.43	*		2.780E-02	3.601E-02	6.063E-02	5.331E-03	0.459
GD-153								

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154	103.18			-2.921E-02	4.754E-02	7.303E-02	6.241E-03	-0.400
	123.07			-1.322E-02	2.710E-02	4.152E-02	4.605E-03	-0.319
	247.94			4.975E-02	2.041E-01	3.346E-01	4.973E-02	0.149
	591.81			-1.239E-01	3.058E-01	4.884E-01	6.351E-02	-0.254
	723.30			-1.871E-02	8.723E-02	1.374E-01	1.584E-02	-0.136
	756.87			-4.739E-02	3.908E-01	6.256E-01	8.579E-02	-0.076
	873.19			5.889E-02	1.508E-01	2.596E-01	3.676E-02	0.227
	996.32			-5.671E-02	1.749E-01	2.757E-01	5.148E-02	-0.206
	1004.76			-7.642E-03	1.042E-01	1.694E-01	2.187E-02	-0.045
	1274.45	*		2.240E-02	4.718E-02	8.308E-02	9.390E-03	0.270
EU-155	48.70			-3.516E-01	9.367E-01	1.534E+00	1.249E-01	-0.229
	60.01			-1.612E+00	1.839E+00	2.870E+00	2.038E-01	-0.562
	86.54			-2.961E-02	4.298E-02	6.341E-02	5.963E-03	-0.467
	105.31	*		-4.476E-02	5.414E-02	7.765E-02	6.666E-03	-0.576
	86.79			-1.540E-01	1.107E-01	1.554E-01	1.453E-02	-0.991
TB-160	197.04			2.017E-02	3.227E-01	5.008E-01	5.446E-02	0.040
	215.65			1.471E-02	3.569E-01	5.848E-01	6.760E-02	0.025
	298.57			-9.344E-03	5.086E-02	8.457E-02	1.133E-02	-0.110
	879.36	*		-4.263E-02	6.487E-02	1.000E-01	1.119E-02	-0.426
	962.29			-1.469E-02	2.491E-01	4.078E-01	4.358E-02	-0.036
	966.15			5.980E-02	9.375E-02	1.627E-01	1.733E-02	0.368
	1177.93			1.005E-01	1.401E-01	2.519E-01	2.033E-02	0.399
	1271.85			-3.130E-02	2.704E-01	4.405E-01	3.786E-02	-0.071
	80.57			-7.798E-02	1.029E-01	1.593E-01	1.384E-02	-0.489
	184.41			-5.818E-03	2.031E-02	3.366E-02	3.509E-03	-0.173
HO-166M	280.46			1.322E-02	4.578E-02	7.461E-02	1.042E-02	0.177
	410.95			3.362E-02	1.161E-01	1.945E-01	1.836E-02	0.173
	711.68	*		-4.095E-03	3.163E-02	5.096E-02	5.478E-03	-0.080
	752.31			3.183E-02	1.380E-01	2.288E-01	2.492E-02	0.139
	810.29			-3.308E-02	2.996E-02	4.435E-02	4.903E-03	-0.746
	51.35			-2.846E+00	1.112E+01	1.830E+01	1.427E+00	-0.156
	52.39			-8.279E+00	6.292E+00	9.104E+00	6.988E-01	-0.909
TM-171	59.40			2.477E-01	9.284E+00	1.547E+01	1.093E+00	0.016
	66.72	*		-7.213E+00	1.095E+01	1.663E+01	1.257E+00	-0.434
	88.36			4.809E-03	8.069E-02	1.245E-01	1.178E-02	0.039
LU-176	201.83			-2.217E-05	1.501E-02	2.466E-02	2.724E-03	-0.001
	306.84	*		7.490E-03	1.367E-02	2.362E-02	3.099E-03	0.317
	401.10			-9.835E-01	3.238E+00	5.183E+00	4.856E-01	-0.190
LU-177	112.95			9.898E-02	3.935E-01	6.367E-01	5.293E-02	0.155
	208.36	*		2.525E-02	2.603E-01	4.290E-01	4.842E-02	0.059
LU-177M	52.97			-8.817E-01	6.509E-01	9.444E-01	7.185E-02	-0.934
	54.07			-1.205E-01	3.332E-01	5.229E-01	3.916E-02	-0.230
	61.30			-5.372E-01	5.439E-01	8.427E-01	6.063E-02	-0.637
	121.62			-6.847E-02	2.071E-01	3.022E-01	2.489E-02	-0.227
	147.16			-5.436E-02	3.068E-01	5.111E-01	4.608E-02	-0.106
	171.86			1.007E-01	2.438E-01	4.141E-01	4.142E-02	0.243
	218.09			-3.853E-01	4.338E-01	6.657E-01	7.756E-02	-0.579
	268.79			4.181E-01	4.309E-01	7.274E-01	9.888E-02	0.575
	319.02			-3.060E-03	1.349E-01	2.254E-01	2.856E-02	-0.014

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HF-181	367.43			-5.906E-02	4.826E-01	7.915E-01	8.356E-02	-0.075
	413.65	*		-5.762E-02	8.419E-02	1.298E-01	1.227E-02	-0.444
	56.28			1.204E-01	3.181E-01	5.436E-01	3.960E-02	0.221
	57.53			-1.275E-02	1.641E-01	2.718E-01	1.954E-02	-0.047
	65.20			-8.706E-01	3.568E-01	4.720E-01	3.519E-02	-1.844
	133.02			-8.983E-03	2.967E-02	4.723E-02	4.026E-03	-0.190
W-181	136.25			6.125E-02	2.004E-01	3.440E-01	2.968E-02	0.178
	345.85			-7.701E-02	8.517E-02	1.315E-01	1.521E-02	-0.586
	482.03	*		-1.284E-02	2.059E-02	3.142E-02	3.102E-03	-0.409
	56.28			5.098E-02	1.347E-01	2.302E-01	1.677E-02	0.221
	57.53			-5.271E-03	6.955E-02	1.152E-01	8.283E-03	-0.046
	65.20	*		-3.661E-01	1.500E-01	1.985E-01	1.480E-02	-1.844
TA-182	67.75			2.300E-03	4.189E-02	6.688E-02	5.100E-03	0.034
	100.10			-6.525E-03	7.858E-02	1.257E-01	1.089E-02	-0.052
	152.43			-1.246E-02	1.584E-01	2.647E-01	2.442E-02	-0.047
	222.10			1.139E-01	1.674E-01	2.836E-01	3.347E-02	0.401
	1001.68			1.605E-01	1.096E+00	1.640E+00	1.690E-01	0.098
	1121.28			3.756E-02	6.806E-02	1.166E-01	1.030E-02	0.322
RE-183	1189.05			3.961E-04	1.157E-01	1.929E-01	1.569E-02	0.002
	1221.42	*		-7.151E-03	8.006E-02	1.318E-01	1.096E-02	-0.054
	1230.97			-1.568E-01	1.910E-01	2.868E-01	2.400E-02	-0.547
	57.98			-3.059E-02	6.984E-02	1.128E-01	8.073E-03	-0.271
	59.32			5.267E-04	3.572E-02	5.946E-02	4.205E-03	0.009
	67.20			-1.681E-02	7.241E-02	1.134E-01	8.603E-03	-0.148
RE-184	162.32	*		-4.538E-02	5.639E-02	8.432E-02	8.135E-03	-0.538
	208.81			2.693E-01	4.671E-01	7.885E-01	8.913E-02	0.342
	291.72			-4.124E-01	4.474E-01	7.057E-01	9.616E-02	-0.584
	57.98			-1.177E-01	2.687E-01	4.339E-01	3.105E-02	-0.271
	59.32			2.024E-03	1.373E-01	2.285E-01	1.616E-02	0.009
	67.20			-6.464E-02	2.785E-01	4.360E-01	3.308E-02	-0.148
OS-185	161.27			-7.389E-02	1.727E-01	2.816E-01	2.704E-02	-0.262
	216.55			-2.996E-02	1.320E-01	2.126E-01	2.465E-02	-0.141
	252.85	*		-5.224E-02	1.224E-01	1.916E-01	2.486E-02	-0.273
	318.01			-7.548E-02	2.346E-01	3.845E-01	4.887E-02	-0.196
	792.07			2.774E-02	4.453E-01	7.234E-01	7.964E-02	0.038
	903.28			1.461E-01	4.882E-01	7.482E-01	8.354E-02	0.195
RE-188	920.93			6.548E-02	2.187E-01	3.723E-01	4.108E-02	0.176
	59.72			-8.500E-02	1.045E-01	1.639E-01	1.160E-02	-0.519
	61.14			-9.897E-02	6.012E-02	8.845E-02	6.353E-03	-1.119
	69.30			-6.507E-02	1.066E-01	1.687E-01	1.305E-02	-0.386
	592.07			-4.137E-01	1.180E+00	1.895E+00	1.961E-01	-0.218
	646.12	*		-7.045E-03	1.996E-02	3.122E-02	3.281E-03	-0.226
W-188	717.42			-1.788E-01	4.861E-01	6.888E-01	7.420E-02	-0.260
	874.81			2.435E-02	2.744E-01	4.599E-01	5.140E-02	0.053
	880.27			-1.082E-01	3.580E-01	5.752E-01	6.432E-02	-0.188
	155.03	*		7.693E-03	7.867E-02	1.325E-01	1.237E-02	0.058
	477.96			1.120E-01	1.547E+00	2.514E+00	2.477E-01	0.045
	633.10			6.627E-01	1.226E+00	2.121E+00	2.222E-01	0.312
W-188	63.58			-1.526E+01	2.077E+01	3.390E+01	2.491E+00	-0.450

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
IR-192	227.08			-1.338E+00	6.069E+00	9.738E+00	1.167E+00	-0.137
	290.67	*		7.810E-02	3.464E+00	5.848E+00	7.988E-01	0.013
	295.96			6.787E-03	5.169E-02	8.155E-02	1.103E-02	0.083
	308.46			-5.090E-03	4.933E-02	8.227E-02	1.077E-02	-0.062
	316.51	*		5.294E-03	1.751E-02	2.983E-02	3.813E-03	0.177
	468.07			-8.489E-03	3.138E-02	4.958E-02	5.129E-03	-0.171
AU-195	604.41			-3.519E-01	2.633E-01	3.874E-01	5.523E-02	-0.908
	612.46			-2.869E-01	3.478E-01	5.346E-01	6.148E-02	-0.537
	65.12			-1.784E-01	7.068E-02	9.273E-02	6.908E-03	-1.924
	66.83			-2.142E-02	3.557E-02	5.426E-02	4.104E-03	-0.395
	75.70			-1.798E-02	6.953E-02	1.059E-01	8.728E-03	-0.170
	98.88	*		-2.964E-02	1.049E-01	1.658E-01	1.446E-02	-0.179
TL-200	129.76			4.942E-01	1.298E+00	2.244E+00	1.891E-01	0.220
	367.94	*		-1.461E+00	2.262E+00	3.566E+00	3.755E-01	-0.410
	579.30			3.037E-02	1.690E+01	2.419E+01	2.493E+00	0.001
	828.27			-6.199E+00	1.970E+01	3.177E+01	3.525E+00	-0.195
TL-201	1205.75			2.319E+00	9.155E+00	1.566E+01	1.289E+00	0.148
	68.90			-9.800E-02	3.267E-01	5.281E-01	4.069E-02	-0.186
	70.82			7.699E-03	1.834E-01	3.025E-01	2.374E-02	0.025
	80.30			-2.956E-01	3.500E-01	5.384E-01	4.664E-02	-0.549
	135.34			2.294E+00	2.292E+00	4.060E+00	3.491E-01	0.565
TL-202	167.43	*		-2.914E-01	6.484E-01	1.052E+00	1.037E-01	-0.277
	68.90			-3.132E-02	1.044E-01	1.688E-01	1.301E-02	-0.186
	70.82			2.454E-03	5.846E-02	9.643E-02	7.566E-03	0.025
	80.30			-9.424E-02	1.116E-01	1.717E-01	1.487E-02	-0.549
HG-203	439.56	*		7.934E-03	2.524E-02	4.205E-02	4.047E-03	0.189
	70.83			1.646E-02	3.455E-01	5.701E-01	7.485E-02	0.029
	72.87			9.772E-02	2.121E-01	3.346E-01	4.286E-02	0.292
	82.60			2.342E-02	4.328E-01	6.529E-01	9.087E-02	0.036
BI-207	279.20	*		7.238E-03	1.938E-02	3.175E-02	4.494E-03	0.228
	72.80			3.004E-02	6.931E-02	1.093E-01	8.739E-03	0.275
	74.97			-1.255E-02	4.069E-02	6.138E-02	5.019E-03	-0.204
	84.90			8.595E-04	8.600E-02	1.303E-01	1.191E-02	0.007
	569.67			1.244E-02	1.665E-02	2.915E-02	2.995E-03	0.427
TL-207	1063.62	*		1.883E-02	2.431E-02	4.304E-02	4.132E-03	0.437
	1770.23			-7.063E-02	3.287E-01	5.260E-01	4.373E-02	-0.134
	81.07			-4.634E-02	8.300E-02	1.305E-01	1.140E-02	-0.355
	83.78			4.847E-03	5.686E-02	8.644E-02	7.796E-03	0.056
	94.90			-3.278E-01	1.257E-01	1.685E-01	1.506E-02	-1.946
	122.32			-8.424E-01	9.897E-01	1.385E+00	1.232E-01	-0.608
	144.24			2.014E-01	3.716E-01	5.945E-01	5.885E-02	0.339
	154.21			1.122E-01	1.951E-01	3.364E-01	3.398E-02	0.334
	269.46			1.161E-01	1.052E-01	1.783E-01	2.449E-02	0.651
	323.87	*		4.616E-02	3.370E-01	5.681E-01	1.129E-01	0.081
PO-209	338.28			1.167E-01	5.824E-01	9.225E-01	1.364E-01	0.126
	445.03			1.531E-01	1.272E+00	2.087E+00	2.681E-01	0.073
	260.50			2.526E+00	5.257E+00	8.710E+00	1.156E+00	0.290
	262.80			-4.129E-01	1.466E+01	2.352E+01	3.143E+00	-0.018
	896.60	*		-2.983E-01	3.519E+00	5.780E+00	6.474E-01	-0.052

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-210	46.50	*		2.375E-02	1.598E+00	2.461E+00	2.287E-01	0.010
PB-210	46.50	*		2.375E-02	1.598E+00	2.461E+00	2.287E-01	0.010
PO-210	46.50	*		2.375E-02	1.598E+00	2.461E+00	2.070E-01	0.010
BI-211	72.87			5.486E-01	1.189E+00	1.878E+00	1.503E-01	0.292
	351.07	*		7.583E-02	1.192E-01	1.941E-01	2.264E-02	0.391
PB-211	404.84	*		3.453E-02	4.499E-01	7.415E-01	4.655E-01	0.047
	427.08			1.575E+00	1.449E+00	1.934E+00	1.204E+00	0.815
	831.96			-1.294E-01	5.396E-01	8.675E-01	5.470E-01	-0.149
BI-212	727.18	*		-2.154E-02	1.550E-01	2.301E-01	2.748E-02	-0.094
	785.46			6.772E-02	9.002E-01	1.464E+00	1.610E-01	0.046
	1620.62			-7.139E-01	6.214E-01	8.140E-01	7.096E-02	-0.877
PB-212	74.81			-4.074E-02	1.405E-01	2.122E-01	2.633E-02	-0.192
	77.11			-2.963E-02	7.903E-02	1.194E-01	9.982E-03	-0.248
	87.30			-2.386E-01	1.675E-01	2.302E-01	3.162E-02	-1.036
	238.63	*		-7.960E-03	3.708E-02	5.873E-02	7.760E-03	-0.136
	300.09			-2.501E-01	3.901E-01	6.275E-01	9.151E-02	-0.399
PO-212	74.81			-4.074E-02	1.405E-01	2.122E-01	2.633E-02	-0.192
	77.11			-2.963E-02	7.903E-02	1.194E-01	9.982E-03	-0.248
	87.30			-2.386E-01	1.675E-01	2.302E-01	3.162E-02	-1.036
	115.19			7.038E-01	1.863E+00	3.033E+00	2.512E-01	0.232
	238.63	*		-7.960E-03	3.708E-02	5.873E-02	7.760E-03	-0.136
	300.09			-2.501E-01	3.901E-01	6.275E-01	9.151E-02	-0.399
BI-214	609.31	*		-1.210E-02	4.299E-02	7.170E-02	8.337E-03	-0.169
	1120.29			3.828E-02	1.506E-01	2.510E-01	2.774E-02	0.153
	1764.49			-1.820E-02	1.694E-01	2.822E-01	2.351E-02	-0.064
PB-214	74.81			-7.020E-02	2.420E-01	3.656E-01	4.030E-02	-0.192
	77.11			-5.079E-02	1.355E-01	2.046E-01	2.315E-02	-0.248
	87.30			-4.087E-01	2.858E-01	3.944E-01	4.798E-02	-1.036
	241.98			-2.039E-01	2.023E-01	3.058E-01	4.206E-02	-0.667
	295.21			6.645E-03	7.282E-02	1.147E-01	1.707E-02	0.058
	351.92	*		1.488E-02	4.181E-02	6.702E-02	8.543E-03	0.222
PO-214	74.81			-7.020E-02	2.420E-01	3.656E-01	4.030E-02	-0.192
	77.11			-5.079E-02	1.355E-01	2.046E-01	2.315E-02	-0.248
	87.30			-4.087E-01	2.858E-01	3.944E-01	4.798E-02	-1.036
	241.98			-2.039E-01	2.023E-01	3.058E-01	4.206E-02	-0.667
	295.21			6.645E-03	7.282E-02	1.147E-01	1.707E-02	0.058
	351.92	*		1.488E-02	4.181E-02	6.702E-02	8.543E-03	0.222
PO-215	81.07			-4.634E-02	8.300E-02	1.305E-01	1.140E-02	-0.355
	83.78			4.847E-03	5.686E-02	8.644E-02	7.796E-03	0.056
	94.90			-3.278E-01	1.257E-01	1.685E-01	1.506E-02	-1.946
	122.32			-8.424E-01	9.897E-01	1.385E+00	1.232E-01	-0.608
	144.24			2.014E-01	3.716E-01	5.945E-01	5.885E-02	0.339
	154.21			1.122E-01	1.951E-01	3.364E-01	3.398E-02	0.334
	269.46			1.161E-01	1.052E-01	1.783E-01	2.449E-02	0.651
	323.87	*		4.616E-02	3.370E-01	5.681E-01	1.129E-01	0.081
	338.28			1.167E-01	5.824E-01	9.225E-01	1.364E-01	0.126
	445.03			1.531E-01	1.272E+00	2.087E+00	2.681E-01	0.073
PO-216	74.81			-4.074E-02	1.405E-01	2.122E-01	2.633E-02	-0.192
	77.11			-2.963E-02	7.903E-02	1.194E-01	9.982E-03	-0.248

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-218	87.30			-2.386E-01	1.675E-01	2.302E-01	3.162E-02	-1.036
	238.63	*		-7.960E-03	3.708E-02	5.873E-02	7.760E-03	-0.136
	300.09			-2.501E-01	3.901E-01	6.275E-01	9.151E-02	-0.399
	74.81			-7.020E-02	2.420E-01	3.656E-01	4.030E-02	-0.192
	77.11			-5.079E-02	1.355E-01	2.046E-01	2.315E-02	-0.248
	87.30			-4.087E-01	2.858E-01	3.944E-01	4.798E-02	-1.036
	241.98			-2.039E-01	2.023E-01	3.058E-01	4.206E-02	-0.667
RN-219	295.21			6.645E-03	7.282E-02	1.147E-01	1.707E-02	0.058
	351.92	*		1.488E-02	4.181E-02	6.702E-02	8.543E-03	0.222
	271.23			5.285E-02	1.349E-01	2.213E-01	3.278E-02	0.239
	401.81	*		-1.119E-01	2.000E-01	3.120E-01	4.826E-02	-0.359
RN-220	549.76	*		3.408E+00	1.295E+01	2.208E+01	2.250E+00	0.154
RA-223	81.07			-4.634E-02	8.300E-02	1.305E-01	1.140E-02	-0.355
	83.78			4.847E-03	5.686E-02	8.644E-02	7.796E-03	0.056
RA-224	94.90			-3.278E-01	1.257E-01	1.685E-01	1.506E-02	-1.946
	122.32			-8.424E-01	9.897E-01	1.385E+00	1.232E-01	-0.608
	144.24			2.014E-01	3.716E-01	5.945E-01	5.885E-02	0.339
	154.21			1.122E-01	1.951E-01	3.364E-01	3.398E-02	0.334
	269.46			1.161E-01	1.052E-01	1.783E-01	2.449E-02	0.651
	323.87	*		4.616E-02	3.370E-01	5.681E-01	1.129E-01	0.081
	338.28			1.167E-01	5.824E-01	9.225E-01	1.364E-01	0.126
	445.03			1.531E-01	1.272E+00	2.087E+00	2.681E-01	0.073
	240.98	*		-2.488E-02	3.829E-01	6.181E-01	7.738E-02	-0.040
	609.31	*		-1.210E-02	4.299E-02	7.170E-02	8.337E-03	-0.169
	1120.29			3.828E-02	1.506E-01	2.510E-01	2.774E-02	0.153
	1764.49			-1.820E-02	1.694E-01	2.822E-01	2.351E-02	-0.064
	79.80			-7.310E-01	6.485E-01	9.504E-01	2.044E-01	-0.769
	236.00			-1.004E-01	1.236E-01	1.896E-01	2.860E-02	-0.530
AC-227	256.20	*		-7.013E-02	2.077E-01	3.266E-01	5.959E-02	-0.215
	286.10			7.272E-01	8.408E-01	1.408E+00	2.400E-01	0.516
	299.80			-3.383E-01	7.199E-01	1.171E+00	2.370E-01	-0.289
	304.40			3.536E-01	1.004E+00	1.717E+00	3.602E-01	0.206
	334.20			-9.056E-01	1.286E+00	2.028E+00	4.293E-01	-0.447
	79.80			-7.310E-01	6.490E-01	9.504E-01	2.070E-01	-0.769
	94.00			-2.563E+00	1.172E+00	1.625E+00	3.564E-01	-1.577
	236.00			-1.004E-01	1.235E-01	1.896E-01	2.683E-02	-0.530
	256.20	*		-7.013E-02	2.078E-01	3.266E-01	6.722E-02	-0.215
	286.10			7.272E-01	1.109E+00	1.408E+00	1.422E+00	0.516
TH-227	299.80			-3.383E-01	7.199E-01	1.171E+00	2.370E-01	-0.289
	304.40			3.536E-01	1.004E+00	1.717E+00	3.602E-01	0.206
	334.20			-9.056E-01	1.286E+00	2.028E+00	4.293E-01	-0.447
	338.32			2.598E-02	1.397E-01	2.205E-01	9.278E-02	0.118
	911.07	*		6.975E-02	1.265E-01	1.436E-01	1.902E-02	0.486
	969.11			-3.986E-02	1.349E-01	2.164E-01	5.226E-02	-0.184
	338.32			2.598E-02	1.397E-01	2.205E-01	9.278E-02	0.118
	911.07	*		6.975E-02	1.265E-01	1.436E-01	1.902E-02	0.486
	969.11			-3.986E-02	1.349E-01	2.164E-01	5.226E-02	-0.184
	74.81			-4.105E-02	1.415E-01	2.138E-01	1.762E-02	-0.192
TH-228	77.11			-2.986E-02	7.964E-02	1.203E-01	1.006E-02	-0.248

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-229	87.30			-2.404E-01	1.671E-01	2.320E-01	2.184E-02	-1.036
	238.63	*		-8.021E-03	3.737E-02	5.918E-02	7.820E-03	-0.136
	300.09			-2.520E-01	4.197E-01	6.323E-01	3.804E-01	-0.399
	85.43			1.016E-02	8.262E-02	1.256E-01	1.155E-02	0.081
	88.47			6.920E-03	4.663E-02	7.241E-02	6.840E-03	0.096
	100.00			6.417E-03	8.540E-02	1.380E-01	1.197E-02	0.046
TH-230	193.63	*		-2.012E-01	2.763E-01	4.358E-01	4.685E-02	-0.462
	210.97			2.477E-01	4.029E-01	6.803E-01	7.745E-02	0.364
	609.31	*		-1.210E-02	4.299E-02	7.170E-02	8.337E-03	-0.169
	1120.29			3.828E-02	1.506E-01	2.510E-01	2.774E-02	0.153
PA-231	1764.49			-1.820E-02	1.694E-01	2.822E-01	2.351E-02	-0.064
	283.67	*		1.083E-02	8.481E-01	1.356E+00	2.532E-01	0.008
TH-231	301.29			-5.077E-02	2.859E-01	4.752E-01	7.556E-02	-0.107
	81.07			-4.634E-02	8.300E-02	1.305E-01	1.140E-02	-0.355
U-231	83.78			4.847E-03	5.686E-02	8.644E-02	7.796E-03	0.056
	94.90			-3.278E-01	1.257E-01	1.685E-01	1.506E-02	-1.946
	122.32			-8.424E-01	9.897E-01	1.385E+00	1.232E-01	-0.608
	144.24			2.014E-01	3.716E-01	5.945E-01	5.885E-02	0.339
	154.21			1.122E-01	1.951E-01	3.364E-01	3.398E-02	0.334
	269.46			1.161E-01	1.052E-01	1.783E-01	2.449E-02	0.651
	323.87	*		4.616E-02	3.370E-01	5.681E-01	1.129E-01	0.081
	338.28			1.167E-01	5.824E-01	9.225E-01	1.364E-01	0.126
	445.03			1.531E-01	1.272E+00	2.087E+00	2.681E-01	0.073
	84.21			3.265E-01	7.130E-01	1.106E+00	1.003E-01	0.295
	92.29			-3.062E-01	3.102E-01	5.229E-01	4.768E-02	-0.586
	95.87	*		-2.925E-01	1.631E-01	2.323E-01	2.063E-02	-1.259
TH-232	108.00			1.340E-01	2.891E-01	4.757E-01	3.999E-02	0.282
	338.32			2.598E-02	1.393E-01	2.205E-01	2.623E-02	0.118
PA-233	911.07	*		6.975E-02	1.265E-01	1.436E-01	1.902E-02	0.486
	969.11			-3.986E-02	1.349E-01	2.164E-01	5.226E-02	-0.184
PA-234	75.28			-1.040E-01	1.165E+00	1.780E+00	2.691E-01	-0.058
	86.59			-8.889E-01	7.597E-01	1.033E+00	2.794E-01	-0.861
	300.12			-1.296E-01	2.020E-01	3.241E-01	5.845E-02	-0.400
	311.98	*		-1.395E-03	3.468E-02	5.800E-02	7.597E-03	-0.024
PA-234	340.50			2.044E-02	3.092E-01	5.167E-01	1.300E-01	0.040
	398.62			-9.940E-01	1.187E+00	1.647E+00	4.428E-01	-0.603
	415.76			-2.636E-01	8.257E-01	1.313E+00	2.876E-01	-0.201
	63.00			-3.239E-01	6.541E-01	1.081E+00	1.601E-01	-0.300
	94.67			-9.887E-02	8.415E-02	1.256E-01	1.587E-02	-0.787
	98.44			1.139E-02	4.365E-02	7.067E-02	3.944E-02	0.161
	99.86			4.482E-02	2.179E-01	3.551E-01	3.081E-02	0.126
	111.00			-1.004E-01	1.021E-01	1.425E-01	1.694E-02	-0.705
	131.20			-6.234E-02	5.429E-02	8.214E-02	6.956E-03	-0.759
	152.70			9.328E-04	1.580E-01	2.651E-01	4.604E-02	0.004
	186.00			2.798E-02	7.485E-01	1.258E+00	3.997E-01	0.022
	226.40			1.962E-02	2.038E-01	3.338E-01	5.204E-02	0.059
PA-234	227.20			-5.023E-02	2.207E-01	3.539E-01	4.244E-02	-0.142
	248.90			1.652E-01	4.644E-01	7.639E-01	1.860E-01	0.216
	293.70			-6.371E-02	3.436E-01	5.300E-01	1.072E-01	-0.120

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	369.80			-4.444E-01	4.900E-01	7.423E-01	1.675E-01	-0.599
	568.70			4.812E-01	5.321E-01	9.416E-01	9.669E-02	0.511
	569.50			1.044E-01	1.473E-01	2.573E-01	2.643E-02	0.406
	574.00			-2.389E-01	7.619E-01	1.234E+00	1.269E-01	-0.194
	699.00			-1.051E-01	4.002E-01	6.385E-01	1.284E-01	-0.165
	706.10			6.893E-02	5.724E-01	9.421E-01	4.244E-01	0.073
	733.00			-1.222E-01	1.906E-01	2.864E-01	6.628E-02	-0.427
	742.81			-5.470E-01	9.196E-01	1.075E+00	7.261E-01	-0.509
	796.30			6.045E-02	4.232E-01	6.925E-01	1.933E-01	0.087
	805.60			6.863E-01	5.516E-01	9.477E-01	2.977E-01	0.724
	819.60			-1.977E-01	6.105E-01	9.799E-01	3.788E-01	-0.202
	826.30			-2.318E-02	3.820E-01	6.339E-01	2.870E-01	-0.037
	831.60			-2.112E-01	2.920E-01	4.382E-01	1.343E-01	-0.482
	876.40			-1.819E-01	4.572E-01	6.616E-01	6.817E-01	-0.275
	880.51			-5.540E-02	1.368E-01	2.172E-01	2.429E-02	-0.255
	883.24			4.206E-02	1.442E-01	2.416E-01	1.633E-01	0.174
	899.00			1.090E-02	3.813E-01	6.338E-01	2.807E-01	0.017
	925.00			2.996E-01	5.833E-01	1.013E+00	1.115E-01	0.296
	926.50			-3.112E-03	8.539E-02	1.405E-01	3.679E-02	-0.022
	946.00	*		2.082E-03	1.357E-01	2.242E-01	4.456E-02	0.009
	949.00			-8.599E-02	2.009E-01	3.140E-01	3.392E-02	-0.274
	980.50			2.377E-02	3.178E-01	5.270E-01	5.542E-02	0.045
PA-234M	1394.10			1.397E-01	5.780E-01	9.697E-01	6.316E-01	0.144
	766.42			3.471E+00	5.758E+00	9.397E+00	4.809E+00	0.369
TH-234	1001.03	*		-5.008E-01	2.653E+00	3.837E+00	4.398E-01	-0.131
	63.29	*		-2.927E-01	5.578E-01	9.188E-01	1.599E-01	-0.319
	92.38			-2.726E-01	2.795E-01	4.655E-01	8.529E-02	-0.586
U-234	609.31	*		-1.210E-02	4.299E-02	7.170E-02	8.337E-03	-0.169
	1120.29			3.828E-02	1.506E-01	2.510E-01	2.774E-02	0.153
	1764.49			-1.820E-02	1.694E-01	2.822E-01	2.351E-02	-0.064
U-235	89.95			-1.605E+00	7.304E-01	7.037E-01	2.185E-01	-2.280
	93.35			-1.942E-01	3.277E-01	5.570E-01	1.568E-01	-0.349
	105.00			-2.331E-01	5.300E-01	7.762E-01	2.314E-01	-0.300
	143.76	*		-1.662E-02	1.171E-01	1.815E-01	3.202E-02	-0.092
	163.35			-1.780E-01	2.628E-01	3.937E-01	7.711E-02	-0.452
	185.71			-3.852E-03	2.797E-02	4.663E-02	4.883E-03	-0.083
	205.31			-1.605E-01	2.882E-01	4.233E-01	8.620E-02	-0.379
NP-236	94.67			-7.427E-02	6.350E-02	9.538E-02	8.540E-03	-0.779
	98.44			8.613E-03	3.265E-02	5.342E-02	4.670E-03	0.161
	111.00			-7.593E-02	7.698E-02	1.078E-01	8.993E-03	-0.705
	160.31	*		1.636E-02	3.963E-02	6.768E-02	6.469E-03	0.242
NP-237	86.50	*		-7.287E-02	1.062E-01	1.550E-01	3.510E-02	-0.470
	95.87			-8.775E-01	5.295E-01	6.969E-01	1.723E-01	-1.259
U-238	63.29	*		-2.927E-01	5.578E-01	9.188E-01	1.599E-01	-0.319
	92.38			-2.726E-01	2.761E-01	4.655E-01	4.241E-02	-0.586
NP-239	99.55			3.503E-02	7.279E-02	1.206E-01	1.048E-02	0.291
	117.00	*		1.225E-02	1.005E-01	1.610E-01	1.331E-02	0.076
	209.75			3.128E-01	3.995E-01	6.802E-01	7.713E-02	0.460
	228.18			-1.225E-02	1.167E-01	1.886E-01	2.269E-02	-0.065



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	277.60			-4.762E-02	9.818E-02	1.516E-01	2.113E-02	-0.314
	334.30			-5.331E-01	7.249E-01	1.149E+00	1.386E-01	-0.464
AM-241	59.54	*		2.584E-03	5.437E-02	9.069E-02	7.089E-03	0.028
AM-243	74.67	*		-6.263E-03	2.285E-02	3.457E-02	2.818E-03	-0.181
	86.72			-5.210E+00	4.067E+00	5.760E+00	5.382E-01	-0.904
	117.66			-2.047E-01	2.005E+00	3.168E+00	2.616E-01	-0.065
	142.18			8.241E-01	8.987E+00	1.522E+01	1.344E+00	0.054
CM-243	99.55			3.603E-02	7.486E-02	1.240E-01	1.078E-02	0.291
	103.76	*		6.637E-03	4.329E-02	7.017E-02	5.982E-03	0.095
	117.00			1.259E-02	1.034E-01	1.656E-01	1.369E-02	0.076
	209.75			3.082E-01	3.936E-01	6.702E-01	7.600E-02	0.460
	228.18			-1.237E-02	1.179E-01	1.905E-01	2.292E-02	-0.065
	277.60			-4.798E-02	9.893E-02	1.528E-01	2.129E-02	-0.314
AM-246	798.80			-7.415E-02	7.288E-02	1.041E-01	1.148E-02	-0.712
	1036.00			1.111E-02	1.412E-01	2.329E-01	2.313E-02	0.048
	1062.04			1.507E-02	1.057E-01	1.752E-01	1.685E-02	0.086
	1078.86	*		-7.323E-02	6.543E-02	9.012E-02	8.478E-03	-0.813
CM-247	278.00			-2.031E-02	4.035E-01	6.436E-01	8.981E-02	-0.032
	287.40			2.921E-01	6.919E-01	1.134E+00	1.560E-01	0.258
	402.60	*		-2.953E-03	1.786E-02	2.892E-02	2.713E-03	-0.102
CF-249	252.85			-2.021E-01	4.736E-01	7.411E-01	9.616E-02	-0.273
	333.44			-4.901E-02	9.343E-02	1.505E-01	1.820E-02	-0.326
	387.95	*		4.610E-03	2.035E-02	3.405E-02	3.236E-03	0.135
CF-251	176.60	*		-1.156E-03	6.907E-02	1.146E-01	1.164E-02	-0.010
	227.00			-4.227E-02	1.962E-01	3.149E-01	3.774E-02	-0.134
	285.00			-7.091E-03	9.850E-01	1.572E+00	2.175E-01	-0.005

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014507      *
* Acquisition date   : 22-JAN-2010 16:51:45 Detector SN#                   *
* Detector ID        : GAM22 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:00.98 Half life ratio : 8.000              *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID           : G1202014507 Analyst initials: MXR1                *
* Batch Number        : 941239 Sample Quantity : 1.4570E+02 GRAM          *
* Recovery            : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                              *
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28 MS Isotope                      *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
TL-208	1.254E-02	2.531E-02	2.798E-02	0.000E+00
ANH-511	1.622E-02	4.158E-02	2.691E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	5.501E-02	1.520E-01	2.661E-01	0.000E+00 NOT IDENT.
NA-22	8.433E-03	1.655E-02	3.009E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	9.942E+01	0.000E+00	0.000E+00 SHORT HLIF
AL-26	-3.043E-03	1.629E-02	2.642E-02	0.000E+00 NOT IDENT.
K-40	-2.879E-01	2.581E-01	4.198E-01	0.000E+00 NOT IDENT.
TI-44	-2.447E-03	1.364E-02	2.279E-02	0.000E+00 NOT IDENT.
SC-46	-6.087E-03	1.800E-02	2.992E-02	0.000E+00 NOT IDENT.
V-48	6.730E-03	2.182E-02	3.848E-02	0.000E+00 NOT IDENT.
CR-51	1.387E-02	1.622E-01	2.898E-01	0.000E+00 NOT IDENT.
MN-52	-5.543E-03	4.922E-02	8.132E-02	0.000E+00 NOT IDENT.
MN-54	1.842E-04	1.658E-02	2.879E-02	0.000E+00 NOT IDENT.
CO-56	9.914E-03	1.982E-02	3.572E-02	0.000E+00 NOT IDENT.
CO-57	-9.728E-03	1.386E-02	2.136E-02	0.000E+00 NOT IDENT.
CO-58	-2.304E-02	1.793E-02	2.697E-02	0.000E+00 NOT IDENT.
FE-59	-4.298E-02	3.405E-02	4.653E-02	0.000E+00 NOT IDENT.
CO-60	-7.760E-03	1.809E-02	2.882E-02	0.000E+00 NOT IDENT.
ZN-65	-2.817E-02	4.035E-02	6.202E-02	0.000E+00 NOT IDENT.
GE-68	-3.200E-01	5.193E-01	8.010E-01	0.000E+00 NOT IDENT.
AS-73	-2.930E-01	3.126E-01	5.195E-01	0.000E+00 NOT IDENT.
AS-74	-2.181E-02	3.671E-02	6.069E-02	0.000E+00 NOT IDENT.
SE-75	-2.130E-02	2.378E-02	3.813E-02	0.000E+00 NOT IDENT.
BR-77	3.600E-01	6.991E-01	1.123E+00	0.000E+00 NOT IDENT.
SR-82	-1.711E-02	1.594E-01	2.656E-01	0.000E+00 NOT IDENT.
RB-83	2.083E-02	3.795E-02	6.113E-02	0.000E+00 NOT IDENT.
RB-84	8.299E-04	2.863E-02	4.949E-02	0.000E+00 NOT IDENT.

KR-85	0.000E+00	5.129E+00	9.794E+00	0.000E+00	NOT IDENT.
SR-85	0.000E+00	2.433E-02	4.645E-02	0.000E+00	NOT IDENT.
RB-86	-1.199E-01	2.587E-01	4.090E-01	0.000E+00	NOT IDENT.
Y-88	3.092E-03	1.900E-02	3.268E-02	0.000E+00	NOT IDENT.
ZR-88	6.120E-03	1.454E-02	2.605E-02	0.000E+00	NOT IDENT.
Y-91	-2.220E+00	7.128E+00	1.180E+01	0.000E+00	NOT IDENT.
NB-94	1.832E-02	1.785E-02	3.274E-02	0.000E+00	NOT IDENT.
NB-95	1.832E-02	1.850E-02	3.388E-02	0.000E+00	NOT IDENT.
NB-95M	-8.122E-02	6.124E-02	9.659E-02	0.000E+00	NOT IDENT.
ZR-95	1.880E-02	3.122E-02	5.575E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	3.162E+01	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	8.210E+02	0.000E+00	0.000E+00	SHORT HLIF
MO-99	7.788E-01	8.937E-01	1.622E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.585E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.674E-03	1.965E-02	3.275E-02	0.000E+00	NOT IDENT.
RH-102	1.946E-03	1.543E-02	2.538E-02	0.000E+00	NOT IDENT.
RU-103	-1.040E-02	1.890E-02	3.040E-02	0.000E+00	NOT IDENT.
RH-106	8.132E-02	1.628E-01	2.921E-01	0.000E+00	FAIL ABUN
RU-106	8.132E-02	1.626E-01	2.921E-01	0.000E+00	FAIL ABUN
AG-108M	-1.820E-03	1.640E-02	2.796E-02	0.000E+00	NOT IDENT.
CD-109	-3.293E-01	3.457E-01	5.457E-01	0.000E+00	NOT IDENT.
AG-110M	-8.325E-03	1.634E-02	2.668E-02	0.000E+00	NOT IDENT.
IN-111	-7.341E-02	9.654E-02	1.585E-01	0.000E+00	NOT IDENT.
IN-113M	3.696E-03	2.227E-02	3.920E-02	0.000E+00	NOT IDENT.
SN-113	3.696E-03	2.227E-02	3.920E-02	0.000E+00	NOT IDENT.
IN-114M	-4.910E-02	8.572E-02	1.471E-01	0.000E+00	NOT IDENT.
CD-115	4.219E-01	5.432E-01	1.009E+00	0.000E+00	NOT IDENT.
SN-117M	1.296E-03	1.864E-02	3.378E-02	0.000E+00	NOT IDENT.
SB-122	-6.805E-02	1.603E-01	2.708E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.362E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.448E-03	1.343E-02	2.437E-02	0.000E+00	NOT IDENT.
I-124	-2.348E-02	1.136E-01	1.942E-01	0.000E+00	NOT IDENT.
SB-124	1.082E-02	4.056E-02	7.138E-02	0.000E+00	NOT IDENT.
SB-125	1.931E-02	4.658E-02	8.275E-02	0.000E+00	NOT IDENT.
TE-125M	2.332E+00	4.323E+00	7.265E+00	0.000E+00	NOT IDENT.
I-126	-3.505E-02	5.913E-02	9.570E-02	0.000E+00	NOT IDENT.
SB-126	-1.875E-02	4.598E-02	7.495E-02	0.000E+00	NOT IDENT.
SN-126	-4.944E-02	3.514E-02	5.363E-02	0.000E+00	NOT IDENT.
SB-127	-5.998E-02	1.774E-01	2.935E-01	0.000E+00	NOT IDENT.
XE-127	7.765E-03	2.022E-02	3.640E-02	0.000E+00	NOT IDENT.
I-131	2.309E-02	3.329E-02	6.082E-02	0.000E+00	NOT IDENT.
TE-132	-7.735E-03	7.222E-02	1.250E-01	0.000E+00	NOT IDENT.
BA-133	-3.036E-02	2.272E-02	3.544E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	8.257E+00	0.000E+00	0.000E+00	SHORT HLIF
CS-134	4.891E-03	2.135E-02	3.668E-02	0.000E+00	NOT IDENT.
CS-135	9.688E-02	8.458E-02	1.533E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.874E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	2.045E-02	3.246E-02	5.868E-02	0.000E+00	NOT IDENT.
BA-137M	9.696E-04	1.656E-02	2.858E-02	0.000E+00	NOT IDENT.
CS-137	1.025E-03	1.751E-02	3.021E-02	0.000E+00	NOT IDENT.
CE-139	7.115E-03	1.422E-02	2.622E-02	0.000E+00	NOT IDENT.
BA-140	2.457E-02	8.310E-02	1.488E-01	0.000E+00	NOT IDENT.
LA-140	7.607E-03	3.197E-02	5.617E-02	0.000E+00	NOT IDENT.
CE-141	4.982E-03	2.583E-02	4.746E-02	0.000E+00	NOT IDENT.
CE-143	-9.135E-01	1.496E+00	2.556E+00	0.000E+00	NOT IDENT.
CE-144	2.929E-02	9.495E-02	1.767E-01	0.000E+00	NOT IDENT.
PM-144	3.647E-04	1.775E-02	3.032E-02	0.000E+00	NOT IDENT.
PR-144	2.461E-02	1.198E+00	2.047E+00	0.000E+00	NOT IDENT.
PM-146	2.583E-03	2.220E-02	3.835E-02	0.000E+00	NOT IDENT.
ND-147	-1.222E-01	1.826E-01	3.030E-01	0.000E+00	NOT IDENT.
PM-149	2.133E+00	4.897E+00	8.545E+00	0.000E+00	NOT IDENT.
EU-152	3.827E-03	4.743E-02	8.414E-02	0.000E+00	NOT IDENT.
GD-153	2.780E-02	3.529E-02	6.479E-02	0.000E+00	NOT IDENT.
EU-154	2.240E-02	4.624E-02	8.381E-02	0.000E+00	NOT IDENT.
EU-155	-4.476E-02	5.305E-02	8.285E-02	0.000E+00	NOT IDENT.
TB-160	-4.263E-02	6.357E-02	1.018E-01	0.000E+00	NOT IDENT.
HO-166M	-4.095E-03	3.100E-02	5.211E-02	0.000E+00	NOT IDENT.
TM-171	-7.213E+00	1.073E+01	1.792E+01	0.000E+00	NOT IDENT.
LU-176	7.490E-03	1.339E-02	2.462E-02	0.000E+00	NOT IDENT.
LU-177	2.525E-02	2.551E-01	4.510E-01	0.000E+00	NOT IDENT.
LU-177M	-5.762E-02	8.251E-02	1.343E-01	0.000E+00	NOT IDENT.
HF-181	-1.284E-02	2.018E-02	3.242E-02	0.000E+00	NOT IDENT.
W-181	-3.661E-01	1.470E-01	2.139E-01	0.000E+00	NOT IDENT.
TA-182	-7.151E-03	7.846E-02	1.330E-01	0.000E+00	NOT IDENT.
RE-183	-4.538E-02	5.526E-02	8.913E-02	0.000E+00	NOT IDENT.
RE-184	-5.224E-02	1.200E-01	2.006E-01	0.000E+00	NOT IDENT.
OS-185	-7.045E-03	1.956E-02	3.200E-02	0.000E+00	NOT IDENT.
RE-188	7.693E-03	7.710E-02	1.402E-01	0.000E+00	NOT IDENT.

W-188	7.810E-02	3.395E+00	6.103E+00	0.000E+00	NOT IDENT.
IR-192	5.294E-03	1.716E-02	3.108E-02	0.000E+00	NOT IDENT.
AU-195	-2.964E-02	1.028E-01	1.772E-01	0.000E+00	NOT IDENT.
TL-200	-1.461E+00	2.217E+00	3.702E+00	0.000E+00	NOT IDENT.
TL-201	-2.914E-01	6.354E-01	1.112E+00	0.000E+00	NOT IDENT.
TL-202	7.934E-03	2.473E-02	4.347E-02	0.000E+00	NOT IDENT.
HG-203	7.238E-03	1.899E-02	3.317E-02	0.000E+00	NOT IDENT.
BI-207	1.883E-02	2.383E-02	4.361E-02	0.000E+00	NOT IDENT.
TL-207	4.616E-02	3.303E-01	5.914E-01	0.000E+00	NOT IDENT.
PO-209	-2.983E-01	3.449E+00	5.879E+00	0.000E+00	NOT IDENT.
BI-210	2.375E-02	1.566E+00	2.671E+00	0.000E+00	NOT IDENT.
PB-210	2.375E-02	1.566E+00	2.671E+00	0.000E+00	NOT IDENT.
PO-210	2.375E-02	1.566E+00	2.671E+00	0.000E+00	NOT IDENT.
BI-211	7.583E-02	1.168E-01	2.017E-01	0.000E+00	NOT IDENT.
PB-211	3.453E-02	4.409E-01	7.681E-01	0.000E+00	NOT IDENT.
BI-212	-2.154E-02	1.519E-01	2.352E-01	0.000E+00	NOT IDENT.
PB-212	-7.960E-03	3.634E-02	6.156E-02	0.000E+00	NOT IDENT.
PO-212	-7.960E-03	3.634E-02	6.156E-02	0.000E+00	NOT IDENT.
BI-214	-1.210E-02	4.213E-02	7.359E-02	0.000E+00	NOT IDENT.
PB-214	1.488E-02	4.097E-02	6.965E-02	0.000E+00	NOT IDENT.
PO-214	1.488E-02	4.097E-02	6.965E-02	0.000E+00	NOT IDENT.
PO-215	4.616E-02	3.303E-01	5.914E-01	0.000E+00	NOT IDENT.
PO-216	-7.960E-03	3.634E-02	6.156E-02	0.000E+00	NOT IDENT.
PO-218	1.488E-02	4.097E-02	6.965E-02	0.000E+00	NOT IDENT.
RN-219	-1.119E-01	1.960E-01	3.232E-01	0.000E+00	NOT IDENT.
RN-220	3.408E+00	1.269E+01	2.271E+01	0.000E+00	NOT IDENT.
RA-223	4.616E-02	3.303E-01	5.914E-01	0.000E+00	NOT IDENT.
RA-224	-2.488E-02	3.753E-01	6.478E-01	0.000E+00	NOT IDENT.
RA-226	-1.210E-02	4.213E-02	7.359E-02	0.000E+00	NOT IDENT.
AC-227	-7.013E-02	2.036E-01	3.418E-01	0.000E+00	NOT IDENT.
TH-227	-7.013E-02	2.037E-01	3.418E-01	0.000E+00	NOT IDENT.
AC-228	6.975E-02	1.239E-01	1.460E-01	0.000E+00	FAIL ABUN
RA-228	6.975E-02	1.239E-01	1.460E-01	0.000E+00	FAIL ABUN
TH-228	-8.021E-03	3.662E-02	6.203E-02	0.000E+00	NOT IDENT.
TH-229	-2.012E-01	2.708E-01	4.589E-01	0.000E+00	NOT IDENT.
TH-230	-1.210E-02	4.213E-02	7.359E-02	0.000E+00	NOT IDENT.
PA-231	1.083E-02	8.311E-01	1.416E+00	0.000E+00	NOT IDENT.
TH-231	4.616E-02	3.303E-01	5.914E-01	0.000E+00	NOT IDENT.
U-231	-2.925E-01	1.598E-01	2.483E-01	0.000E+00	NOT IDENT.
TH-232	6.975E-02	1.239E-01	1.460E-01	0.000E+00	FAIL ABUN
PA-233	-1.395E-03	3.399E-02	6.043E-02	0.000E+00	NOT IDENT.
PA-234	2.082E-03	1.330E-01	2.277E-01	0.000E+00	NOT IDENT.
PA-234M	-5.008E-01	2.600E+00	3.893E+00	0.000E+00	NOT IDENT.
TH-234	-2.927E-01	5.467E-01	9.908E-01	0.000E+00	NOT IDENT.
U-234	-1.210E-02	4.213E-02	7.359E-02	0.000E+00	NOT IDENT.
U-235	-1.662E-02	1.147E-01	1.924E-01	0.000E+00	NOT IDENT.
NP-236	1.636E-02	3.884E-02	7.156E-02	0.000E+00	NOT IDENT.
NP-237	-7.287E-02	1.041E-01	1.661E-01	0.000E+00	NOT IDENT.
U-238	-2.927E-01	5.467E-01	9.908E-01	0.000E+00	NOT IDENT.
NP-239	1.225E-02	9.850E-02	1.714E-01	0.000E+00	NOT IDENT.
AM-241	2.584E-03	5.328E-02	9.792E-02	0.000E+00	NOT IDENT.
AM-243	-6.263E-03	2.239E-02	3.715E-02	0.000E+00	NOT IDENT.
CM-243	6.637E-03	4.243E-02	7.488E-02	0.000E+00	NOT IDENT.
AM-246	-7.323E-02	6.412E-02	9.128E-02	0.000E+00	NOT IDENT.
CM-247	-2.953E-03	1.751E-02	2.996E-02	0.000E+00	NOT IDENT.
CF-249	4.610E-03	1.994E-02	3.531E-02	0.000E+00	NOT IDENT.
CF-251	-1.156E-03	6.769E-02	1.209E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014507.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 16:51:45
Sample ID          : G1202014507      Sample quantity   : 1.45700E+02 GRAM
Detector name      : GAM22             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:00.98  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 941239            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
TL-208	277.35	-----	6.80	6.182E+00	-----	Line Not Found	-----
	510.84	27	21.60	4.296E+00	7.511E-02	7.511E-02	261.64
	583.14	16	84.20*	3.928E+00	1.254E-02	1.254E-02	206.00
	860.37	-----	12.46	2.924E+00	-----	Line Not Found	-----
ANH-511	511.00	27	100.00*	4.296E+00	1.622E-02	1.622E-02	261.51

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G1202014507

Page : 2  
Acquisition date : 22-JAN-2010 16:51:45

Total number of lines in spectrum 3  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 3 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
TL-208	1.41E+10Y	1.00	1.254E-02	1.254E-02	2.582E-02	206.00	
ANH-511	1.00E+09Y	1.00	1.622E-02	1.622E-02	4.243E-02	261.51	
Total Activity :			2.876E-02	2.876E-02			

Grand Total Activity : 2.876E-02 2.876E-02

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202014507

Page : 3  
Acquisition date : 22-JAN-2010 16:51:45

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	911.82	21	48	1.94	1822.76	1815	19	2.90E-03	****	2.79E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014507.CNF;1
* Acquisition date   : 22-JAN-2010 16:51:45  Detector SN#      :
* Detector ID        : GAM22                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit    : 75.00000
* Elapsed real time  : 0 02:00:00.98          Half life ratio   : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00  Nuclide Library   : SOLID
* Sample ID          : G1202014507          Analyst initials: MXR1
* Batch Number       : 941239               Sample Quantity  : 1.45700E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-DEC-2009 16:47:28.08MS Isotope       :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A              LCS Isotope       :
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-208	1.254E-02	2.582E-02	2.723E-02	2.953E-03	0.460
ANH-511	1.622E-02	4.243E-02	2.611E-02	2.616E-03	0.621

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	5.501E-02		1.551E-01	2.578E-01	2.690E-02	0.213
NA-22	8.433E-03		1.688E-02	2.983E-02	2.571E-03	0.283
NA-24	-4.476E-05		5.072E-05	Half-Life too short		
AL-26	-3.043E-03		1.662E-02	2.641E-02	2.160E-03	-0.115
K-40	-2.879E-01		2.633E-01	4.175E-01	3.824E-02	-0.690
TI-44	-2.447E-03		1.392E-02	2.123E-02	1.800E-03	-0.115
SC-46	-6.087E-03		1.837E-02	2.941E-02	3.292E-03	-0.207
V-48	6.730E-03		2.227E-02	3.791E-02	3.976E-03	0.178
CR-51	1.387E-02		1.655E-01	2.783E-01	3.604E-02	0.050
MN-52	-5.543E-03		5.022E-02	8.084E-02	7.225E-03	-0.069



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MN-54	1.842E-04		1.692E-02	2.826E-02	3.139E-03	0.007
CO-56	9.914E-03		2.023E-02	3.507E-02	3.904E-03	0.283
CO-57	-9.728E-03		1.414E-02	2.008E-02	1.656E-03	-0.484
CO-58	-2.304E-02		1.829E-02	2.645E-02	2.929E-03	-0.871
FE-59	-4.298E-02		3.474E-02	4.596E-02	4.504E-03	-0.935
CO-60	-7.760E-03		1.846E-02	2.860E-02	2.550E-03	-0.271
ZN-65	-2.817E-02		4.118E-02	6.128E-02	5.467E-03	-0.460
GE-68	-3.200E-01		5.299E-01	7.908E-01	7.455E-02	-0.405
AS-73	-2.930E-01		3.190E-01	4.800E-01	3.627E-02	-0.610
AS-74	-2.181E-02		3.746E-02	5.911E-02	6.126E-03	-0.369
SE-75	-2.130E-02		2.427E-02	3.646E-02	4.908E-03	-0.584
BR-77	3.600E-01		7.134E-01	1.090E+00	1.097E-01	0.330
SR-82	-1.711E-02		1.627E-01	2.603E-01	2.854E-02	-0.066
RB-83	2.083E-02		3.872E-02	5.935E-02	5.973E-03	0.351
RB-84	8.299E-04		2.921E-02	4.863E-02	5.439E-03	0.017
KR-85	1.789E+01		5.234E+00	9.506E+00	9.538E-01	1.882
SR-85	8.483E-02		2.482E-02	4.508E-02	4.524E-03	1.882
RB-86	-1.199E-01		2.640E-01	4.038E-01	3.810E-02	-0.297
Y-88	3.092E-03		1.939E-02	3.268E-02	2.642E-03	0.095
ZR-88	6.120E-03		1.484E-02	2.513E-02	2.340E-03	0.244
Y-91	-2.220E+00		7.273E+00	1.168E+01	9.605E-01	-0.190
NB-94	1.832E-02		1.821E-02	3.200E-02	3.430E-03	0.572
NB-95	1.832E-02		1.887E-02	3.319E-02	3.629E-03	0.552
NB-95M	-8.122E-02		6.249E-02	9.212E-02	1.218E-02	-0.882
ZR-95	1.880E-02		3.185E-02	5.459E-02	6.336E-03	0.344
NB-97	-1.425E-05		1.613E-05	Half-Life	too short	
ZR-97	1.725E-03		4.189E-04	Half-Life	too short	
MO-99	7.788E-01		9.119E-01	1.588E+00	2.628E-01	0.491
TC-99M	-3.624E+00		1.319E+01	Half-Life	too short	
RH-101	1.674E-03		2.006E-02	3.112E-02	3.394E-03	0.054
RH-102	1.946E-03		1.575E-02	2.459E-02	2.418E-03	0.079
RU-103	-1.040E-02		1.929E-02	2.948E-02	4.425E-03	-0.353
RH-106	8.132E-02		1.661E-01	2.847E-01	4.157E-02	0.286
RU-106	8.132E-02		1.659E-01	2.847E-01	2.974E-02	0.286
AG-108M	-1.820E-03		1.673E-02	2.703E-02	2.676E-03	-0.067
CD-109	-3.293E-01		3.528E-01	5.096E-01	4.835E-02	-0.646
AG-110M	-8.325E-03		1.667E-02	2.604E-02	2.799E-03	-0.320
IN-111	-7.341E-02		9.851E-02	1.513E-01	1.920E-02	-0.485
IN-113M	3.696E-03		2.272E-02	3.781E-02	3.611E-03	0.098
SN-113	3.696E-03		2.272E-02	3.781E-02	3.611E-03	0.098
IN-114M	-4.910E-02		8.747E-02	1.397E-01	1.485E-02	-0.352
CD-115	4.219E-01		5.543E-01	9.800E-01	9.896E-02	0.430
SN-117M	1.296E-03		1.902E-02	3.194E-02	3.029E-03	0.041
SB-122	-6.805E-02		1.635E-01	2.633E-01	2.699E-02	-0.258
I-123	2.547E-05		1.205E-04	Half-Life	too short	
TE-123M	1.448E-03		1.370E-02	2.305E-02	2.201E-03	0.063
I-124	-2.348E-02		1.159E-01	1.892E-01	1.965E-02	-0.124
SB-124	1.082E-02		4.139E-02	7.123E-02	6.336E-03	0.152

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125	1.931E-02		4.753E-02	7.998E-02	7.761E-03	0.241
TE-125M	2.332E+00		4.412E+00	6.815E+00	6.891E-01	0.342
I-126	-3.505E-02		6.034E-02	9.344E-02	9.872E-03	-0.375
SB-126	-1.875E-02		4.692E-02	7.330E-02	7.905E-03	-0.256
SN-126	-4.944E-02		3.586E-02	5.007E-02	4.728E-03	-0.987
SB-127	-5.998E-02		1.811E-01	2.867E-01	3.288E-02	-0.209
XE-127	7.765E-03		2.064E-02	3.461E-02	3.836E-03	0.224
I-131	2.309E-02		3.397E-02	5.857E-02	6.472E-03	0.394
TE-132	-7.735E-03		7.369E-02	1.191E-01	2.011E-02	-0.065
BA-133	-3.036E-02		2.319E-02	3.411E-02	5.097E-03	-0.890
I-133	6.066E-07		4.213E-06	Half-Life too short		
CS-134	4.891E-03		2.179E-02	3.596E-02	3.980E-03	0.136
CS-135	9.688E-02		8.631E-02	1.466E-01	2.121E-02	0.661
I-135	1.736E+01		9.564E+00	Half-Life too short		
CS-136	2.045E-02		3.313E-02	5.790E-02	5.852E-03	0.353
BA-137M	9.696E-04		1.690E-02	2.790E-02	2.942E-03	0.035
CS-137	1.025E-03		1.786E-02	2.949E-02	3.114E-03	0.035
CE-139	7.115E-03		1.451E-02	2.481E-02	2.434E-03	0.287
BA-140	2.457E-02		8.480E-02	1.446E-01	4.854E-02	0.170
LA-140	7.607E-03		3.262E-02	5.598E-02	4.907E-03	0.136
CE-141	4.982E-03		2.636E-02	4.479E-02	4.077E-03	0.111
CE-143	-9.135E-01		1.526E+00	2.450E+00	5.846E-01	-0.373
CE-144	2.929E-02		9.689E-02	1.664E-01	2.584E-02	0.176
PM-144	3.647E-04		1.811E-02	2.964E-02	3.169E-03	0.012
PR-144	2.461E-02		1.222E+00	2.000E+00	2.139E-01	0.012
PM-146	2.583E-03		2.266E-02	3.712E-02	4.314E-03	0.070
ND-147	-1.222E-01		1.863E-01	2.943E-01	4.667E-02	-0.415
PM-149	2.133E+00		4.997E+00	8.185E+00	1.547E+00	0.261
EU-152	3.827E-03		4.840E-02	8.093E-02	9.728E-03	0.047
GD-153	2.780E-02		3.601E-02	6.063E-02	5.331E-03	0.459
EU-154	2.240E-02		4.718E-02	8.308E-02	9.390E-03	0.270
EU-155	-4.476E-02		5.414E-02	7.765E-02	6.666E-03	-0.576
TB-160	-4.263E-02		6.487E-02	1.000E-01	1.119E-02	-0.426
HO-166M	-4.095E-03		3.163E-02	5.096E-02	5.478E-03	-0.080
TM-171	-7.213E+00		1.095E+01	1.663E+01	1.257E+00	-0.434
LU-176	7.490E-03		1.367E-02	2.362E-02	3.099E-03	0.317
LU-177	2.525E-02		2.603E-01	4.290E-01	4.842E-02	0.059
LU-177M	-5.762E-02		8.419E-02	1.298E-01	1.227E-02	-0.444
HF-181	-1.284E-02		2.059E-02	3.142E-02	3.102E-03	-0.409
W-181	-3.661E-01		1.500E-01	1.985E-01	1.480E-02	-1.844
TA-182	-7.151E-03		8.006E-02	1.318E-01	1.096E-02	-0.054
RE-183	-4.538E-02		5.639E-02	8.432E-02	8.135E-03	-0.538
RE-184	-5.224E-02		1.224E-01	1.916E-01	2.486E-02	-0.273
OS-185	-7.045E-03		1.996E-02	3.122E-02	3.281E-03	-0.226
RE-188	7.693E-03		7.867E-02	1.325E-01	1.237E-02	0.058
W-188	7.810E-02		3.464E+00	5.848E+00	7.988E-01	0.013
IR-192	5.294E-03		1.751E-02	2.983E-02	3.813E-03	0.177
AU-195	-2.964E-02		1.049E-01	1.658E-01	1.446E-02	-0.179

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-200	-1.461E+00		2.262E+00	3.566E+00	3.755E-01	-0.410
TL-201	-2.914E-01		6.484E-01	1.052E+00	1.037E-01	-0.277
TL-202	7.934E-03		2.524E-02	4.205E-02	4.047E-03	0.189
HG-203	7.238E-03		1.938E-02	3.175E-02	4.494E-03	0.228
BI-207	1.883E-02		2.431E-02	4.304E-02	4.132E-03	0.437
TL-207	4.616E-02		3.370E-01	5.681E-01	1.129E-01	0.081
PO-209	-2.983E-01		3.519E+00	5.780E+00	6.474E-01	-0.052
BI-210	2.375E-02		1.598E+00	2.461E+00	2.287E-01	0.010
PB-210	2.375E-02		1.598E+00	2.461E+00	2.287E-01	0.010
PO-210	2.375E-02		1.598E+00	2.461E+00	2.070E-01	0.010
BI-211	7.583E-02		1.192E-01	1.941E-01	2.264E-02	0.391
PB-211	3.453E-02		4.499E-01	7.415E-01	4.655E-01	0.047
BI-212	-2.154E-02		1.550E-01	2.301E-01	2.748E-02	-0.094
PB-212	-7.960E-03		3.708E-02	5.873E-02	7.760E-03	-0.136
PO-212	-7.960E-03		3.708E-02	5.873E-02	7.760E-03	-0.136
BI-214	-1.210E-02		4.299E-02	7.170E-02	8.337E-03	-0.169
PB-214	1.488E-02		4.181E-02	6.702E-02	8.543E-03	0.222
PO-214	1.488E-02		4.181E-02	6.702E-02	8.543E-03	0.222
PO-215	4.616E-02		3.370E-01	5.681E-01	1.129E-01	0.081
PO-216	-7.960E-03		3.708E-02	5.873E-02	7.760E-03	-0.136
PO-218	1.488E-02		4.181E-02	6.702E-02	8.543E-03	0.222
RN-219	-1.119E-01		2.000E-01	3.120E-01	4.826E-02	-0.359
RN-220	3.408E+00		1.295E+01	2.208E+01	2.250E+00	0.154
RA-223	4.616E-02		3.370E-01	5.681E-01	1.129E-01	0.081
RA-224	-2.488E-02		3.829E-01	6.181E-01	7.738E-02	-0.040
RA-226	-1.210E-02		4.299E-02	7.170E-02	8.337E-03	-0.169
AC-227	-7.013E-02		2.077E-01	3.266E-01	5.959E-02	-0.215
TH-227	-7.013E-02		2.078E-01	3.266E-01	6.722E-02	-0.215
AC-228	6.975E-02	+	1.265E-01	1.436E-01	1.902E-02	0.486
RA-228	6.975E-02	+	1.265E-01	1.436E-01	1.902E-02	0.486
TH-228	-8.021E-03		3.737E-02	5.918E-02	7.820E-03	-0.136
TH-229	-2.012E-01		2.763E-01	4.358E-01	4.685E-02	-0.462
TH-230	-1.210E-02		4.299E-02	7.170E-02	8.337E-03	-0.169
PA-231	1.083E-02		8.481E-01	1.356E+00	2.532E-01	0.008
TH-231	4.616E-02		3.370E-01	5.681E-01	1.129E-01	0.081
U-231	-2.925E-01		1.631E-01	2.323E-01	2.063E-02	-1.259
TH-232	6.975E-02	+	1.265E-01	1.436E-01	1.902E-02	0.486
PA-233	-1.395E-03		3.468E-02	5.800E-02	7.597E-03	-0.024
PA-234	2.082E-03		1.357E-01	2.242E-01	4.456E-02	0.009
PA-234M	-5.008E-01		2.653E+00	3.837E+00	4.398E-01	-0.131
TH-234	-2.927E-01		5.578E-01	9.188E-01	1.599E-01	-0.319
U-234	-1.210E-02		4.299E-02	7.170E-02	8.337E-03	-0.169
U-235	-1.662E-02		1.171E-01	1.815E-01	3.202E-02	-0.092
NP-236	1.636E-02		3.963E-02	6.768E-02	6.469E-03	0.242
NP-237	-7.287E-02		1.062E-01	1.550E-01	3.510E-02	-0.470
U-238	-2.927E-01		5.578E-01	9.188E-01	1.599E-01	-0.319
NP-239	1.225E-02		1.005E-01	1.610E-01	1.331E-02	0.076
AM-241	2.584E-03		5.437E-02	9.069E-02	7.089E-03	0.028

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	-6.263E-03		2.285E-02	3.457E-02	2.818E-03	-0.181
CM-243	6.637E-03		4.329E-02	7.017E-02	5.982E-03	0.095
AM-246	-7.323E-02		6.543E-02	9.012E-02	8.478E-03	-0.813
CM-247	-2.953E-03		1.786E-02	2.892E-02	2.713E-03	-0.102
CF-249	4.610E-03		2.035E-02	3.405E-02	3.236E-03	0.135
CF-251	-1.156E-03		6.907E-02	1.146E-01	1.164E-02	-0.010

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*                                     *                                       *
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202014507          *
* Acquisition date   : 22-JAN-2010 16:51:45 Detector SN# :                   *
* Detector ID        : GAM22 Sensitivity      : 5.000                       *
* Geometry           : CAN Energy tolerance: 1.500                         *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000              *
* Elapsed real time  : 0 02:00:00.98 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*                                     *                                       *
* Sample date       : 15-JAN-2010 00:00:00 Nuclide Library : SOLID           *
* Sample ID        : G1202014507 Analyst initials: MXR1                   *
* Batch Number     : 941239 Sample Quantity : 1.4570E+02 GRAM             *
* Recovery         : 1.00000 Carrier Weight : 0.00000                     *
*****
*                                     QC DATA                               *
*                                     *                                       *
* CALIB. DATE/TIME : 2-DEC-2009 16:47:28 MS Isotope :                     *
* MSD DPM           : 0.000 MSD Isotope :                                 *
* LCS DPM           : 0.000 LCS Isotope :                                 *
* LCSD DPM          : 0.000 LCSD Isotope :                                 *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
TL-208	1.254E-02	2.531E-02	1.400E-02	1.291E-02
ANH-511	1.622E-02	4.158E-02	1.346E-02	2.121E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU	
BE-7	5.501E-02	1.520E-01	1.331E-01	7.755E-02	NOT IDENT.
NA-22	8.433E-03	1.655E-02	1.505E-02	8.442E-03	NOT IDENT.
NA-24	-4.476E+01	9.942E+01	0.000E+00	5.072E+01	SHORT HLIF
AL-26	-3.043E-03	1.629E-02	1.322E-02	8.312E-03	NOT IDENT.
K-40	-2.879E-01	2.581E-01	2.100E-01	1.317E-01	NOT IDENT.
TI-44	-2.447E-03	1.364E-02	1.140E-02	6.962E-03	NOT IDENT.
SC-46	-6.087E-03	1.800E-02	1.497E-02	9.185E-03	NOT IDENT.
V-48	6.730E-03	2.182E-02	1.925E-02	1.113E-02	NOT IDENT.
CR-51	1.387E-02	1.622E-01	1.450E-01	8.275E-02	NOT IDENT.
MN-52	-5.543E-03	4.922E-02	4.069E-02	2.511E-02	NOT IDENT.
MN-54	1.842E-04	1.658E-02	1.440E-02	8.458E-03	NOT IDENT.
CO-56	9.914E-03	1.982E-02	1.787E-02	1.011E-02	NOT IDENT.
CO-57	-9.728E-03	1.386E-02	1.069E-02	7.069E-03	NOT IDENT.
CO-58	-2.304E-02	1.793E-02	1.349E-02	9.146E-03	NOT IDENT.
FE-59	-4.298E-02	3.405E-02	2.328E-02	1.737E-02	NOT IDENT.
CO-60	-7.760E-03	1.809E-02	1.442E-02	9.229E-03	NOT IDENT.
ZN-65	-2.817E-02	4.035E-02	3.103E-02	2.059E-02	NOT IDENT.
GE-68	-3.200E-01	5.193E-01	4.007E-01	2.649E-01	NOT IDENT.
AS-73	-2.930E-01	3.126E-01	2.599E-01	1.595E-01	NOT IDENT.
AS-74	-2.181E-02	3.671E-02	3.036E-02	1.873E-02	NOT IDENT.
SE-75	-2.130E-02	2.378E-02	1.908E-02	1.214E-02	NOT IDENT.
BR-77	3.600E-01	6.991E-01	5.617E-01	3.567E-01	NOT IDENT.
SR-82	-1.711E-02	1.594E-01	1.329E-01	8.134E-02	NOT IDENT.
RB-83	2.083E-02	3.795E-02	3.058E-02	1.936E-02	NOT IDENT.
RB-84	8.299E-04	2.863E-02	2.476E-02	1.460E-02	NOT IDENT.

KR-85	1.789E+01	5.129E+00	4.900E+00	2.617E+00	NOT IDENT.
SR-85	8.483E-02	2.433E-02	2.324E-02	1.241E-02	NOT IDENT.
RB-86	-1.199E-01	2.587E-01	2.046E-01	1.320E-01	NOT IDENT.
Y-88	3.092E-03	1.900E-02	1.635E-02	9.696E-03	NOT IDENT.
ZR-88	6.120E-03	1.454E-02	1.303E-02	7.419E-03	NOT IDENT.
Y-91	-2.220E+00	7.128E+00	5.903E+00	3.637E+00	NOT IDENT.
NB-94	1.832E-02	1.785E-02	1.638E-02	9.106E-03	NOT IDENT.
NB-95	1.832E-02	1.850E-02	1.695E-02	9.437E-03	NOT IDENT.
NB-95M	-8.122E-02	6.124E-02	4.832E-02	3.124E-02	NOT IDENT.
ZR-95	1.880E-02	3.122E-02	2.789E-02	1.593E-02	NOT IDENT.
NB-97	-1.425E+01	3.162E+01	0.000E+00	1.613E+01	SHORT HLIF
ZR-97	1.725E+03	8.210E+02	0.000E+00	4.189E+02	SHORT HLIF
MO-99	7.788E-01	8.937E-01	8.116E-01	4.560E-01	NOT IDENT.
TC-99M	-3.624E+06	2.585E+07	0.000E+00	1.319E+07	SHORT HLIF
RH-101	1.674E-03	1.965E-02	1.638E-02	1.003E-02	NOT IDENT.
RH-102	1.946E-03	1.543E-02	1.270E-02	7.873E-03	NOT IDENT.
RU-103	-1.040E-02	1.890E-02	1.521E-02	9.644E-03	NOT IDENT.
RH-106	8.132E-02	1.628E-01	1.461E-01	8.307E-02	FAIL ABUN
RU-106	8.132E-02	1.626E-01	1.461E-01	8.296E-02	FAIL ABUN
AG-108M	-1.820E-03	1.640E-02	1.399E-02	8.367E-03	NOT IDENT.
CD-109	-3.293E-01	3.457E-01	2.730E-01	1.764E-01	NOT IDENT.
AG-110M	-8.325E-03	1.634E-02	1.335E-02	8.336E-03	NOT IDENT.
IN-111	-7.341E-02	9.654E-02	7.930E-02	4.925E-02	NOT IDENT.
IN-113M	3.696E-03	2.227E-02	1.961E-02	1.136E-02	NOT IDENT.
SN-113	3.696E-03	2.227E-02	1.961E-02	1.136E-02	NOT IDENT.
IN-114M	-4.910E-02	8.572E-02	7.361E-02	4.373E-02	NOT IDENT.
CD-115	4.219E-01	5.432E-01	5.049E-01	2.771E-01	NOT IDENT.
SN-117M	1.296E-03	1.864E-02	1.690E-02	9.511E-03	NOT IDENT.
SB-122	-6.805E-02	1.603E-01	1.355E-01	8.177E-02	NOT IDENT.
I-123	2.547E+01	2.362E+02	0.000E+00	1.205E+02	SHORT HLIF
TE-123M	1.448E-03	1.343E-02	1.219E-02	6.851E-03	NOT IDENT.
I-124	-2.348E-02	1.136E-01	9.718E-02	5.796E-02	NOT IDENT.
SB-124	1.082E-02	4.056E-02	3.571E-02	2.070E-02	NOT IDENT.
SB-125	1.931E-02	4.658E-02	4.140E-02	2.377E-02	NOT IDENT.
TE-125M	2.332E+00	4.323E+00	3.634E+00	2.206E+00	NOT IDENT.
I-126	-3.505E-02	5.913E-02	4.788E-02	3.017E-02	NOT IDENT.
SB-126	-1.875E-02	4.598E-02	3.749E-02	2.346E-02	NOT IDENT.
SN-126	-4.944E-02	3.514E-02	2.683E-02	1.793E-02	NOT IDENT.
SB-127	-5.998E-02	1.774E-01	1.468E-01	9.053E-02	NOT IDENT.
XE-127	7.765E-02	2.022E-02	1.821E-02	1.032E-02	NOT IDENT.
I-131	2.309E-02	3.329E-02	3.043E-02	1.698E-02	NOT IDENT.
TE-132	-7.735E-03	7.222E-02	6.252E-02	3.685E-02	NOT IDENT.
BA-133	-3.036E-02	2.272E-02	1.773E-02	1.159E-02	NOT IDENT.
I-133	6.066E-01	8.257E+00	0.000E+00	4.213E+00	SHORT HLIF
CS-134	4.891E-03	2.135E-02	1.835E-02	1.089E-02	NOT IDENT.
CS-135	9.688E-02	8.458E-02	7.668E-02	4.315E-02	NOT IDENT.
I-135	1.736E+07	1.874E+07	0.000E+00	9.564E+06	SHORT HLIF
CS-136	2.045E-02	3.246E-02	2.936E-02	1.656E-02	NOT IDENT.
BA-137M	9.696E-04	1.656E-02	1.430E-02	8.450E-03	NOT IDENT.
CS-137	1.025E-03	1.751E-02	1.511E-02	8.932E-03	NOT IDENT.
CE-139	7.115E-03	1.422E-02	1.312E-02	7.257E-03	NOT IDENT.
BA-140	2.457E-02	8.310E-02	7.446E-02	4.240E-02	NOT IDENT.
LA-140	7.607E-03	3.197E-02	2.810E-02	1.631E-02	NOT IDENT.
CE-141	4.982E-03	2.583E-02	2.374E-02	1.318E-02	NOT IDENT.
CE-143	-9.135E-01	1.496E+00	1.279E+00	7.631E-01	NOT IDENT.
CE-144	2.929E-02	9.495E-02	8.839E-02	4.844E-02	NOT IDENT.
PM-144	3.647E-04	1.775E-02	1.517E-02	9.054E-03	NOT IDENT.
PR-144	2.461E-02	1.198E+00	1.024E+00	6.111E-01	NOT IDENT.
PM-146	2.583E-03	2.220E-02	1.919E-02	1.133E-02	NOT IDENT.
ND-147	-1.222E-01	1.826E-01	1.516E-01	9.317E-02	NOT IDENT.
PM-149	2.133E+00	4.897E+00	4.275E+00	2.498E+00	NOT IDENT.
EU-152	3.827E-03	4.743E-02	4.210E-02	2.420E-02	NOT IDENT.
GD-153	2.780E-02	3.529E-02	3.241E-02	1.801E-02	NOT IDENT.
EU-154	2.240E-02	4.624E-02	4.193E-02	2.359E-02	NOT IDENT.
EU-155	-4.476E-02	5.305E-02	4.145E-02	2.707E-02	NOT IDENT.
TB-160	-4.263E-02	6.357E-02	5.093E-02	3.243E-02	NOT IDENT.
HO-166M	-4.095E-03	3.100E-02	2.607E-02	1.582E-02	NOT IDENT.
TM-171	-7.213E+00	1.073E+01	8.965E+00	5.476E+00	NOT IDENT.
LU-176	7.490E-03	1.339E-02	1.232E-02	6.833E-03	NOT IDENT.
LU-177	2.525E-02	2.551E-01	2.256E-01	1.302E-01	NOT IDENT.
LU-177M	-5.762E-02	8.251E-02	6.721E-02	4.210E-02	NOT IDENT.
HF-181	-1.284E-02	2.018E-02	1.622E-02	1.030E-02	NOT IDENT.
W-181	-3.661E-01	1.470E-01	1.070E-01	7.502E-02	NOT IDENT.
TA-182	-7.151E-03	7.846E-02	6.656E-02	4.003E-02	NOT IDENT.
RE-183	-4.538E-02	5.526E-02	4.459E-02	2.819E-02	NOT IDENT.
RE-184	-5.224E-02	1.200E-01	1.003E-01	6.122E-02	NOT IDENT.
OS-185	-7.045E-03	1.956E-02	1.601E-02	9.982E-03	NOT IDENT.
RE-188	7.693E-03	7.710E-02	7.015E-02	3.934E-02	NOT IDENT.

W-188	7.810E-02	3.395E+00	3.053E+00	1.732E+00	NOT IDENT.
IR-192	5.294E-03	1.716E-02	1.555E-02	8.753E-03	NOT IDENT.
AU-195	-2.964E-02	1.028E-01	8.863E-02	5.245E-02	NOT IDENT.
TL-200	-1.461E+00	2.217E+00	1.852E+00	1.131E+00	NOT IDENT.
TL-201	-2.914E-01	6.354E-01	5.561E-01	3.242E-01	NOT IDENT.
TL-202	7.934E-03	2.473E-02	2.175E-02	1.262E-02	NOT IDENT.
HG-203	7.238E-03	1.899E-02	1.659E-02	9.688E-03	NOT IDENT.
BI-207	1.883E-02	2.383E-02	2.182E-02	1.216E-02	NOT IDENT.
TL-207	4.616E-02	3.303E-01	2.959E-01	1.685E-01	NOT IDENT.
PO-209	-2.983E-01	3.449E+00	2.941E+00	1.760E+00	NOT IDENT.
BI-210	2.375E-02	1.566E+00	1.336E+00	7.989E-01	NOT IDENT.
PB-210	2.375E-02	1.566E+00	1.336E+00	7.989E-01	NOT IDENT.
PO-210	2.375E-02	1.566E+00	1.336E+00	7.989E-01	NOT IDENT.
BI-211	7.583E-02	1.168E-01	1.009E-01	5.961E-02	NOT IDENT.
PB-211	3.453E-02	4.409E-01	3.843E-01	2.249E-01	NOT IDENT.
BI-212	-2.154E-02	1.519E-01	1.177E-01	7.749E-02	NOT IDENT.
PB-212	-7.960E-03	3.634E-02	3.080E-02	1.854E-02	NOT IDENT.
PO-212	-7.960E-03	3.634E-02	3.080E-02	1.854E-02	NOT IDENT.
BI-214	-1.210E-02	4.213E-02	3.682E-02	2.149E-02	NOT IDENT.
PB-214	1.488E-02	4.097E-02	3.485E-02	2.090E-02	NOT IDENT.
PO-214	1.488E-02	4.097E-02	3.485E-02	2.090E-02	NOT IDENT.
PO-215	4.616E-02	3.303E-01	2.959E-01	1.685E-01	NOT IDENT.
PO-216	-7.960E-03	3.634E-02	3.080E-02	1.854E-02	NOT IDENT.
PO-218	1.488E-02	4.097E-02	3.485E-02	2.090E-02	NOT IDENT.
RN-219	-1.119E-01	1.960E-01	1.617E-01	1.000E-01	NOT IDENT.
RN-220	3.408E+00	1.269E+01	1.136E+01	6.474E+00	NOT IDENT.
RA-223	4.616E-02	3.303E-01	2.959E-01	1.685E-01	NOT IDENT.
RA-224	-2.488E-02	3.753E-01	3.241E-01	1.915E-01	NOT IDENT.
RA-226	-1.210E-02	4.213E-02	3.682E-02	2.149E-02	NOT IDENT.
AC-227	-7.013E-02	2.036E-01	1.710E-01	1.039E-01	NOT IDENT.
TH-227	-7.013E-02	2.037E-01	1.710E-01	1.039E-01	NOT IDENT.
AC-228	6.975E-02	1.239E-01	7.303E-02	6.324E-02	FAIL ABUN
RA-228	6.975E-02	1.239E-01	7.303E-02	6.324E-02	FAIL ABUN
TH-228	-8.021E-03	3.662E-02	3.104E-02	1.868E-02	NOT IDENT.
TH-229	-2.012E-01	2.708E-01	2.296E-01	1.381E-01	NOT IDENT.
TH-230	-1.210E-02	4.213E-02	3.682E-02	2.149E-02	NOT IDENT.
PA-231	1.083E-02	8.311E-01	7.084E-01	4.240E-01	NOT IDENT.
TH-231	4.616E-02	3.303E-01	2.959E-01	1.685E-01	NOT IDENT.
U-231	-2.925E-01	1.598E-01	1.242E-01	8.154E-02	NOT IDENT.
TH-232	6.975E-02	1.239E-01	7.303E-02	6.324E-02	FAIL ABUN
PA-233	-1.395E-03	3.399E-02	3.023E-02	1.734E-02	NOT IDENT.
PA-234	2.082E-03	1.330E-01	1.139E-01	6.786E-02	NOT IDENT.
PA-234M	-5.008E-01	2.600E+00	1.948E+00	1.326E+00	NOT IDENT.
TH-234	-2.927E-01	5.467E-01	4.957E-01	2.789E-01	NOT IDENT.
U-234	-1.210E-02	4.213E-02	3.682E-02	2.149E-02	NOT IDENT.
U-235	-1.662E-02	1.147E-01	9.625E-02	5.853E-02	NOT IDENT.
NP-236	1.636E-02	3.884E-02	3.580E-02	1.982E-02	NOT IDENT.
NP-237	-7.287E-02	1.041E-01	8.308E-02	5.309E-02	NOT IDENT.
U-238	-2.927E-01	5.467E-01	4.957E-01	2.789E-01	NOT IDENT.
NP-239	1.225E-02	9.850E-02	8.576E-02	5.025E-02	NOT IDENT.
AM-241	2.584E-03	5.328E-02	4.899E-02	2.719E-02	NOT IDENT.
AM-243	-6.263E-03	2.239E-02	1.859E-02	1.143E-02	NOT IDENT.
CM-243	6.637E-03	4.243E-02	3.746E-02	2.165E-02	NOT IDENT.
AM-246	-7.323E-02	6.412E-02	4.566E-02	3.271E-02	NOT IDENT.
CM-247	-2.953E-03	1.751E-02	1.499E-02	8.932E-03	NOT IDENT.
CF-249	4.610E-03	1.994E-02	1.766E-02	1.017E-02	NOT IDENT.
CF-251	-1.156E-03	6.769E-02	6.047E-02	3.454E-02	NOT IDENT.

```

*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY          MDA COUNTS

```

46.50	103.8649
46.50	103.8649
46.50	103.8649
48.70	104.0269
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51.35	92.3497
52.39	102.9777
52.97	111.6083
53.15	108.9029
53.44	103.4471
54.07	92.5129
56.28	97.1477
56.28	97.1487
57.37	97.5851
57.53	97.6488
57.53	97.6496
57.60	110.9533
57.98	112.0744
57.98	112.0744
59.32	96.4459
59.32	96.4459
59.40	96.4765
59.54	96.5302
59.72	123.3793
60.01	123.5210
61.10	151.9378
61.14	151.9613
61.30	135.6955
63.00	94.9324
63.29	96.9769
63.29	96.9769
63.58	104.8501
64.28	119.7281
65.12	168.9275
65.20	167.0244
65.20	167.0244
66.05	166.5699
66.72	111.9741
66.83	112.0193
66.91	112.0523
67.20	106.2669
67.20	106.2669
67.75	105.4925
67.85	105.5309
68.90	129.6887
68.90	129.6887
69.30	141.7701
69.67	127.0664
70.82	125.5866
70.82	125.5866
70.83	125.5911
72.80	118.4207
72.87	118.4495
72.87	118.4495
74.67	143.4127
74.81	143.4799
74.81	143.4799
74.81	143.4799
74.81	143.4799
74.81	143.4799
74.81	143.4799
74.81	143.4799
74.97	143.5572
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75.70	127.6919
77.11	130.3236
77.11	130.3236



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77.11	130.3236
77.11	130.3236
77.11	130.3236
77.11	130.3236
78.38	119.6178
79.62	147.8108
79.80	154.0581
79.80	154.0581
80.11	150.0984
80.18	150.1318
80.30	144.0168
80.30	144.0168
80.57	144.1400
81.00	144.3365
81.07	144.3686
81.07	144.3686
81.07	144.3686
81.07	144.3686
82.60	126.4113
83.37	140.2144
83.78	140.3929
83.78	140.3929
83.78	140.3929
83.78	140.3929
84.21	131.2071
84.90	146.0932
85.43	135.8769
86.29	159.2843
86.50	159.3848
86.54	159.4041
86.59	181.4543
86.72	181.5256
86.79	183.6615
86.94	183.7452
87.30	174.4829
87.30	174.4829
87.30	174.4829
87.30	174.4829
87.30	174.4829
87.30	174.4829
87.57	174.6230
87.88	161.0964
88.03	161.1680
88.36	134.9648
88.47	135.0091
89.95	268.0147
91.11	160.5012
92.29	150.3812
92.38	150.4199
92.38	150.4199
93.35	133.7191
94.00	171.4754
94.67	220.1148
94.67	220.1179
94.90	271.8327
94.90	271.8327
94.90	271.8327
94.90	271.8327
95.87	218.7014
95.87	218.7014
96.73	151.1889
97.43	130.9215
98.44	139.9626
98.44	139.9632
98.88	153.1660
99.55	130.5908
99.55	130.5908
99.86	135.0561
100.00	135.1072
100.10	137.3248
103.18	141.7473
103.76	121.0538
105.00	131.3813
105.31	141.4310
108.00	133.5077
109.28	126.1261

111.00	172.6281
111.00	172.6281
111.76	153.8609
112.95	159.9436
115.19	155.1535
116.30	172.6011
117.00	158.1029
117.00	158.1029
117.66	160.6295
121.11	149.3008
121.62	158.6760
121.78	158.7343
122.06	165.7427
122.32	165.8416
122.32	165.8416
122.32	165.8416
122.32	165.8416
123.07	161.5133
127.23	151.3926
129.76	144.9239
131.20	170.9326
133.02	149.4932
133.54	146.1185
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136.00	152.2277
136.25	152.3086
136.48	172.8789
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140.51	0.0000
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143.76	169.1677
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144.24	145.7883
144.24	145.7883
144.24	145.7883
145.22	163.3159
145.44	157.0347
147.16	158.4853
152.43	157.3706
152.70	152.8489
153.22	141.9417
154.21	144.9823
154.21	144.9823
154.21	144.9823
154.21	144.9823
155.03	154.4590
156.02	156.6040
158.56	156.4259
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159.00	153.7585
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161.27	161.8958
162.32	160.3334
162.64	150.1086
163.35	158.7586
163.89	146.6904
165.85	146.2704
167.43	158.9907
171.28	163.8942
171.86	151.6609
172.10	151.7252
176.55	174.0595
176.60	174.0747
181.06	173.4622
184.41	154.9471
185.71	166.0234
186.00	157.3101
190.27	177.1051
192.34	176.7098
193.63	182.0220
197.04	162.1220
198.01	157.3876
198.60	157.5323
200.40	193.9704
201.83	157.3246
202.84	140.5074
205.31	157.1581

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208.81	148.8774
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209.75	146.0446
210.97	153.4227
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216.55	143.4201
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223.80	141.8185
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227.00	137.2610
227.08	137.2761
227.20	137.2993
228.16	137.4836
228.18	137.4876
228.18	137.4876
231.56	133.9482
235.69	191.5379
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236.00	181.0913
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238.63	156.3772
238.63	156.3772
238.63	156.3772
239.00	152.2266
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241.98	201.6576
241.98	201.6576
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249.79	123.3141
252.40	142.0215
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252.85	134.5673
254.15	0.0000
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256.20	134.0636
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260.90	120.7220
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268.79	124.1007
269.46	123.1033
269.46	123.1033
269.46	123.1033
269.46	123.1033
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273.65	143.6137
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277.60	137.6325
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278.60	122.2394
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281.68	138.2985
283.67	121.8516
284.30	130.8913
285.00	125.4001
285.90	115.4444
286.10	103.1392
286.10	103.1392
287.40	117.8895
288.45	0.0000
290.67	117.2063
290.80	117.2238
291.72	136.3037
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293.70	111.2781
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295.21	110.5625

295.21	110.5625
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297.23	106.2726
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299.80	127.5295
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300.09	131.2172
300.09	131.2172
300.12	131.2207
301.29	121.3544
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303.91	125.3670
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304.40	118.1109
304.84	109.9233
306.84	115.6733
308.46	125.0745
311.98	118.1656
316.51	112.2470
318.01	119.8604
319.02	115.3372
319.41	107.0109
320.08	112.6724
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323.87	104.7088
323.87	104.7088
323.87	104.7088
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334.20	139.8466
334.30	140.8061
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338.28	111.0115
338.28	111.0115
338.28	111.0115
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338.32	111.0172
338.32	111.0172
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351.92	78.8619
351.92	78.8619
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367.43	105.4200
367.94	115.2358
369.80	122.2839
374.96	102.2303
383.85	102.0734
387.95	85.5412
388.63	93.5559
391.69	93.8118
391.69	93.8118
392.90	82.9230
398.62	95.3920
400.65	90.5317
401.10	82.5175
401.81	85.5894
402.60	80.6104
404.84	77.7379
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411.60	68.0362
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415.30	71.3065

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427.89	77.2083
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439.89	90.4430
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444.90	89.7636
445.03	89.7730
445.03	89.7730
445.03	89.7730
445.03	89.7730
453.90	77.7903
463.38	82.6027
468.07	77.5866
473.00	81.0784
475.06	68.3828
475.35	66.2610
476.78	66.3321
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487.03	73.3092
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511.85	87.8081
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513.99	87.9414
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520.65	67.8429
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529.87	0.0000
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546.56	0.0000
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552.65	63.9603
555.20	71.6056
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563.90	83.3862
568.70	66.5365
569.32	70.3656
569.50	71.3257
569.67	71.3333
573.80	79.1516
574.00	74.3929
574.64	79.1955
578.91	63.9667
579.30	62.3411
583.14	56.6005
585.48	67.5273
591.81	67.5206
592.07	66.5658
593.00	76.2580
595.88	86.0648
600.56	71.7673
602.52	0.0000
602.71	103.9088
602.71	103.9088
603.60	122.4265
604.41	129.2929
604.70	124.4531
609.31	67.2775

609.31	67.2775
609.31	67.2775
609.31	67.2775
610.33	69.2709
612.46	91.8294
614.37	112.4731
618.01	54.8903
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621.84	62.8763
631.29	65.2051
633.02	46.4817
633.10	47.4727
634.78	47.5195
635.90	56.4666
636.97	54.5200
645.85	53.8055
646.12	54.8109
656.30	55.1320
657.75	63.2038
657.90	0.0000
661.65	55.2999
661.65	55.2999
664.57	63.4486
666.33	67.5439
666.33	67.5439
675.00	66.8594
677.61	55.7967
685.20	62.1442
692.80	63.4254
695.00	69.6463
696.49	69.7030
696.49	69.7030
697.00	70.7477
697.49	67.6892
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698.50	81.0669
699.00	81.0878
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706.58	0.0000
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717.42	57.0119
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722.78	57.1731
722.78	57.1731
722.89	57.1764
722.95	57.1775
723.30	53.0295
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727.18	48.9689
733.00	62.7026
735.90	50.2383
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742.81	57.7695
744.21	58.8608
747.13	55.7906
751.79	55.9232
752.31	51.7166
753.82	47.5305
755.35	45.4530
756.15	44.4139
756.87	56.0666
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765.79	45.6919
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766.84	55.2839
776.49	58.7536
778.00	58.7967
778.57	60.9521
778.89	57.7529
783.80	45.0275
785.46	55.7938
792.07	46.2850

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798.80	66.9535
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805.60	40.8602
810.29	64.2194
810.76	64.2339
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817.79	42.9646
818.51	51.3879
819.60	51.4138
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828.27	44.1141
831.60	51.7025
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846.75	54.9040
848.13	54.9384
856.28	0.0000
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867.82	53.5166
871.10	51.6806
873.19	44.0652
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875.33	0.0000
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880.51	48.0521
881.50	44.2272
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884.67	42.3633
889.25	49.2017
896.60	42.5843
898.02	40.6736
899.00	38.7528
903.28	36.2363
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911.07	39.1978
911.07	39.1978
919.63	29.0782
920.93	42.0522
925.00	39.1853
925.24	41.1489
926.50	43.1314
935.52	41.3269
937.48	38.4063
944.10	37.5242
946.00	36.5658
949.00	40.5689
962.29	58.6985
964.01	62.7209
966.15	51.8150
968.20	47.8686
969.11	46.8894
969.11	46.8894
969.11	46.8894
977.42	37.0361
980.50	32.0709
983.50	30.1025
989.30	39.2238
996.32	43.3674
1001.03	40.4164
1001.68	34.3629
1004.76	43.5114
1021.30	0.0000
1024.50	0.0000
1034.80	47.0910
1036.00	36.8701
1037.82	27.6714
1038.57	23.5792
1038.76	0.0000
1045.16	45.2200
1046.59	46.2728
1048.07	29.8375

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1050.47	27.8042
1062.04	35.1645
1063.62	30.0114
1076.63	36.3953
1077.35	36.4050
1078.86	44.7517
1085.78	30.2572
1099.22	40.8907
1112.02	38.9718
1112.84	46.3587
1115.52	48.5124
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1120.29	34.8611
1120.29	34.8611
1120.29	34.8611
1120.51	33.8080
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1124.00	0.0000
1129.67	31.7976
1131.51	0.0000
1147.95	0.0000
1167.94	27.2556
1173.22	32.9535
1175.09	32.0327
1177.93	28.2916
1189.05	31.2376
1204.90	39.9684
1205.75	34.2686
1213.00	37.2135
1221.42	40.1876
1230.97	47.0321
1235.34	27.8752
1236.41	0.0000
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1246.25	29.9026
1260.41	0.0000
1271.85	27.2310
1274.45	20.4399
1274.54	20.4405
1291.56	27.4001
1298.22	0.0000
1312.09	22.6512
1325.50	24.7223
1325.50	24.7223
1332.49	29.7299
1333.61	24.7833
1360.21	22.9839
1362.66	0.0000
1365.15	20.0153
1368.21	25.0420
1368.53	0.0000
1376.25	23.0934
1384.27	31.1996
1394.10	21.1961
1395.20	23.2218
1407.95	28.3751
1434.06	26.5459
1436.60	20.4352
1457.56	0.0000
1460.81	33.9487
1489.15	23.8472
1509.49	17.7242
1596.49	24.6564
1620.62	24.8095
1678.03	0.0000
1691.02	18.4511
1691.02	18.4511
1706.46	0.0000
1750.46	0.0000
1764.49	13.8371
1764.49	13.8371
1764.49	13.8371
1764.49	13.8371
1770.23	29.6908
1771.40	36.6286
1791.20	0.0000
1808.65	15.9770



1836.01

17.0821

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202014507

Total Uranium Activity	-8.7832E-01	ug/g
Total Uranium Counting Unc.	1.6273E+00	ug/g
Total Uranium Tpu	8.3023E-07	ug/g
Total Uranium Mda	1.4754E+00	ug/g

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*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941239                          SAMPLE ID   : G1202014507
*  ANALYST       : MXR1                             DETECTOR    : GAM22
*  SAMPLE DATE   : 15-JAN-2010 00:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 16:51:45.88          SAMPLE ALQT  : 145.700 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 4.610E-02
GROSS GAMMA ERROR  (pCi/GRAM )  : 5.162E-02
GROSS GAMMA MDA    (pCi/GRAM )  : 1.092E-01
GROSS GAMMA DLC    (pCi/GRAM )  : 5.169E-02

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 18:54:23.63

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014508.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:52:18
Sample ID          : G1202014508      Sample quantity   : 1.33170E+02 GRAM
Detector name      : GAM23            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:01.75  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity       : 5.00000
Batch ID           : 941239            Detector SN#      :
Matrix Spike ID    :                   LCS ID           : 1032-A
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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.49*	125	683	1.31	126.99	121	13	1.73E-02	44.5	
2	1	74.63	362	476	1.38	149.25	142	18	5.03E-02	11.7	2.21E+00
3	1	77.00*	527	400	1.14	154.00	142	18	7.32E-02	7.8	
4	1	84.04*	107	414	1.40	168.08	161	32	1.49E-02	34.3	2.20E+00
5	1	87.08	235	395	1.41	174.15	161	32	3.26E-02	16.2	
6	1	89.57*	190	377	1.41	179.13	161	32	2.63E-02	20.1	
7	1	92.53*	523	351	1.37	185.06	161	32	7.26E-02	8.1	
8	0	129.16	103	339	1.25	258.32	254	9	1.43E-02	33.7	
9	0	185.63*	375	380	1.27	371.26	366	12	5.21E-02	11.9	
10	0	208.93	124	277	1.87	417.87	414	10	1.72E-02	26.7	
11	2	238.31*	1208	165	1.26	476.62	469	20	1.68E-01	3.5	2.70E+00
12	2	241.41	274	209	1.77	482.83	469	20	3.81E-02	13.3	
13	0	270.53*	90	220	0.88	541.05	534	12	1.24E-02	35.4	
14	0	276.91	55	212	1.28	553.83	548	11	7.65E-03	52.9	
15	0	294.86	307	234	1.28	589.72	583	12	4.26E-02	11.5	
16	0	299.96	101	180	1.35	599.93	595	11	1.40E-02	27.8	
17	0	338.07	209	193	1.54	676.14	669	12	2.90E-02	15.1	
18	0	351.47*	560	155	1.22	702.94	697	12	7.78E-02	6.2	
19	0	510.31*	118	179	1.77	1020.62	1011	20	1.64E-02	31.6	
20	0	582.63*	297	113	1.74	1165.27	1159	14	4.12E-02	9.6	
21	0	608.59*	348	134	1.66	1217.18	1210	16	4.83E-02	9.3	
22	0	660.88	162	78	2.34	1321.76	1315	12	2.24E-02	13.5	
23	0	727.10	45	98	1.58	1454.21	1449	14	6.18E-03	50.8	
24	0	768.18	50	91	1.01	1536.36	1528	14	6.98E-03	42.6	
25	0	794.46	47	55	2.29	1588.91	1580	12	6.52E-03	34.6	
26	0	910.26	219	80	1.69	1820.52	1813	17	3.04E-02	11.6	
27	3	964.07	45	35	2.08	1928.14	1924	20	6.20E-03	27.4	7.31E-01
28	3	968.15	133	50	2.01	1936.30	1924	20	1.85E-02	14.0	
29	0	1119.09	73	52	2.38	2238.18	2232	13	1.01E-02	23.5	
30	0	1459.46*	1131	48	2.48	2918.92	2909	23	1.57E-01	3.4	
31	0	1763.46*	49	9	2.55	3526.92	3520	12	6.78E-03	19.4	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 22-JAN-2010 18:54:26

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014508.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 22-JAN-2010 16:52:18
Sample ID        : G1202014508           Sample quantity  : 133.17 GRAM
Sample type      : SOLID                 Sample geometry   :
Detector name    : GAMMA23               Detector geometry: CAN
Elapsed live time: 0 02:00:00.00         Elapsed real time: 0 02:00:01.75   0.0%
Peak Width (FWHM): 3.00                  Confidence level  : 5.00 %
Energy tolerance : 1.50 keV              Half life ratio   : 8.00
Errors propagated: Yes                    Systematic Error  : 0.00 %
Efficiency type  : Empirical              Efficiencies at   : Peak Energy
Abundance limit  : 75.00                  WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.997E+01	3.035E+00	5.566E-01	4.164E-02	53.844
CD-109	+	88.03	*	3.491E+00	1.178E+00	1.315E+00	1.284E-01	2.655
SN-126	+	64.28		1.400E+00	1.263E+00	1.013E+00	1.542E-01	1.382
	+	86.94		1.424E+00	7.502E-01	5.443E-01	2.264E-01	2.616
	+	87.57	*	3.426E-01	1.156E-01	1.298E-01	1.263E-02	2.639
BA-137M	+	661.65	*	2.481E-01	6.805E-02	6.591E-02	3.367E-03	3.765
CS-137	+	661.65	*	2.623E-01	7.195E-02	6.967E-02	3.579E-03	3.765
TL-208	+	277.35		5.510E-01	5.859E-01	6.339E-01	6.698E-02	0.869
	+	510.84		6.059E-01	3.882E-01	2.296E-01	2.332E-02	2.639
	+	583.14	*	4.359E-01	8.842E-02	6.489E-02	4.213E-03	6.717
		860.37		5.461E-01	3.541E-01	6.505E-01	5.880E-02	0.839
BI-211		72.87		1.134E+01	4.355E+00	6.876E+00	6.065E-01	1.649
	+	351.07	*	3.546E+00	4.980E-01	3.646E-01	2.375E-02	9.726
PB-212	+	74.81		2.366E+00	6.316E-01	6.453E-01	8.325E-02	3.667
	+	77.11		1.919E+00	3.459E-01	3.616E-01	3.253E-02	5.308
	+	87.30		1.584E+00	5.577E-01	6.026E-01	8.398E-02	2.629
	+	238.63	*	1.647E+00	1.645E-01	9.583E-02	6.890E-03	17.182
	+	300.09		2.139E+00	1.204E+00	1.276E+00	1.059E-01	1.677
PO-212	+	74.81		2.366E+00	6.316E-01	6.453E-01	8.325E-02	3.667
	+	77.11		1.919E+00	3.459E-01	3.616E-01	3.253E-02	5.308
	+	87.30		1.584E+00	5.577E-01	6.026E-01	8.398E-02	2.629
		115.19		7.614E-01	3.941E+00	6.540E+00	4.172E-01	0.116
	+	238.63	*	1.647E+00	1.645E-01	9.583E-02	6.890E-03	17.182
	+	300.09		2.139E+00	1.204E+00	1.276E+00	1.059E-01	1.677
BI-214	+	609.31	*	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
	+	1120.29		1.081E+00	5.183E-01	5.274E-01	4.901E-02	2.049
	+	1764.49		9.958E-01	3.920E-01	3.027E-01	1.882E-02	3.290
PB-214	+	74.81		4.077E+00	1.063E+00	1.112E+00	1.287E-01	3.667
	+	77.11		3.290E+00	6.438E-01	6.198E-01	7.308E-02	5.308
	+	87.30		2.714E+00	9.396E-01	1.032E+00	1.280E-01	2.629
	+	241.98		2.248E+00	6.223E-01	5.771E-01	4.590E-02	3.895
	+	295.21		1.141E+00	2.798E-01	2.304E-01	1.975E-02	4.954
	+	351.92	*	1.233E+00	1.848E-01	1.235E-01	1.031E-02	9.983
PO-214	+	74.81		4.077E+00	1.063E+00	1.112E+00	1.287E-01	3.667

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	77.11		3.290E+00	6.438E-01	6.198E-01	7.308E-02	5.308
	+	87.30		2.714E+00	9.396E-01	1.032E+00	1.280E-01	2.629
	+	241.98		2.248E+00	6.223E-01	5.771E-01	4.590E-02	3.895
	+	295.21		1.141E+00	2.798E-01	2.304E-01	1.975E-02	4.954
	+	351.92	*	1.233E+00	1.848E-01	1.235E-01	1.031E-02	9.983
	+	74.81		2.366E+00	6.316E-01	6.453E-01	8.325E-02	3.667
	+	77.11		1.919E+00	3.459E-01	3.616E-01	3.253E-02	5.308
	+	87.30		1.584E+00	5.577E-01	6.026E-01	8.398E-02	2.629
PO-218	+	238.63	*	1.647E+00	1.645E-01	9.583E-02	6.890E-03	17.182
	+	300.09		2.139E+00	1.204E+00	1.276E+00	1.059E-01	1.677
	+	74.81		4.077E+00	1.063E+00	1.112E+00	1.287E-01	3.667
	+	77.11		3.290E+00	6.438E-01	6.198E-01	7.308E-02	5.308
	+	87.30		2.714E+00	9.396E-01	1.032E+00	1.280E-01	2.629
	+	241.98		2.248E+00	6.223E-01	5.771E-01	4.590E-02	3.895
	+	295.21		1.141E+00	2.798E-01	2.304E-01	1.975E-02	4.954
	+	351.92	*	1.233E+00	1.848E-01	1.235E-01	1.031E-02	9.983
RA-224	+	240.98	*	4.263E+00	1.156E+00	1.091E+00	6.145E-02	3.909
RA-226	+	609.31	*	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
AC-228	+	1120.29		1.081E+00	5.183E-01	5.274E-01	4.901E-02	2.049
	+	1764.49		9.958E-01	3.920E-01	3.027E-01	1.882E-02	3.290
	+	338.32		1.454E+00	7.370E-01	3.977E-01	1.622E-01	3.656
	+	911.07	*	1.458E+00	3.774E-01	2.496E-01	2.881E-02	5.840
RA-228	+	969.11		1.566E+00	5.707E-01	3.802E-01	8.851E-02	4.120
	+	338.32		1.454E+00	7.370E-01	3.977E-01	1.622E-01	3.656
	+	911.07	*	1.458E+00	3.774E-01	2.496E-01	2.881E-02	5.840
	+	969.11		1.566E+00	5.707E-01	3.802E-01	8.851E-02	4.120
TH-228	+	74.81		2.405E+00	6.018E-01	6.558E-01	5.878E-02	3.667
	+	77.11		1.950E+00	3.516E-01	3.674E-01	3.306E-02	5.308
	+	87.30		1.610E+00	5.434E-01	6.124E-01	5.944E-02	2.629
	+	238.63	*	1.673E+00	1.671E-01	9.739E-02	7.002E-03	17.182
TH-230	+	300.09		2.174E+00	1.762E+00	1.297E+00	7.642E-01	1.677
	+	609.31	*	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
	+	1120.29		1.081E+00	5.183E-01	5.274E-01	4.901E-02	2.049
	+	1764.49		9.958E-01	3.920E-01	3.027E-01	1.882E-02	3.290
TH-232	+	338.32		1.454E+00	4.461E-01	3.977E-01	2.349E-02	3.656
	+	911.07	*	1.458E+00	3.774E-01	2.496E-01	2.881E-02	5.840
	+	969.11		1.566E+00	5.707E-01	3.802E-01	8.851E-02	4.120
	+	63.29	*	3.537E+00	3.208E+00	2.690E+00	4.848E-01	1.315
U-234	+	92.38		4.885E+00	1.193E+00	8.397E-01	1.531E-01	5.817
	+	609.31	*	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
	+	1120.29		1.081E+00	5.183E-01	5.274E-01	4.901E-02	2.049
	+	1764.49		9.958E-01	3.920E-01	3.027E-01	1.882E-02	3.290
NP-237	+	86.50	*	1.006E+00	3.979E-01	3.869E-01	8.811E-02	2.600
	+	95.87		-1.010E-01	1.180E+00	1.710E+00	4.198E-01	-0.059
U-238	+	63.29	*	3.537E+00	3.208E+00	2.690E+00	4.848E-01	1.315
	+	92.38		4.885E+00	9.058E-01	8.397E-01	7.504E-02	5.817
AM-243	+	74.67	*	3.836E-01	9.591E-02	1.050E-01	9.333E-03	3.653
	+	86.72		3.772E+01	1.273E+01	1.446E+01	1.397E+00	2.608
	+	117.66		-4.271E+00	4.163E+00	6.564E+00	4.065E-01	-0.651

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	142.18			6.369E+00	1.908E+01	3.162E+01	1.722E+00	0.201
ANH-511	+	511.00	*	1.309E-01	8.314E-02	4.960E-02	2.881E-03	2.639

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	9.734E-02	3.731E-01	6.248E-01	4.247E-02	0.156
NA-22		1274.54	*	-2.649E-02	5.140E-02	7.914E-02	5.315E-03	-0.335
NA-24		1368.53	*	-2.104E-01	5.140E-02	Half-Life too short		
AL-26		1129.67		-2.626E-01	1.928E+00	3.125E+00	1.991E-01	-0.084
		1808.65	*	2.253E-02	3.354E-02	6.214E-02	3.735E-03	0.363
TI-44		67.85		1.497E-02	7.753E-02	9.768E-02	8.506E-03	0.153
	+	78.38	*	3.542E-01	6.384E-02	8.953E-02	8.116E-03	3.956
SC-46		889.25	*	-3.697E-03	4.664E-02	7.718E-02	6.896E-03	-0.048
	+	1120.51		1.867E-01	8.867E-02	1.339E-01	8.724E-03	1.394
V-48		944.10		-7.389E-01	1.106E+00	1.723E+00	1.501E-01	-0.429
		983.50	*	5.318E-02	8.094E-02	1.421E-01	1.182E-02	0.374
		1312.09		1.017E-01	1.017E-01	1.823E-01	1.297E-02	0.558
CR-51		320.08	*	-2.893E-01	4.132E-01	6.666E-01	4.371E-02	-0.434
MN-52		744.21		2.244E-01	2.984E-01	5.119E-01	3.259E-02	0.438
		848.13		1.845E+00	7.909E+00	1.349E+01	1.101E+00	0.137
		935.52		2.017E-01	3.249E-01	5.680E-01	4.993E-02	0.355
		1246.25		-6.206E+00	1.011E+01	1.556E+01	9.959E-01	-0.399
		1333.61		-2.198E+00	6.459E+00	1.003E+01	7.363E-01	-0.219
		1434.06	*	-1.910E-01	2.970E-01	4.308E-01	3.117E-02	-0.443
MN-54		834.83	*	-2.516E-03	4.144E-02	6.895E-02	5.459E-03	-0.036
CO-56		846.75	*	-2.040E-02	4.172E-02	6.652E-02	5.412E-03	-0.307
		977.42		6.996E-01	3.242E+00	5.372E+00	4.504E-01	0.130
		1037.82		4.220E-02	3.563E-01	5.948E-01	4.876E-02	0.071
		1175.09		6.869E-01	2.707E+00	4.533E+00	2.566E-01	0.152
		1238.25		9.397E-02	1.098E-01	1.908E-01	1.269E-02	0.492
		1360.21		-4.905E-01	9.634E-01	1.432E+00	1.048E-01	-0.343
		1771.40		-2.732E-01	2.584E-01	3.354E-01	2.075E-02	-0.815
CO-57		122.06	*	9.824E-03	2.802E-02	4.670E-02	2.753E-03	0.210
		136.48		4.954E-02	2.333E-01	3.854E-01	2.506E-02	0.129
CO-58		810.76	*	-5.711E-03	4.387E-02	7.267E-02	5.459E-03	-0.079
FE-59		142.65		1.046E+00	3.084E+00	5.024E+00	2.732E-01	0.208
		192.34		-2.683E-01	1.151E+00	1.700E+00	1.967E-01	-0.158
		1099.22	*	-1.494E-02	1.045E-01	1.696E-01	1.306E-02	-0.088
		1291.56		-4.043E-02	1.280E-01	2.000E-01	1.661E-02	-0.202
CO-60		1173.22		2.051E-03	5.478E-02	9.005E-02	5.080E-03	0.023
		1332.49	*	-2.156E-02	4.581E-02	7.004E-02	5.142E-03	-0.308
ZN-65		1115.52	*	3.969E-02	1.256E-01	1.840E-01	1.215E-02	0.216
GE-68		1077.35	*	2.324E+00	1.462E+00	2.727E+00	1.952E-01	0.852
AS-73		53.44	*	3.215E-01	1.226E+00	2.080E+00	1.836E-01	0.155
AS-74		595.88	*	-3.253E-02	1.151E-01	1.835E-01	1.012E-02	-0.177
		634.78		1.952E-01	4.114E-01	6.932E-01	3.670E-02	0.282
SE-75		66.05		-2.065E+00	7.077E+00	1.026E+01	1.077E+00	-0.201

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	96.73			1.697E-01	9.624E-01	1.412E+00	1.893E-01	0.120
	121.11			3.635E-02	1.501E-01	2.491E-01	2.323E-02	0.146
	136.00			1.981E-02	4.406E-02	7.343E-02	4.146E-03	0.270
	198.60			-7.674E-01	2.076E+00	3.271E+00	2.209E-01	-0.235
	264.65	*		1.018E-03	5.600E-02	7.812E-02	4.547E-03	0.013
	279.53			1.179E-01	1.262E-01	1.972E-01	1.240E-02	0.598
	303.91			-8.967E-01	2.582E+00	3.682E+00	3.533E-01	-0.244
	400.65			-1.381E-01	2.654E-01	4.254E-01	3.871E-02	-0.325
BR-77	+	87.88		1.034E+03	3.488E+02	5.482E+02	5.349E+01	1.886
		200.40		6.700E+01	2.524E+02	4.126E+02	2.207E+01	0.162
	+	239.00		3.629E+02	3.239E+01	5.379E+01	3.024E+00	6.747
		249.79		-4.527E+01	9.952E+01	1.555E+02	8.839E+00	-0.291
		281.68		-3.798E+01	1.449E+02	2.088E+02	1.217E+01	-0.182
		297.23		3.099E+02	1.345E+02	1.677E+02	9.848E+00	1.848
		303.76		-1.085E+02	2.998E+02	4.271E+02	2.514E+01	-0.254
		439.47		2.386E+02	2.144E+02	3.786E+02	2.215E+01	0.630
		484.57		-9.968E+01	3.498E+02	5.641E+02	3.298E+01	-0.177
		520.65	*	-6.002E-01	1.521E+01	2.487E+01	1.439E+00	-0.024
		574.64		-3.226E+02	3.273E+02	4.746E+02	2.664E+01	-0.680
		578.91		1.561E+02	1.397E+02	2.208E+02	1.235E+01	0.707
		585.48		9.116E+02	3.352E+02	5.749E+02	3.199E+01	1.586
		755.35		-2.918E+02	2.642E+02	3.797E+02	2.486E+01	-0.768
		817.79		-2.288E+02	1.864E+02	2.733E+02	2.080E+01	-0.837
SR-82		698.33		-1.106E+00	4.337E+01	6.985E+01	3.946E+00	-0.016
		776.49	*	-4.264E-01	4.477E-01	6.735E-01	4.646E-02	-0.633
		1395.20		4.245E+00	1.319E+01	2.226E+01	1.622E+00	0.191
RB-83		520.41	*	-5.602E-03	7.370E-02	1.201E-01	6.955E-03	-0.047
		529.64		-1.135E-01	1.141E-01	1.718E-01	9.904E-03	-0.661
		552.65		-1.857E-01	2.159E-01	3.280E-01	1.869E-02	-0.566
RB-84		881.50	*	-3.700E-02	7.939E-02	1.266E-01	1.113E-02	-0.292
KR-85		513.99	*	1.043E+01	8.411E+00	1.335E+01	7.749E-01	0.781
SR-85		513.99	*	5.409E-02	4.362E-02	6.925E-02	4.019E-03	0.781
RB-86		1076.63	*	2.462E-01	1.002E+00	1.686E+00	1.209E-01	0.146
Y-88		898.02		-4.725E-02	4.823E-02	7.293E-02	6.669E-03	-0.648
		1836.01	*	-3.685E-03	3.768E-02	6.109E-02	3.597E-03	-0.060
ZR-88		392.90	*	-2.956E-02	3.313E-02	5.192E-02	2.998E-03	-0.569
Y-91		1204.90	*	7.822E+00	2.423E+01	4.066E+01	2.426E+00	0.192
NB-94		702.63	*	5.770E-03	3.942E-02	6.432E-02	3.675E-03	0.090
		871.10		-3.679E-02	3.886E-02	5.861E-02	5.033E-03	-0.628
NB-95		765.79	*	5.358E-02	6.444E-02	9.652E-02	6.486E-03	0.555
NB-95M		235.69	*	6.301E-01	1.808E-01	2.914E-01	2.149E-02	2.162
ZR-95		724.18		1.589E-01	1.365E-01	2.113E-01	1.494E-02	0.752
		756.15	*	-2.857E-02	8.089E-02	1.256E-01	9.640E-03	-0.227
NB-97		657.90	*	6.417E-01	8.089E-02	Half-Life	too short	
		1024.50		1.556E+01	8.089E-02	Half-Life	too short	
ZR-97		254.15		-6.219E+00	8.089E-02	Half-Life	too short	
		355.39		8.249E+00	8.089E-02	Half-Life	too short	
		507.63	*	2.074E+01	8.089E-02	Half-Life	too short	
		602.52		-1.921E+01	8.089E-02	Half-Life	too short	



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	1021.30			-4.414E+00	8.089E-02	Half-Life	too short	
	1147.95			1.553E-01	8.089E-02	Half-Life	too short	
	1362.66			5.682E+00	8.089E-02	Half-Life	too short	
	1750.46			4.520E+00	8.089E-02	Half-Life	too short	
MO-99	140.51			-7.133E+01	4.369E+01	5.864E+01	1.576E+01	-1.216
	181.06			1.030E+01	2.793E+01	4.041E+01	6.848E+00	0.255
	366.43			5.292E+01	1.212E+02	2.071E+02	1.214E+01	0.256
	739.58	*		1.114E+00	1.665E+01	2.695E+01	3.772E+00	0.041
	778.00			-1.550E+01	4.920E+01	8.047E+01	5.573E+00	-0.193
TC-99M	140.51	*		-1.586E+12	4.920E+01	Half-Life	too short	
RH-101	127.23			2.853E-02	3.999E-02	5.969E-02	3.428E-03	0.478
	198.01	*		-2.452E-02	3.778E-02	5.879E-02	3.134E-03	-0.417
	325.23			-4.970E-03	2.539E-01	4.252E-01	2.512E-02	-0.012
RH-102	418.52			7.970E-02	3.051E-01	5.139E-01	2.994E-02	0.155
	475.06	*		-6.263E-04	3.314E-02	5.453E-02	3.192E-03	-0.011
	631.29			-2.194E-03	6.195E-02	1.003E-01	5.329E-03	-0.022
	697.49			-1.596E-02	9.625E-02	1.534E-01	8.646E-03	-0.104
	766.84	+		2.359E-01	2.018E-01	2.370E-01	1.596E-02	0.995
	1046.59			-3.331E-02	1.358E-01	2.190E-01	1.659E-02	-0.152
	1112.84			1.547E-01	3.061E-01	4.598E-01	3.050E-02	0.336
RU-103	497.08	*		1.257E-02	4.448E-02	7.387E-02	9.352E-03	0.170
	610.33			9.498E+00	2.080E+00	2.893E+00	4.423E-01	3.283
RH-106	511.85			3.236E-01	2.353E-01	4.474E-01	2.598E-02	0.723
	621.84	*		-4.791E-01	3.626E-01	5.156E-01	5.946E-02	-0.929
	1050.47			1.413E+00	2.701E+00	4.661E+00	3.507E-01	0.303
RU-106	511.85			3.236E-01	2.353E-01	4.474E-01	2.598E-02	0.723
	621.84	*		-4.791E-01	3.593E-01	5.156E-01	2.771E-02	-0.929
	1050.47			1.413E+00	2.701E+00	4.661E+00	3.507E-01	0.303
AG-108M	433.93	*		-1.996E-02	3.591E-02	5.720E-02	3.626E-03	-0.349
	614.37			3.387E-02	4.915E-02	7.408E-02	4.401E-03	0.457
	722.95			4.287E-03	5.769E-02	8.074E-02	5.250E-03	0.053
AG-110M	657.75	*		6.645E-02	5.144E-02	8.085E-02	4.493E-03	0.822
	677.61			-1.203E-01	3.391E-01	5.308E-01	3.038E-02	-0.227
	706.67			3.385E-02	2.392E-01	3.902E-01	2.390E-02	0.087
	763.93			5.072E-02	2.284E-01	3.239E-01	2.267E-02	0.157
	884.67			3.577E-02	5.341E-02	9.416E-02	8.585E-03	0.380
	937.48			-1.376E-02	1.261E-01	2.073E-01	1.883E-02	-0.066
	1384.27			-1.518E-01	1.467E-01	1.910E-01	1.449E-02	-0.795
IN-111	171.28			-4.364E-01	1.503E+00	2.414E+00	1.239E-01	-0.181
	245.39	*		1.991E-01	1.591E+00	2.247E+00	1.272E-01	0.089
IN-113M	391.69	*		-3.827E-02	4.818E-02	7.606E-02	4.686E-03	-0.503
SN-113	391.69	*		-3.827E-02	4.818E-02	7.606E-02	4.686E-03	-0.503
IN-114M	190.27	*		-3.931E-02	2.246E-01	3.146E-01	1.658E-02	-0.125
CD-115	260.90			-1.768E+02	2.110E+02	3.220E+02	1.849E+01	-0.549
	492.35			-1.504E+01	5.526E+01	8.906E+01	5.199E+00	-0.169
	527.90	*		3.059E+00	1.601E+01	2.662E+01	1.536E+00	0.115
SN-117M	156.02			6.931E-01	2.603E+00	4.292E+00	2.246E-01	0.161
	158.56	*		-2.410E-02	6.314E-02	1.013E-01	5.264E-03	-0.238
SB-122	563.90	*		-2.865E+00	3.002E+00	4.527E+00	2.561E-01	-0.633

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Activity Key	(pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-123		692.80		-5.890E+00	7.436E+01	1.194E+02	6.643E+00	-0.049
		159.00	*	-7.770E+00	7.436E+01	Half-Life	too short	
		528.96		-1.341E+03	7.436E+01	Half-Life	too short	
TE-123M		159.00	*	-9.757E-03	3.122E-02	5.023E-02	2.651E-03	-0.194
I-124		602.71	*	-7.649E-01	1.073E+00	1.383E+00	7.581E-02	-0.553
		722.78		5.363E-01	7.215E+00	1.010E+01	6.084E-01	0.053
		1325.50		-1.350E+01	5.016E+01	7.895E+01	5.734E+00	-0.171
SB-124		1376.25		6.183E+01	4.161E+01	7.864E+01	5.747E+00	0.786
		1509.49		2.970E+01	1.938E+01	3.816E+01	2.706E+00	0.778
		1691.02		-2.707E-01	5.299E+00	8.731E+00	5.699E-01	-0.031
		602.71		-3.760E-02	5.272E-02	6.799E-02	3.728E-03	-0.553
		645.85		-3.115E-01	5.916E-01	9.170E-01	5.535E-02	-0.340
		709.31		-1.864E+00	3.373E+00	5.190E+00	3.019E-01	-0.359
		713.82		5.648E-01	1.924E+00	3.175E+00	3.258E-01	0.178
		722.78		3.821E-02	5.141E-01	7.195E-01	4.525E-02	0.053
	+	968.20		1.633E+01	4.780E+00	7.892E+00	6.692E-01	2.069
		1045.16		-2.151E-01	3.027E+00	4.964E+00	3.769E-01	-0.043
		1325.50		-1.027E+00	3.817E+00	6.008E+00	4.364E-01	-0.171
		1368.21		-2.110E-01	1.830E+00	3.012E+00	3.819E-01	-0.070
SB-125		1436.60		-2.060E+00	4.196E+00	6.259E+00	4.526E-01	-0.329
		1691.02	*	-4.549E-03	8.906E-02	1.467E-01	1.023E-02	-0.031
		427.89	*	-1.166E-03	9.891E-02	1.636E-01	9.954E-03	-0.007
		463.38		3.503E-01	3.354E-01	5.848E-01	3.984E-02	0.599
		600.56		7.929E-02	2.159E-01	3.411E-01	2.198E-02	0.232
TE-125M		635.90		3.853E-02	3.048E-01	4.995E-01	3.176E-02	0.077
		109.28	*	7.147E+00	1.070E+01	1.804E+01	1.610E+00	0.396
I-126		388.63		1.379E-01	2.432E-01	4.135E-01	2.391E-02	0.333
		666.33	*	-1.837E-02	2.657E-01	3.681E-01	1.905E-02	-0.050
SB-126		753.82		-1.197E+00	1.774E+00	2.668E+00	1.741E-01	-0.449
		223.80		-2.613E+00	4.845E+00	7.596E+00	4.195E-01	-0.344
		278.60		3.602E+00	3.121E+00	4.925E+00	2.865E-01	0.731
		296.50		1.090E+01	2.877E+00	3.911E+00	2.296E-01	2.787
		414.70		-9.327E-02	8.432E-02	1.293E-01	7.523E-03	-0.722
		415.30		-4.330E+00	6.960E+00	1.106E+01	6.437E-01	-0.392
		555.20		-1.297E+00	4.388E+00	6.995E+00	3.979E-01	-0.185
		573.80		-1.944E+00	1.263E+00	1.803E+00	1.012E-01	-1.078
		593.00		7.234E-01	1.168E+00	1.985E+00	1.098E-01	0.364
		656.30		-3.495E+00	5.075E+00	6.560E+00	3.377E-01	-0.533
		666.33		-7.697E-03	1.113E-01	1.542E-01	7.980E-03	-0.050
		675.00		-8.838E-01	2.405E+00	3.767E+00	1.997E-01	-0.235
SB-127		695.00		9.443E-02	1.035E-01	1.778E-01	9.955E-03	0.531
		697.00		1.442E-01	3.569E-01	5.929E-01	3.337E-02	0.243
		720.50	*	4.691E-02	1.942E-01	2.903E-01	1.739E-02	0.162
		856.80		2.228E-02	5.878E-01	9.844E-01	8.191E-02	0.023
		989.30		-3.356E-01	1.555E+00	2.524E+00	2.084E-01	-0.133
		1034.80		-7.418E-01	1.043E+01	1.676E+01	1.294E+00	-0.044
		1213.00		4.673E+00	6.068E+00	1.054E+01	6.374E-01	0.444
		61.10		5.335E+01	9.764E+01	1.476E+02	1.704E+01	0.361
		252.40		1.637E+00	5.921E+00	9.558E+00	3.978E+00	0.171

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-1.621E+01	3.091E+01	4.357E+01	4.179E+00	-0.372
	411.60			3.677E+00	1.566E+01	2.633E+01	3.854E+00	0.140
	444.90			-2.888E+00	1.317E+01	2.144E+01	2.392E+00	-0.135
	473.00			-1.675E+00	2.323E+00	3.626E+00	4.181E-01	-0.462
	543.00			1.330E+01	2.220E+01	3.782E+01	4.976E+00	0.352
	603.60			-2.253E+00	1.816E+01	2.505E+01	2.740E+00	-0.090
	685.20	*		7.575E-01	1.888E+00	3.150E+00	3.029E-01	0.240
	698.50			9.050E+00	2.225E+01	3.695E+01	5.422E+00	0.245
	722.20			5.344E+00	4.889E+01	6.872E+01	6.659E+00	0.078
	783.80			5.224E+00	5.045E+00	9.036E+00	1.056E+00	0.578
XE-127	57.60			3.871E-01	9.369E+00	1.388E+01	1.216E+00	0.028
	145.22			7.264E-01	7.916E-01	1.316E+00	7.097E-02	0.552
	172.10			-8.146E-02	1.401E-01	2.223E-01	1.142E-02	-0.366
	202.84	*		2.576E-02	5.514E-02	8.787E-02	4.717E-03	0.293
	374.96			2.002E-01	2.120E-01	3.723E-01	2.172E-02	0.538
I-131	80.18			1.868E+00	8.514E+00	9.194E+00	8.486E-01	0.203
	284.30			-1.049E+00	1.740E+00	2.843E+00	1.846E-01	-0.369
	364.48	*		-4.722E-02	1.369E-01	2.236E-01	1.463E-02	-0.211
	636.97			-6.636E-01	1.928E+00	3.038E+00	1.837E-01	-0.218
	722.89			7.929E-01	1.067E+01	1.493E+01	9.134E-01	0.053
TE-132	49.72			-2.237E+01	3.827E+01	6.288E+01	6.901E+00	-0.356
	111.76			-1.442E+01	4.346E+01	7.079E+01	6.874E+00	-0.204
	116.30			8.635E+00	3.827E+01	6.356E+01	6.016E+00	0.136
	228.16	*		1.829E-01	9.640E-01	1.564E+00	2.266E-01	0.117
BA-133	53.15			6.598E-01	5.290E+00	8.929E+00	7.876E-01	0.074
	79.62			1.121E+00	2.208E+00	2.432E+00	3.776E-01	0.461
	81.00			9.603E-03	1.639E-01	1.746E-01	2.830E-02	0.055
	276.40	+		5.447E-01	5.805E-01	7.041E-01	9.131E-02	0.774
	302.84			-1.373E-02	1.734E-01	2.524E-01	2.953E-02	-0.054
	356.01	*		6.239E-04	5.127E-02	7.449E-02	8.643E-03	0.008
	383.85			-2.600E-01	3.363E-01	5.321E-01	5.786E-02	-0.489
I-133	510.53	+		3.173E+00	3.363E-01	Half-Life	too short	
	529.87	*		-1.165E-02	3.363E-01	Half-Life	too short	
	706.58			1.590E-01	3.363E-01	Half-Life	too short	
	856.28			-1.185E+00	3.363E-01	Half-Life	too short	
	875.33			3.316E-01	3.363E-01	Half-Life	too short	
	1236.41			8.865E-01	3.363E-01	Half-Life	too short	
	1298.22			3.981E-01	3.363E-01	Half-Life	too short	
CS-134	475.35			2.101E-01	2.165E+00	3.589E+00	2.101E-01	0.059
	563.23			-1.681E-01	3.841E-01	6.053E-01	3.501E-02	-0.278
	569.32			3.631E-01	2.197E-01	3.989E-01	2.319E-02	0.910
	604.70			2.632E-02	4.229E-02	6.330E-02	3.484E-03	0.416
	795.84	+	*	1.010E-01	7.025E-02	9.721E-02	7.099E-03	1.039
	801.93			4.655E-02	4.510E-01	7.618E-01	5.631E-02	0.061
	1038.57			2.301E-01	4.531E+00	7.515E+00	5.769E-01	0.031
	1167.94			-8.231E-01	3.202E+00	5.134E+00	2.943E-01	-0.160
	1365.15			-7.450E-01	1.293E+00	1.911E+00	1.486E-01	-0.390
CS-135	268.24	*		1.591E-01	2.057E-01	3.014E-01	2.303E-02	0.528
I-135	288.45			-1.878E+11	2.057E-01	Half-Life	too short	

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	417.63			-1.708E+10	2.057E-01	Half-Life	too short	
	546.56			2.131E+11	2.057E-01	Half-Life	too short	
	836.80			5.236E+10	2.057E-01	Half-Life	too short	
	1038.76			1.068E+10	2.057E-01	Half-Life	too short	
	1124.00			4.084E+11	2.057E-01	Half-Life	too short	
	1131.51			-4.457E+10	2.057E-01	Half-Life	too short	
	1260.41	*		3.253E+10	2.057E-01	Half-Life	too short	
	1457.56			1.930E+13	2.057E-01	Half-Life	too short	
	1678.03			5.208E+10	2.057E-01	Half-Life	too short	
	1706.46			1.148E+11	2.057E-01	Half-Life	too short	
	1791.20			-1.789E+11	2.057E-01	Half-Life	too short	
CS-136	66.91			8.045E-02	1.272E+00	1.750E+00	2.710E-01	0.046
	86.29	+		4.734E+00	1.660E+00	2.444E+00	3.310E-01	1.936
	153.22			5.845E-01	7.788E-01	1.306E+00	8.894E-02	0.447
	163.89			1.026E+00	1.271E+00	2.133E+00	1.434E-01	0.481
	176.55			-3.145E-03	4.443E-01	7.215E-01	4.302E-02	-0.004
	273.65			-1.386E-01	8.300E-01	8.048E-01	5.324E-02	-0.172
	340.57			2.576E-01	1.718E-01	2.740E-01	1.717E-02	0.940
	818.51			-8.875E-02	8.111E-02	1.211E-01	9.244E-03	-0.733
	1048.07	*		-2.926E-02	1.389E-01	2.249E-01	1.792E-02	-0.130
	1235.34			5.067E-01	7.635E-01	1.308E+00	1.344E-01	0.388
CE-139	165.85	*		-1.374E-02	3.396E-02	5.437E-02	2.772E-03	-0.253
BA-140	162.64			1.088E+00	8.967E-01	1.526E+00	9.071E-02	0.713
	304.84			8.506E-01	1.622E+00	2.440E+00	6.663E-01	0.349
	423.70			-1.197E-01	2.127E+00	3.509E+00	1.116E+00	-0.034
	537.32	*		-3.501E-01	3.054E-01	4.154E-01	1.351E-01	-0.843
LA-140	328.77			3.889E-01	3.572E-01	6.271E-01	4.135E-02	0.620
	432.53			4.303E-01	2.347E+00	3.930E+00	2.534E-01	0.109
	487.03			-5.459E-03	1.606E-01	2.635E-01	1.740E-02	-0.021
	751.79			2.100E+00	2.025E+00	3.541E+00	2.716E-01	0.593
	815.85			-3.103E-01	3.585E-01	5.503E-01	4.783E-02	-0.564
	867.82			-4.714E-01	1.592E+00	2.609E+00	2.345E-01	-0.181
	919.63			-5.254E-01	3.414E+00	5.330E+00	5.809E-01	-0.099
	925.24			-5.196E-01	1.314E+00	2.100E+00	1.976E-01	-0.247
	1596.49	*		-7.051E-02	9.012E-02	1.299E-01	8.915E-03	-0.543
CE-141	145.44	*		4.963E-02	7.081E-02	1.188E-01	6.700E-03	0.418
CE-143	57.37			5.821E-04	7.081E-02	Half-Life	too short	
	231.56			3.736E-04	7.081E-02	Half-Life	too short	
	293.26	*		1.730E-03	7.081E-02	Half-Life	too short	
	350.59	+		4.859E-02	7.081E-02	Half-Life	too short	
	490.36			1.911E-03	7.081E-02	Half-Life	too short	
	664.57			1.599E-03	7.081E-02	Half-Life	too short	
	721.93			-2.231E-04	7.081E-02	Half-Life	too short	
CE-144	80.11			8.609E-01	3.582E+00	3.874E+00	3.551E-01	0.222
	133.54	*		-1.069E-01	2.636E-01	3.700E-01	5.226E-02	-0.289
PM-144	476.78			1.611E-02	7.592E-02	1.268E-01	8.859E-03	0.127
	618.01			2.954E-02	3.574E-02	6.173E-02	3.561E-03	0.478
	696.49	*		2.017E-02	4.320E-02	7.209E-02	4.056E-03	0.280
	778.57			-3.882E-01	2.576E+00	4.273E+00	2.964E-01	-0.091

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PR-144	696.49	*		1.368E+00	2.929E+00	4.888E+00	2.747E-01	0.280
	1489.15			6.929E+00	1.305E+01	2.279E+01	1.626E+00	0.304
PM-146	453.90	*		-3.898E-02	5.079E-02	7.954E-02	6.889E-03	-0.490
	633.02			-2.088E-01	1.533E+00	2.455E+00	9.023E-01	-0.085
	735.90			3.599E-02	1.737E-01	2.684E-01	7.508E-02	0.134
	747.13			-3.240E-03	1.066E-01	1.710E-01	2.189E-02	-0.019
ND-147	91.11	+		2.632E+00	4.970E-01	7.422E-01	7.297E-02	3.546
	319.41			-3.873E+00	3.777E+00	5.970E+00	3.528E-01	-0.649
	439.89			6.527E+00	6.856E+00	1.200E+01	7.024E-01	0.544
	531.02	*		-4.246E-01	6.428E-01	9.935E-01	1.342E-01	-0.427
PM-149	285.90	*		6.764E+01	1.349E+02	2.323E+02	3.297E+01	0.291
EU-152	121.78			3.107E-02	8.124E-02	1.355E-01	1.042E-02	0.229
	244.69			3.503E-01	3.678E-01	5.513E-01	3.118E-02	0.635
	344.27	*		-4.248E-03	1.220E-01	1.769E-01	1.172E-02	-0.024
	443.98			-5.985E-01	1.071E+00	1.705E+00	9.980E-02	-0.351
	778.89			-4.474E-03	3.002E-01	5.033E-01	3.492E-02	-0.009
	867.32			-7.325E-02	8.831E-01	1.476E+00	1.257E-01	-0.050
	964.01	+		6.057E-01	3.361E-01	6.576E-01	5.603E-02	0.921
	1085.78			-1.224E-01	4.846E-01	7.794E-01	5.485E-02	-0.157
	1112.02			2.274E-01	4.217E-01	6.370E-01	4.234E-02	0.357
	1407.95			1.514E-01	2.055E-01	3.644E-01	2.650E-02	0.416
GD-153	69.67			3.195E-02	2.708E+00	3.368E+00	2.943E-01	0.009
	83.37	+		2.891E+01	2.004E+01	2.948E+01	2.767E+00	0.981
	97.43	*		8.557E-02	9.795E-02	1.484E-01	1.212E-02	0.577
EU-154	103.18			1.915E-02	1.170E-01	1.945E-01	1.454E-02	0.098
	123.07			2.662E-02	5.909E-02	9.556E-02	9.020E-03	0.279
	247.94			-1.034E-01	4.156E-01	6.040E-01	5.717E-02	-0.171
	591.81			2.058E-01	7.302E-01	1.213E+00	1.167E-01	0.170
	723.30			7.001E-02	2.470E-01	3.534E-01	2.570E-02	0.198
	756.87			2.543E-01	8.267E-01	1.366E+00	1.447E-01	0.186
	873.19			-1.286E-02	3.319E-01	5.516E-01	6.757E-02	-0.023
	996.32			-3.067E-01	4.501E-01	6.950E-01	1.220E-01	-0.441
	1004.76			-3.987E-01	2.556E-01	3.535E-01	3.977E-02	-1.128
	1274.45	*		-7.525E-02	1.435E-01	2.205E-01	2.189E-02	-0.341
EU-155	48.70			-2.630E+00	3.879E+00	6.357E+00	5.127E-01	-0.414
	60.01			-1.420E-01	6.872E+00	1.014E+01	8.804E-01	-0.014
	86.54	+		4.128E-01	1.394E-01	2.116E-01	2.056E-02	1.951
	105.31	*		-9.178E-02	1.209E-01	1.938E-01	1.429E-02	-0.474
TB-160	86.79	+		1.114E+00	3.758E-01	5.693E-01	5.501E-02	1.956
	197.04			2.921E-01	6.304E-01	1.040E+00	5.534E-02	0.281
	215.65			-4.566E-01	8.959E-01	1.357E+00	7.417E-02	-0.336
	298.57	+		3.145E-01	1.760E-01	2.246E-01	1.319E-02	1.400
	879.36	*		-4.873E-02	1.595E-01	2.587E-01	2.262E-02	-0.188
	962.29			1.181E+00	6.904E-01	1.163E+00	9.927E-02	1.016
	966.15			1.480E+00	3.318E-01	6.382E-01	5.425E-02	2.319
	1177.93			-1.737E-01	4.543E-01	7.193E-01	4.092E-02	-0.241
	1271.85			4.693E-01	8.026E-01	1.387E+00	9.261E-02	0.338
HO-166M	80.57			4.875E-02	4.546E-01	4.864E-01	4.472E-02	0.100
	184.41	+		2.676E-01	6.542E-02	8.565E-02	4.476E-03	3.125

## ---- Non-Identified Nuclides ----

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TM-171		280.46		-1.709E-02	9.815E-02	1.424E-01	8.296E-03	-0.120
		410.95		1.234E-01	2.650E-01	4.516E-01	2.625E-02	0.273
		711.68	*	4.348E-02	7.035E-02	1.191E-01	6.968E-03	0.365
		752.31		2.867E-01	3.002E-01	5.227E-01	3.396E-02	0.549
		810.29		-4.089E-02	6.712E-02	1.066E-01	7.977E-03	-0.383
		51.35		2.026E+01	4.611E+01	7.874E+01	6.844E+00	0.257
		52.39		2.417E+00	2.335E+01	3.940E+01	3.461E+00	0.061
		59.40		-3.215E+00	3.791E+01	5.575E+01	4.843E+00	-0.058
		66.72	*	3.800E-01	4.102E+01	6.026E+01	5.240E+00	0.006
		88.36		6.357E-01	2.621E-01	4.337E-01	4.204E-02	1.466
LU-176	+	201.83		-2.903E-03	3.286E-02	5.291E-02	2.836E-03	-0.055
		306.84	*	2.292E-02	2.777E-02	4.620E-02	2.722E-03	0.496
LU-177		401.10		-2.301E+00	7.053E+00	1.147E+01	6.645E-01	-0.201
		112.95		5.958E-01	2.072E+00	3.451E+00	2.263E-01	0.173
LU-177M	+	208.36	*	3.332E+00	1.788E+00	2.372E+00	1.283E-01	1.404
		52.97		2.142E-01	2.408E+00	4.059E+00	3.578E-01	0.053
HF-181		54.07		2.026E-01	1.263E+00	2.133E+00	1.885E-01	0.095
		61.30		1.286E+00	2.133E+00	3.237E+00	2.812E-01	0.397
		121.62		1.758E-01	4.172E-01	6.972E-01	4.121E-02	0.252
		147.16		-8.453E-01	7.333E-01	1.142E+00	6.128E-02	-0.740
		171.86		-2.972E-01	5.567E-01	8.850E-01	4.544E-02	-0.336
		218.09		1.181E+00	9.756E-01	1.653E+00	9.059E-02	0.715
		268.79		1.163E+00	1.026E+00	1.539E+00	8.892E-02	0.756
		319.02		-1.882E-01	2.725E-01	4.395E-01	2.596E-02	-0.428
		367.43		4.874E-01	9.901E-01	1.696E+00	9.935E-02	0.287
		413.65	*	-1.689E-01	1.893E-01	2.955E-01	1.720E-02	-0.572
W-181		56.28		3.640E-01	1.336E+00	2.264E+00	1.993E-01	0.161
		57.53		1.024E-01	7.844E-01	1.167E+00	1.023E-01	0.088
		65.20		5.371E-02	1.439E+00	2.119E+00	1.840E-01	0.025
		133.02		-3.481E-02	8.517E-02	1.197E-01	6.721E-03	-0.291
		136.25		2.311E-01	5.144E-01	8.574E-01	4.759E-02	0.270
TA-182		345.85		1.379E-01	2.408E-01	3.654E-01	2.156E-02	0.377
		482.03	*	-1.397E-02	4.867E-02	7.853E-02	4.593E-03	-0.178
		56.28		1.411E-01	5.170E-01	8.759E-01	7.713E-02	0.161
		57.53		3.979E-02	3.038E-01	4.521E-01	3.961E-02	0.088
		65.20	*	2.063E-02	5.529E-01	8.139E-01	7.071E-02	0.025
RE-183		67.75		3.971E-02	1.866E-01	2.353E-01	2.049E-02	0.169
		100.10		1.545E-01	2.066E-01	3.395E-01	2.657E-02	0.455
		152.43		4.115E-01	3.748E-01	6.368E-01	3.366E-02	0.646
		222.10		-2.334E-01	3.933E-01	6.152E-01	3.390E-02	-0.379
		1001.68		1.610E+00	2.396E+00	4.132E+00	3.355E-01	0.390
		1121.28		3.695E-01	2.135E-01	3.538E-01	2.301E-02	1.044
		1189.05		8.795E-02	3.516E-01	5.887E-01	3.416E-02	0.149
		1221.42	*	-1.857E-01	2.346E-01	3.558E-01	2.184E-02	-0.522
		1230.97		-3.517E-01	6.002E-01	9.325E-01	5.817E-02	-0.377
		57.98		2.435E-02	3.023E-01	4.486E-01	3.923E-02	0.054
RE-183		59.32		-1.163E-02	1.577E-01	2.321E-01	2.017E-02	-0.050
		67.20		2.372E-02	3.101E-01	4.269E-01	3.715E-02	0.056
		162.32	*	1.327E-01	1.254E-01	2.124E-01	1.092E-02	0.625

---- Non-Identified Nuclides ----

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RE-184	+	208.81		2.706E+00	1.452E+00	1.934E+00	1.047E-01	1.399
		291.72		-5.302E-01	1.169E+00	1.661E+00	9.732E-02	-0.319
		57.98		8.917E-02	1.107E+00	1.643E+00	1.437E-01	0.054
		59.32		-4.256E-02	5.770E-01	8.491E-01	7.380E-02	-0.050
		67.20		8.682E-02	1.135E+00	1.563E+00	1.360E-01	0.056
		161.27		8.809E-02	3.976E-01	6.537E-01	3.372E-02	0.135
		216.55		-3.467E-02	3.031E-01	4.859E-01	2.658E-02	-0.071
		252.85	*	3.956E-02	2.607E-01	4.208E-01	2.400E-02	0.094
		318.01		1.698E-01	4.716E-01	8.060E-01	4.759E-02	0.211
		792.07		1.430E+00	1.327E+00	2.130E+00	1.526E-01	0.671
OS-185		903.28		1.264E+00	1.239E+00	1.999E+00	1.812E-01	0.632
		920.93		-4.067E-01	5.013E-01	7.668E-01	6.839E-02	-0.530
		59.72		1.891E-02	4.155E-01	6.151E-01	5.342E-02	0.031
		61.14		1.666E-01	2.296E-01	3.501E-01	3.041E-02	0.476
		69.30		5.146E-02	5.702E-01	6.127E-01	5.349E-02	0.084
		592.07		1.084E+00	2.988E+00	4.995E+00	2.764E-01	0.217
		646.12	*	-1.688E-02	4.988E-02	7.860E-02	4.102E-03	-0.215
		717.42		-3.045E-01	1.050E+00	1.650E+00	9.806E-02	-0.185
		874.81		5.432E-01	6.542E-01	1.166E+00	1.009E-01	0.466
		880.27		-6.138E-01	8.778E-01	1.368E+00	1.198E-01	-0.449
RE-188		155.03	*	3.898E-02	1.910E-01	3.142E-01	1.649E-02	0.124
		477.96		2.130E+00	3.536E+00	6.049E+00	3.540E-01	0.352
		633.10		-3.671E-01	3.131E+00	5.031E+00	2.668E-01	-0.073
W-188	+	63.58		1.437E+02	1.284E+02	1.233E+02	1.071E+01	1.166
		227.08		1.813E+00	1.428E+01	2.311E+01	1.281E+00	0.078
IR-192		290.67	*	-4.613E+00	8.893E+00	1.255E+01	7.351E-01	-0.367
	+	295.96		8.792E-01	2.086E-01	2.954E-01	1.760E-02	2.977
		308.46		3.181E-02	1.026E-01	1.751E-01	1.043E-02	0.182
		316.51	*	7.377E-03	3.608E-02	6.120E-02	3.631E-03	0.121
		468.07		-2.135E-02	7.788E-02	1.261E-01	8.494E-03	-0.169
		604.41		3.095E-01	5.746E-01	8.525E-01	9.535E-02	0.363
AU-195		612.46		-7.059E-01	9.532E-01	1.230E+00	8.968E-02	-0.574
		65.12		3.223E-02	2.565E-01	3.790E-01	3.293E-02	0.085
		66.83		2.147E-03	1.358E-01	1.996E-01	1.736E-02	0.011
	+	75.70		1.247E+00	3.117E-01	5.406E-01	4.828E-02	2.306
		98.88	*	2.381E-01	2.843E-01	4.297E-01	3.429E-02	0.554
TL-200	+	129.76		6.016E+00	4.072E+00	5.559E+00	3.159E-01	1.082
		367.94	*	7.705E-04	4.072E+00	Half-Life	too short	
		579.30		1.739E-02	4.072E+00	Half-Life	too short	
		828.27		5.382E-03	4.072E+00	Half-Life	too short	
TL-201		1205.75		1.021E-03	4.072E+00	Half-Life	too short	
		68.90		4.849E+00	1.143E+01	1.261E+01	1.100E+00	0.385
		70.82		-7.341E-01	4.720E+00	6.889E+00	6.036E-01	-0.107
		80.30		2.229E+00	1.081E+01	1.166E+01	1.070E+00	0.191
TL-202		135.34		2.581E+01	3.600E+01	6.057E+01	3.372E+00	0.426
		167.43	*	-6.416E+00	1.010E+01	1.600E+01	8.166E-01	-0.401
		68.90		3.622E-01	8.540E-01	9.417E-01	8.215E-02	0.385
		70.82		-5.468E-02	3.516E-01	5.131E-01	4.496E-02	-0.107
		80.30		1.661E-01	8.052E-01	8.685E-01	7.971E-02	0.191

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203		439.56	*	8.805E-02	8.029E-02	1.417E-01	8.291E-03	0.621
		70.83		-2.213E-01	1.456E+00	2.125E+00	2.911E-01	-0.104
		72.87		2.292E+00	9.097E-01	1.390E+00	1.853E-01	1.649
BI-207	+	82.60		2.178E+00	1.527E+00	2.205E+00	3.132E-01	0.987
		279.20	*	5.478E-02	4.797E-02	7.583E-02	4.684E-03	0.722
		72.80		6.077E-01	2.519E-01	3.968E-01	3.499E-02	1.532
	+	74.97		6.886E-01	1.722E-01	2.736E-01	2.434E-02	2.517
	+	84.90		3.728E-01	2.584E-01	3.942E-01	3.747E-02	0.946
TL-207		569.67		5.879E-02	3.457E-02	6.290E-02	3.544E-03	0.935
		1063.62	*	5.146E-02	5.904E-02	1.049E-01	7.710E-03	0.490
		1770.23		-1.231E+00	6.362E-01	6.892E-01	4.267E-02	-1.787
		81.07		2.739E-02	3.615E-01	3.856E-01	3.558E-02	0.071
	+	83.78		2.458E-01	1.704E-01	2.482E-01	2.338E-02	0.990
		94.90		7.257E-01	3.073E-01	4.838E-01	4.128E-02	1.500
		122.32		9.444E-02	1.949E+00	3.212E+00	2.173E-01	0.029
		144.24		9.072E-01	7.613E-01	1.275E+00	8.832E-02	0.711
		154.21		2.187E-01	4.352E-01	7.240E-01	4.758E-02	0.302
	+	269.46		4.398E-01	3.129E-01	3.659E-01	2.212E-02	1.202
PO-209		323.87	*	-2.597E-01	7.525E-01	1.238E+00	2.049E-01	-0.210
	+	338.28		6.071E+00	1.938E+00	2.609E+00	2.763E-01	2.327
		445.03		-7.510E-01	2.510E+00	4.063E+00	4.185E-01	-0.185
		260.50		-4.368E+00	1.115E+01	1.747E+01	1.003E+00	-0.250
		262.80		-7.983E+00	3.121E+01	4.737E+01	2.725E+00	-0.169
BI-210		896.60	*	-5.692E+00	8.581E+00	1.343E+01	1.219E+00	-0.424
PB-210		46.50	*	8.100E-01	6.122E+00	1.007E+01	7.841E-01	0.080
PB-210		46.50	*	8.100E-01	6.122E+00	1.007E+01	7.841E-01	0.080
PO-210		46.50	*	8.100E-01	6.122E+00	1.007E+01	6.756E-01	0.080
PB-211		404.84	*	-8.099E-01	1.133E+00	1.601E+00	9.982E-01	-0.506
BI-212		427.08		8.953E-02	2.192E+00	3.638E+00	2.249E+00	0.025
		831.96		-2.225E-01	1.430E+00	2.351E+00	1.471E+00	-0.095
	+	727.18	*	5.666E-01	5.771E-01	6.794E-01	5.393E-02	0.834
		785.46		8.571E-01	2.161E+00	3.488E+00	2.459E-01	0.246
		1620.62		1.211E+00	1.279E+00	2.438E+00	1.653E-01	0.497
PO-215		81.07		2.739E-02	3.615E-01	3.856E-01	3.558E-02	0.071
	+	83.78		2.458E-01	1.704E-01	2.482E-01	2.338E-02	0.990
		94.90		7.257E-01	3.073E-01	4.838E-01	4.128E-02	1.500
		122.32		9.444E-02	1.949E+00	3.212E+00	2.173E-01	0.029
		144.24		9.072E-01	7.613E-01	1.275E+00	8.832E-02	0.711
		154.21		2.187E-01	4.352E-01	7.240E-01	4.758E-02	0.302
	+	269.46		4.398E-01	3.129E-01	3.659E-01	2.212E-02	1.202
		323.87	*	-2.597E-01	7.525E-01	1.238E+00	2.049E-01	-0.210
	+	338.28		6.071E+00	1.938E+00	2.609E+00	2.763E-01	2.327
		445.03		-7.510E-01	2.510E+00	4.063E+00	4.185E-01	-0.185
RN-219	+	271.23		5.643E-01	4.026E-01	4.787E-01	3.876E-02	1.179
		401.81	*	2.507E-01	4.238E-01	7.274E-01	9.895E-02	0.345
RN-220		549.76	*	1.727E+01	2.871E+01	4.901E+01	2.797E+00	0.352
RA-223		81.07		2.739E-02	3.615E-01	3.856E-01	3.558E-02	0.071
	+	83.78		2.458E-01	1.704E-01	2.482E-01	2.338E-02	0.990
		94.90		7.257E-01	3.073E-01	4.838E-01	4.128E-02	1.500



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		9.444E-02	1.949E+00	3.212E+00	2.173E-01	0.029
		144.24		9.072E-01	7.613E-01	1.275E+00	8.832E-02	0.711
		154.21		2.187E-01	4.352E-01	7.240E-01	4.758E-02	0.302
	+	269.46		4.398E-01	3.129E-01	3.659E-01	2.212E-02	1.202
		323.87	*	-2.597E-01	7.525E-01	1.238E+00	2.049E-01	-0.210
	+	338.28		6.071E+00	1.938E+00	2.609E+00	2.763E-01	2.327
		445.03		-7.510E-01	2.510E+00	4.063E+00	4.185E-01	-0.185
		79.80		1.030E+00	2.788E+00	3.038E+00	6.599E-01	0.339
		236.00		2.374E+00	4.339E-01	6.502E-01	6.726E-02	3.651
		256.20	*	2.202E-01	4.408E-01	7.217E-01	1.005E-01	0.305
		286.10		9.739E-01	1.614E+00	2.791E+00	3.233E-01	0.349
	+	299.80		3.964E+00	2.299E+00	2.878E+00	4.695E-01	1.377
		304.40		3.604E-01	2.237E+00	3.312E+00	5.738E-01	0.109
		334.20		-1.938E+00	2.923E+00	4.014E+00	7.372E-01	-0.483
TH-227		79.80		1.030E+00	2.788E+00	3.038E+00	6.682E-01	0.339
	+	94.00		1.888E+01	5.149E+00	4.922E+00	1.073E+00	3.835
		236.00		2.374E+00	4.158E-01	6.502E-01	5.808E-02	3.651
		256.20	*	2.202E-01	4.413E-01	7.217E-01	1.218E-01	0.305
		286.10		9.739E-01	1.882E+00	2.791E+00	2.796E+00	0.349
	+	299.80		3.964E+00	2.299E+00	2.878E+00	4.695E-01	1.377
		304.40		3.604E-01	2.237E+00	3.312E+00	5.738E-01	0.109
		334.20		-1.938E+00	2.923E+00	4.014E+00	7.372E-01	-0.483
	+	85.43		3.680E-01	2.550E-01	4.027E-01	3.845E-02	0.914
	+	88.47		3.660E-01	1.509E-01	2.479E-01	2.398E-02	1.476
PA-231		100.00		1.752E-01	2.137E-01	3.521E-01	2.760E-02	0.498
		193.63	*	1.346E-01	5.559E-01	9.093E-01	4.817E-02	0.148
		210.97		1.125E+00	9.466E-01	1.426E+00	7.744E-02	0.789
		283.67	*	-6.978E-01	1.664E+00	2.668E+00	3.680E-01	-0.262
	+	301.29		1.586E+00	8.982E-01	1.123E+00	1.178E-01	1.412
		81.07		2.739E-02	3.615E-01	3.856E-01	3.558E-02	0.071
TH-231	+	83.78		2.458E-01	1.704E-01	2.482E-01	2.338E-02	0.990
		94.90		7.257E-01	3.073E-01	4.838E-01	4.128E-02	1.500
		122.32		9.444E-02	1.949E+00	3.212E+00	2.173E-01	0.029
		144.24		9.072E-01	7.613E-01	1.275E+00	8.832E-02	0.711
U-231		154.21		2.187E-01	4.352E-01	7.240E-01	4.758E-02	0.302
	+	269.46		4.398E-01	3.129E-01	3.659E-01	2.212E-02	1.202
		323.87	*	-2.597E-01	7.525E-01	1.238E+00	2.049E-01	-0.210
	+	338.28		6.071E+00	1.938E+00	2.609E+00	2.763E-01	2.327
		445.03		-7.510E-01	2.510E+00	4.063E+00	4.185E-01	-0.185
	+	84.21		1.266E+01	8.776E+00	1.282E+01	1.212E+00	0.988
	+	92.29		2.230E+01	4.135E+00	6.290E+00	5.630E-01	3.546
		95.87	*	-1.369E-01	1.599E+00	2.318E+00	1.944E-01	-0.059
		108.00		-5.174E-01	2.765E+00	4.533E+00	3.168E-01	-0.114
	+	75.28		2.009E+01	5.635E+00	8.460E+00	1.313E+00	2.375
	+	86.59		6.706E+00	2.833E+00	3.433E+00	9.327E-01	1.953
	+	300.12		1.105E+00	6.330E-01	7.988E-01	1.076E-01	1.384
		311.98	*	-8.334E-02	6.832E-02	1.068E-01	6.679E-03	-0.780
		340.50		1.336E+00	8.481E-01	1.279E+00	2.940E-01	1.045
PA-233		398.62		-1.532E+00	2.156E+00	3.352E+00	8.666E-01	-0.457

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-6.516E-01	1.752E+00	2.826E+00	5.820E-01	-0.231
		63.00		4.123E+00	3.721E+00	3.588E+00	5.575E-01	1.149
		94.67		7.868E-01	2.399E-01	3.668E-01	4.536E-02	2.145
		98.44		8.118E-02	1.238E-01	1.735E-01	9.665E-02	0.468
		99.86		4.980E-01	5.435E-01	8.980E-01	7.055E-02	0.555
		111.00		9.649E-02	2.129E-01	3.563E-01	3.854E-02	0.271
		131.20		2.648E-02	1.335E-01	1.941E-01	1.097E-02	0.136
		152.70		4.392E-01	3.630E-01	6.096E-01	9.525E-02	0.720
	+	186.00		9.635E+00	3.728E+00	3.119E+00	9.500E-01	3.089
		226.40		3.607E-02	4.499E-01	7.265E-01	8.305E-02	0.050
		227.20		7.787E-02	4.779E-01	7.746E-01	4.296E-02	0.101
		248.90		-4.448E-01	8.861E-01	1.372E+00	2.945E-01	-0.324
	+	293.70		5.478E+00	1.537E+00	1.826E+00	2.941E-01	3.000
		369.80		3.599E-01	9.056E-01	1.539E+00	3.208E-01	0.234
		568.70		1.456E+00	1.131E+00	2.009E+00	1.132E-01	0.725
		569.50		5.067E-01	3.056E-01	5.549E-01	3.126E-02	0.913
		574.00		-2.434E+00	1.683E+00	2.420E+00	1.359E-01	-1.006
		699.00		1.511E-01	8.617E-01	1.408E+00	2.526E-01	0.107
		706.10		-2.247E-02	1.223E+00	1.969E+00	8.691E-01	-0.011
		733.00		-3.256E-01	5.096E-01	6.418E-01	1.372E-01	-0.507
		742.81		-1.812E-01	1.531E+00	2.428E+00	1.626E+00	-0.075
		796.30		7.990E-01	1.163E+00	1.783E+00	4.749E-01	0.448
		805.60		6.161E-01	1.152E+00	1.985E+00	6.021E-01	0.310
		819.60		-2.128E-01	1.213E+00	1.992E+00	7.534E-01	-0.107
		826.30		5.976E-02	9.423E-01	1.584E+00	7.062E-01	0.038
		831.60		-1.643E-01	7.250E-01	1.188E+00	3.521E-01	-0.138
		876.40		1.121E+00	1.484E+00	1.715E+00	1.764E+00	0.653
		880.51		-2.201E-01	3.148E-01	4.905E-01	4.301E-02	-0.449
		883.24		5.217E-02	3.134E-01	5.270E-01	3.544E-01	0.099
		899.00		-9.040E-01	1.031E+00	1.448E+00	6.344E-01	-0.624
		925.00		-4.044E-01	1.285E+00	2.072E+00	1.841E-01	-0.195
		926.50		3.630E-03	1.923E-01	3.202E-01	8.121E-02	0.011
		946.00	*	2.441E-01	3.482E-01	6.080E-01	1.143E-01	0.401
		949.00		1.003E-01	5.380E-01	9.067E-01	7.859E-02	0.111
		980.50		-6.200E-01	8.475E-01	1.305E+00	1.090E-01	-0.475
		1394.10		4.285E-01	1.407E+00	2.326E+00	1.510E+00	0.184
PA-234M		766.42		1.377E+01	1.793E+01	2.483E+01	1.253E+01	0.555
		1001.03	*	2.549E+00	5.507E+00	9.339E+00	8.911E-01	0.273
U-235	+	89.95		3.673E+00	1.865E+00	2.279E+00	7.083E-01	1.612
	+	93.35		5.873E+00	1.908E+00	1.617E+00	4.540E-01	3.632
		105.00		-4.921E-01	1.192E+00	1.924E+00	5.674E-01	-0.256
		143.76	*	2.312E-01	2.363E-01	3.894E-01	6.298E-02	0.594
		163.35		4.957E-01	5.397E-01	8.988E-01	1.598E-01	0.551
	+	185.71		3.568E-01	8.723E-02	1.158E-01	6.065E-03	3.081
		205.31		3.334E-02	6.490E-01	9.184E-01	1.640E-01	0.036
NP-236		94.67		6.019E-01	1.743E-01	2.787E-01	2.388E-02	2.160
		98.44		6.136E-02	8.728E-02	1.312E-01	1.054E-02	0.468
		111.00		7.298E-02	1.609E-01	2.695E-01	1.811E-02	0.271
		160.31	*	-7.473E-02	8.999E-02	1.416E-01	7.325E-03	-0.528

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.403E-01	1.908E-01	3.014E-01	2.380E-02	0.465
		117.00	*	-1.106E-01	2.078E-01	3.349E-01	2.090E-02	-0.330
	+	209.75		2.112E+00	1.134E+00	1.517E+00	8.225E-02	1.392
		228.18		4.727E-02	2.502E-01	4.060E-01	2.254E-02	0.116
	+	277.60		2.658E-01	2.816E-01	3.399E-01	1.976E-02	0.782
AM-241		334.30		-1.129E+00	1.644E+00	2.269E+00	1.340E-01	-0.498
		59.54	*	-1.560E-02	2.195E-01	3.230E-01	3.005E-02	-0.048
CM-243		99.55		1.444E-01	1.964E-01	3.102E-01	2.449E-02	0.465
		103.76	*	8.550E-02	1.062E-01	1.804E-01	1.337E-02	0.474
		117.00		-1.138E-01	2.138E-01	3.446E-01	2.151E-02	-0.330
	+	209.75		2.082E+00	1.118E+00	1.496E+00	8.109E-02	1.392
		228.18		4.777E-02	2.528E-01	4.102E-01	2.278E-02	0.116
AM-246	+	277.60		2.679E-01	2.839E-01	3.427E-01	1.992E-02	0.782
		798.80		-1.672E-01	1.791E-01	2.284E-01	1.663E-02	-0.732
		1036.00		4.744E-02	3.291E-01	5.404E-01	4.165E-02	0.088
		1062.04		2.840E-01	2.447E-01	4.468E-01	3.292E-02	0.636
		1078.86	*	1.198E-01	1.695E-01	2.963E-01	2.114E-02	0.404
CM-247	+	278.00		1.102E+00	1.168E+00	1.421E+00	8.264E-02	0.776
		287.40		1.385E+00	1.353E+00	2.276E+00	1.331E-01	0.609
		402.60	*	2.534E-02	3.826E-02	6.608E-02	3.830E-03	0.383
CF-249		252.85		1.478E-01	9.739E-01	1.572E+00	8.964E-02	0.094
		333.44		-1.619E-01	2.216E-01	3.053E-01	1.804E-02	-0.530
CF-251		387.95	*	4.483E-02	4.468E-02	7.769E-02	4.495E-03	0.577
		176.60	*	-6.658E-03	1.445E-01	2.342E-01	1.210E-02	-0.028
		227.00		3.165E-02	4.237E-01	6.841E-01	3.793E-02	0.046
		285.00		-1.595E-01	1.820E+00	3.054E+00	1.783E-01	-0.052

## VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014508
* Acquisition date   : 22-JAN-2010 16:52:18 Detector SN#      :
* Detector ID        : GAM23                                         Sensitivity      : 5.000
* Geometry           : CAN                                           Energy tolerance : 1.500
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.75                               Half life ratio  : 8.000
*****
*                               SAMPLE DATA                             *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G1202014508 Analyst initials: MXR1
* Batch Number       : 941239 Sample Quantity : 1.3317E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                               QC DATA                                *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00 MS Isotope           :
* MSD DPM             : 0.000 MSD Isotope                       :
* LCS DPM             : 0.000 LCS Isotope                       :
* LCSD DPM            : 0.000 LCSD Isotope                     :
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.997E+01	2.974E+00	5.575E-01	0.000E+00
CD-109	3.491E+00	1.155E+00	1.383E+00	0.000E+00
SN-126	3.426E-01	1.133E-01	1.365E-01	0.000E+00
BA-137M	2.481E-01	6.669E-02	6.696E-02	0.000E+00
CS-137	2.623E-01	7.051E-02	7.078E-02	0.000E+00
TL-208	4.359E-01	8.665E-02	6.608E-02	0.000E+00
BI-211	3.546E+00	4.880E-01	3.745E-01	0.000E+00
PB-212	1.647E+00	1.612E-01	9.910E-02	0.000E+00
PO-212	1.647E+00	1.612E-01	9.910E-02	0.000E+00
BI-214	9.657E-01	1.899E-01	1.231E-01	0.000E+00
PB-214	1.233E+00	1.811E-01	1.269E-01	0.000E+00
PO-214	1.233E+00	1.811E-01	1.269E-01	0.000E+00
PO-216	1.647E+00	1.612E-01	9.910E-02	0.000E+00
PO-218	1.233E+00	1.811E-01	1.269E-01	0.000E+00
RA-224	4.263E+00	1.132E+00	1.128E+00	0.000E+00
RA-226	9.657E-01	1.899E-01	1.231E-01	0.000E+00
AC-228	1.458E+00	3.698E-01	2.522E-01	0.000E+00
RA-228	1.458E+00	3.698E-01	2.522E-01	0.000E+00
TH-228	1.673E+00	1.638E-01	1.007E-01	0.000E+00
TH-230	9.657E-01	1.899E-01	1.231E-01	0.000E+00
TH-232	1.458E+00	3.698E-01	2.522E-01	0.000E+00
TH-234	3.537E+00	3.144E+00	2.845E+00	0.000E+00
U-234	9.657E-01	1.899E-01	1.231E-01	0.000E+00
NP-237	1.006E+00	3.900E-01	4.069E-01	0.000E+00
U-238	3.537E+00	3.144E+00	2.845E+00	0.000E+00
AM-243	3.836E-01	9.399E-02	1.107E-01	0.000E+00
ANH-511	1.309E-01	8.148E-02	5.062E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	9.734E-02	3.657E-01	6.385E-01	0.000E+00	NOT IDENT.
NA-22	-2.649E-02	5.037E-02	7.947E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.501E+06	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.253E-02	3.287E-02	6.200E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.256E-02	9.433E-02	0.000E+00	FAIL ABUN
SC-46	-3.697E-03	4.570E-02	7.800E-02	0.000E+00	FAIL ABUN
V-48	5.318E-02	7.932E-02	1.434E-01	0.000E+00	NOT IDENT.
CR-51	-2.893E-01	4.050E-01	6.859E-01	0.000E+00	NOT IDENT.
MN-52	-1.910E-01	2.911E-01	4.316E-01	0.000E+00	NOT IDENT.
MN-54	-2.516E-03	4.061E-02	6.976E-02	0.000E+00	NOT IDENT.
CO-56	-2.040E-02	4.088E-02	6.729E-02	0.000E+00	NOT IDENT.
CO-57	9.824E-03	2.746E-02	4.884E-02	0.000E+00	NOT IDENT.
CO-58	-5.711E-03	4.299E-02	7.356E-02	0.000E+00	NOT IDENT.
FE-59	-1.494E-02	1.024E-01	1.707E-01	0.000E+00	NOT IDENT.
CO-60	-2.156E-02	4.490E-02	7.027E-02	0.000E+00	NOT IDENT.
ZN-65	3.969E-02	1.231E-01	1.852E-01	0.000E+00	NOT IDENT.
GE-68	2.324E+00	1.433E+00	2.747E+00	0.000E+00	NOT IDENT.
AS-73	3.215E-01	1.202E+00	2.205E+00	0.000E+00	NOT IDENT.
AS-74	-3.253E-02	1.128E-01	1.868E-01	0.000E+00	NOT IDENT.
SE-75	1.018E-03	5.488E-02	8.064E-02	0.000E+00	NOT IDENT.
BR-77	-6.002E-01	1.491E+01	2.537E+01	0.000E+00	FAIL ABUN
SR-82	-4.264E-01	4.388E-01	6.823E-01	0.000E+00	NOT IDENT.
RB-83	-5.602E-03	7.223E-02	1.226E-01	0.000E+00	NOT IDENT.
RB-84	-3.700E-02	7.781E-02	1.280E-01	0.000E+00	NOT IDENT.
KR-85	1.043E+01	8.242E+00	1.363E+01	0.000E+00	NOT IDENT.
SR-85	5.409E-02	4.275E-02	7.067E-02	0.000E+00	NOT IDENT.
RB-86	2.462E-01	9.821E-01	1.698E+00	0.000E+00	NOT IDENT.
Y-88	-3.685E-03	3.693E-02	6.093E-02	0.000E+00	NOT IDENT.
ZR-88	-2.956E-02	3.247E-02	5.324E-02	0.000E+00	NOT IDENT.
Y-91	7.822E+00	2.375E+01	4.087E+01	0.000E+00	NOT IDENT.
NB-94	5.770E-03	3.863E-02	6.528E-02	0.000E+00	NOT IDENT.
NB-95	5.358E-02	6.315E-02	9.781E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.772E-01	3.014E-01	0.000E+00	NOT IDENT.
ZR-95	-2.857E-02	7.927E-02	1.274E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	4.144E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	7.112E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.114E+00	1.632E+01	2.733E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.765E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.452E-02	3.702E-02	6.099E-02	0.000E+00	NOT IDENT.
RH-102	-6.263E-04	3.248E-02	5.572E-02	0.000E+00	FAIL ABUN
RU-103	1.257E-02	4.359E-02	7.543E-02	0.000E+00	NOT IDENT.
RH-106	-4.791E-01	3.554E-01	5.244E-01	0.000E+00	NOT IDENT.
RU-106	-4.791E-01	3.521E-01	5.244E-01	0.000E+00	NOT IDENT.
AG-108M	-1.996E-02	3.519E-02	5.855E-02	0.000E+00	NOT IDENT.
AG-110M	6.645E-02	5.042E-02	8.215E-02	0.000E+00	NOT IDENT.
IN-111	1.991E-01	1.559E+00	2.323E+00	0.000E+00	NOT IDENT.
IN-113M	-3.827E-02	4.722E-02	7.799E-02	0.000E+00	NOT IDENT.
SN-113	-3.827E-02	4.722E-02	7.799E-02	0.000E+00	NOT IDENT.
IN-114M	-3.931E-02	2.202E-01	3.266E-01	0.000E+00	NOT IDENT.
CD-115	3.059E+00	1.569E+01	2.716E+01	0.000E+00	NOT IDENT.
SN-117M	-2.410E-02	6.187E-02	1.055E-01	0.000E+00	NOT IDENT.
SB-122	-2.865E+00	2.942E+00	4.612E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	2.436E+07	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-9.757E-03	3.059E-02	5.230E-02	0.000E+00	NOT IDENT.
I-124	-7.649E-01	1.051E+00	1.408E+00	0.000E+00	NOT IDENT.
SB-124	-4.549E-03	8.727E-02	1.466E-01	0.000E+00	FAIL ABUN
SB-125	-1.166E-03	9.693E-02	1.675E-01	0.000E+00	NOT IDENT.
TE-125M	7.147E+00	1.048E+01	1.891E+01	0.000E+00	NOT IDENT.
I-126	-1.837E-02	2.604E-01	3.739E-01	0.000E+00	NOT IDENT.
SB-126	4.691E-02	1.904E-01	2.945E-01	0.000E+00	NOT IDENT.
SB-127	7.575E-01	1.851E+00	3.199E+00	0.000E+00	NOT IDENT.
XE-127	2.576E-02	5.404E-02	9.112E-02	0.000E+00	NOT IDENT.
I-131	-4.722E-02	1.341E-01	2.295E-01	0.000E+00	NOT IDENT.
TE-132	1.829E-01	9.447E-01	1.618E+00	0.000E+00	NOT IDENT.
BA-133	6.239E-04	5.025E-02	7.651E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	1.502E+04	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	6.884E-02	9.844E-02	0.000E+00	FAIL ABUN
CS-135	1.591E-01	2.016E-01	3.111E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.027E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.926E-02	1.362E-01	2.266E-01	0.000E+00	FAIL ABUN
CE-139	-1.374E-02	3.328E-02	5.657E-02	0.000E+00	NOT IDENT.
BA-140	-3.501E-01	2.993E-01	4.236E-01	0.000E+00	NOT IDENT.
LA-140	-7.051E-02	8.831E-02	1.300E-01	0.000E+00	NOT IDENT.
CE-141	4.963E-02	6.940E-02	1.239E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	4.953E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.069E-01	2.583E-01	3.864E-01	0.000E+00	NOT IDENT.
PM-144	2.017E-02	4.234E-02	7.318E-02	0.000E+00	NOT IDENT.
PR-144	1.368E+00	2.871E+00	4.962E+00	0.000E+00	NOT IDENT.

PM-146	-3.898E-02	4.978E-02	8.134E-02	0.000E+00	NOT IDENT.
ND-147	-4.246E-01	6.299E-01	1.013E+00	0.000E+00	FAIL ABUN
PM-149	6.764E+01	1.322E+02	2.394E+02	0.000E+00	NOT IDENT.
EU-152	-4.248E-03	1.195E-01	1.818E-01	0.000E+00	FAIL ABUN
GD-153	8.557E-02	9.599E-02	1.558E-01	0.000E+00	FAIL ABUN
EU-154	-7.525E-02	1.406E-01	2.214E-01	0.000E+00	NOT IDENT.
EU-155	-9.178E-02	1.185E-01	2.032E-01	0.000E+00	FAIL ABUN
TB-160	-4.873E-02	1.563E-01	2.615E-01	0.000E+00	FAIL ABUN
HO-166M	4.348E-02	6.894E-02	1.208E-01	0.000E+00	FAIL ABUN
TM-171	3.800E-01	4.020E+01	6.366E+01	0.000E+00	NOT IDENT.
LU-176	2.292E-02	2.722E-02	4.758E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.752E+00	2.459E+00	0.000E+00	FAIL ABUN
LU-177M	-1.689E-01	1.855E-01	3.028E-01	0.000E+00	NOT IDENT.
HF-181	-1.397E-02	4.770E-02	8.023E-02	0.000E+00	NOT IDENT.
W-181	2.063E-02	5.419E-01	8.601E-01	0.000E+00	NOT IDENT.
TA-182	-1.857E-01	2.299E-01	3.576E-01	0.000E+00	NOT IDENT.
RE-183	1.327E-01	1.229E-01	2.211E-01	0.000E+00	FAIL ABUN
RE-184	3.956E-02	2.555E-01	4.348E-01	0.000E+00	NOT IDENT.
OS-185	-1.688E-02	4.888E-02	7.989E-02	0.000E+00	NOT IDENT.
RE-188	3.898E-02	1.872E-01	3.273E-01	0.000E+00	NOT IDENT.
W-188	-4.613E+00	8.715E+00	1.294E+01	0.000E+00	FAIL ABUN
IR-192	7.77E-03	3.536E-02	6.299E-02	0.000E+00	FAIL ABUN
AU-195	2.381E-01	2.786E-01	4.510E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	9.532E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-6.416E+00	9.897E+00	1.665E+01	0.000E+00	NOT IDENT.
TL-202	8.805E-02	7.869E-02	1.450E-01	0.000E+00	NOT IDENT.
HG-203	5.478E-02	4.701E-02	7.821E-02	0.000E+00	FAIL ABUN
BI-207	5.146E-02	5.786E-02	1.057E-01	0.000E+00	FAIL ABUN
TL-207	-2.597E-01	7.374E-01	1.273E+00	0.000E+00	FAIL ABUN
PO-209	-5.692E+00	8.409E+00	1.357E+01	0.000E+00	NOT IDENT.
BI-210	8.100E-01	6.000E+00	1.070E+01	0.000E+00	NOT IDENT.
PB-210	8.100E-01	6.000E+00	1.070E+01	0.000E+00	NOT IDENT.
PO-210	8.100E-01	6.000E+00	1.070E+01	0.000E+00	NOT IDENT.
PB-211	-8.099E-01	1.111E+00	1.641E+00	0.000E+00	NOT IDENT.
BI-212	5.666E-01	5.655E-01	6.891E-01	0.000E+00	FAIL ABUN
PO-215	-2.597E-01	7.374E-01	1.273E+00	0.000E+00	FAIL ABUN
RN-219	2.507E-01	4.153E-01	7.455E-01	0.000E+00	FAIL ABUN
RN-220	1.727E+01	2.813E+01	4.996E+01	0.000E+00	NOT IDENT.
RA-223	-2.597E-01	7.374E-01	1.273E+00	0.000E+00	FAIL ABUN
AC-227	2.202E-01	4.320E-01	7.454E-01	0.000E+00	FAIL ABUN
TH-227	2.202E-01	4.325E-01	7.454E-01	0.000E+00	FAIL ABUN
TH-229	1.346E-01	5.448E-01	9.437E-01	0.000E+00	FAIL ABUN
PA-231	-6.978E-01	1.631E+00	2.751E+00	0.000E+00	FAIL ABUN
TH-231	-2.597E-01	7.374E-01	1.273E+00	0.000E+00	FAIL ABUN
U-231	-1.369E-01	1.567E+00	2.434E+00	0.000E+00	FAIL ABUN
PA-233	-8.334E-02	6.695E-02	1.100E-01	0.000E+00	FAIL ABUN
PA-234	2.441E-01	3.412E-01	6.138E-01	0.000E+00	FAIL ABUN
PA-234M	2.549E+00	5.397E+00	9.419E+00	0.000E+00	NOT IDENT.
U-235	2.312E-01	2.316E-01	4.062E-01	0.000E+00	FAIL ABUN
NP-236	-7.473E-02	8.819E-02	1.474E-01	0.000E+00	NOT IDENT.
NP-239	-1.106E-01	2.036E-01	3.505E-01	0.000E+00	FAIL ABUN
AM-241	-1.560E-02	2.151E-01	3.418E-01	0.000E+00	NOT IDENT.
CM-243	8.550E-02	1.041E-01	1.892E-01	0.000E+00	FAIL ABUN
AM-246	1.198E-01	1.661E-01	2.984E-01	0.000E+00	NOT IDENT.
CM-247	2.534E-02	3.749E-02	6.772E-02	0.000E+00	FAIL ABUN
CF-249	4.483E-02	4.379E-02	7.967E-02	0.000E+00	NOT IDENT.
CF-251	-6.658E-03	1.416E-01	2.435E-01	0.000E+00	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014508.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 22-JAN-2010 16:52:18
Sample ID          : G1202014508          Sample quantity  : 1.33170E+02 GRAM
Detector name      : GAM23                Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00        Elapsed real time: 0 02:00:01.75  0.0%
Energy tolerance   : 1.50000 keV          Analyst Initials  : MXR1
Abundance limit    : 75.00000             Sensitivity        : 5.00000
Batch ID           : 941239               Detector SN#       :
Matrix Spike ID    :                     LCS ID            : 1032-A
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## Nuclide Line Activity Report

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1131	10.67*	9.974E-01	2.997E+01	2.997E+01	10.13
CD-109	88.03	235	3.72*	5.215E+00	3.407E+00	3.491E+00	33.75
SN-126	64.28	125	9.60	2.617E+00	1.400E+00	1.400E+00	90.20
	86.94	235	8.90	5.215E+00	1.424E+00	1.424E+00	52.68
	87.57	235	37.00*	5.215E+00	3.426E-01	3.426E-01	33.75
BA-137M	661.65	162	89.98*	2.042E+00	2.479E-01	2.481E-01	27.43
CS-137	661.65	162	85.12*	2.042E+00	2.620E-01	2.623E-01	27.43
TL-208	277.35	55	6.80	4.145E+00	5.510E-01	5.510E-01	106.32
	510.84	118	21.60	2.546E+00	6.059E-01	6.059E-01	64.07
	583.14	297	84.20*	2.278E+00	4.359E-01	4.359E-01	20.29
	860.37	-----	12.46	1.609E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.829E+00	-----	Line Not Found	-----
	351.07	560	12.94*	3.442E+00	3.546E+00	3.546E+00	14.04
PB-212	74.81	362	10.70	4.035E+00	2.366E+00	2.366E+00	26.69
	77.11	527	18.00	4.298E+00	1.919E+00	1.919E+00	18.03
	87.30	235	8.00	5.215E+00	1.584E+00	1.584E+00	35.20
	238.63	1208	44.60*	4.638E+00	1.647E+00	1.647E+00	9.99
	300.09	101	3.41	3.897E+00	2.139E+00	2.139E+00	56.28
PO-212	74.81	362	10.70	4.035E+00	2.366E+00	2.366E+00	26.69
	77.11	527	18.00	4.298E+00	1.919E+00	1.919E+00	18.03
	87.30	235	8.00	5.215E+00	1.584E+00	1.584E+00	35.20
	115.19	-----	0.60	6.293E+00	-----	Line Not Found	-----
	238.63	1208	44.60*	4.638E+00	1.647E+00	1.647E+00	9.99
	300.09	101	3.41	3.897E+00	2.139E+00	2.139E+00	56.28
BI-214	609.31	348	46.30*	2.194E+00	9.657E-01	9.657E-01	20.07
	1120.29	73	15.10	1.259E+00	1.081E+00	1.081E+00	47.96
	1764.49	49	15.80	8.743E-01	9.958E-01	9.958E-01	39.37
PB-214	74.81	362	6.21	4.035E+00	4.077E+00	4.077E+00	26.08
	77.11	527	10.50	4.298E+00	3.290E+00	3.290E+00	19.57
	87.30	235	4.67	5.215E+00	2.714E+00	2.714E+00	34.62
	241.98	274	7.49	4.595E+00	2.248E+00	2.248E+00	27.68
	295.21	307	19.20	3.949E+00	1.141E+00	1.141E+00	24.52

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	560	37.20*	3.442E+00	1.233E+00	1.233E+00	14.98
	74.81	362	6.21	4.035E+00	4.077E+00	4.077E+00	26.08
	77.11	527	10.50	4.298E+00	3.290E+00	3.290E+00	19.57
	87.30	235	4.67	5.215E+00	2.714E+00	2.714E+00	34.62
	241.98	274	7.49	4.595E+00	2.248E+00	2.248E+00	27.68
PO-216	295.21	307	19.20	3.949E+00	1.141E+00	1.141E+00	24.52
	351.92	560	37.20*	3.442E+00	1.233E+00	1.233E+00	14.98
	74.81	362	10.70	4.035E+00	2.366E+00	2.366E+00	26.69
	77.11	527	18.00	4.298E+00	1.919E+00	1.919E+00	18.03
	87.30	235	8.00	5.215E+00	1.584E+00	1.584E+00	35.20
PO-218	238.63	1208	44.60*	4.638E+00	1.647E+00	1.647E+00	9.99
	300.09	101	3.41	3.897E+00	2.139E+00	2.139E+00	56.28
	74.81	362	6.21	4.035E+00	4.077E+00	4.077E+00	26.08
	77.11	527	10.50	4.298E+00	3.290E+00	3.290E+00	19.57
	87.30	235	4.67	5.215E+00	2.714E+00	2.714E+00	34.62
RA-224	241.98	274	7.49	4.595E+00	2.248E+00	2.248E+00	27.68
	295.21	307	19.20	3.949E+00	1.141E+00	1.141E+00	24.52
	351.92	560	37.20*	3.442E+00	1.233E+00	1.233E+00	14.98
	240.98	274	3.95*	4.595E+00	4.263E+00	4.263E+00	27.11
	609.31	348	46.30*	2.194E+00	9.657E-01	9.657E-01	20.07
AC-228	1120.29	73	15.10	1.259E+00	1.081E+00	1.081E+00	47.96
	1764.49	49	15.80	8.743E-01	9.958E-01	9.958E-01	39.37
	338.32	209	11.40	3.549E+00	1.454E+00	1.454E+00	50.69
	911.07	219	27.70*	1.527E+00	1.458E+00	1.458E+00	25.89
	969.11	133	16.60	1.441E+00	1.566E+00	1.566E+00	36.43
RA-228	338.32	209	11.40	3.549E+00	1.454E+00	1.454E+00	50.69
	911.07	219	27.70*	1.527E+00	1.458E+00	1.458E+00	25.89
	969.11	133	16.60	1.441E+00	1.566E+00	1.566E+00	36.43
	74.81	362	10.70	4.035E+00	2.366E+00	2.405E+00	25.03
	77.11	527	18.00	4.298E+00	1.919E+00	1.950E+00	18.03
TH-228	87.30	235	8.00	5.215E+00	1.584E+00	1.610E+00	33.75
	238.63	1208	44.60*	4.638E+00	1.647E+00	1.673E+00	9.99
	300.09	101	3.41	3.897E+00	2.139E+00	2.174E+00	81.08
	609.31	348	46.30*	2.194E+00	9.657E-01	9.657E-01	20.07
	1120.29	73	15.10	1.259E+00	1.081E+00	1.081E+00	47.96
TH-230	1764.49	49	15.80	8.743E-01	9.958E-01	9.958E-01	39.37
	338.32	209	11.40	3.549E+00	1.454E+00	1.454E+00	30.68
	911.07	219	27.70*	1.527E+00	1.458E+00	1.458E+00	25.89
	969.11	133	16.60	1.441E+00	1.566E+00	1.566E+00	36.43
	63.29	125	3.80*	2.617E+00	3.537E+00	3.537E+00	90.72
TH-234	92.38	523	5.41	5.578E+00	4.885E+00	4.885E+00	24.42
	609.31	348	46.30*	2.194E+00	9.657E-01	9.657E-01	20.07
	1120.29	73	15.10	1.259E+00	1.081E+00	1.081E+00	47.96
	1764.49	49	15.80	8.743E-01	9.958E-01	9.958E-01	39.37
	86.50	235	12.60*	5.215E+00	1.006E+00	1.006E+00	39.56
NP-237	95.87	-----	2.60	5.757E+00	-----	Line Not Found	-----
	63.29	125	3.80*	2.617E+00	3.537E+00	3.537E+00	90.72
	92.38	523	5.41	5.578E+00	4.885E+00	4.885E+00	18.54
	74.67	362	66.00*	4.035E+00	3.836E-01	3.836E-01	25.00



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	235	0.34	5.215E+00	3.772E+01	3.772E+01	33.75
	117.66	-----	0.55	6.314E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.209E+00	-----	Line Not Found	-----
ANH-511	511.00	118	100.00*	2.546E+00	1.309E-01	1.309E-01	63.53

Flag: "\*" = Keyline

Total number of lines in spectrum 31  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 31 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.997E+01	2.997E+01	0.303E+01	10.13	
CD-109	464.00D	1.02	3.407E+00	3.491E+00	1.178E+00	33.75	
SN-126	1.00E+05Y	1.00	3.426E-01	3.426E-01	1.156E-01	33.75	
BA-137M	30.17Y	1.00	2.479E-01	2.481E-01	0.681E-01	27.43	
CS-137	30.17Y	1.00	2.620E-01	2.623E-01	0.719E-01	27.43	
TL-208	1.41E+10Y	1.00	4.359E-01	4.359E-01	0.884E-01	20.29	
BI-211	7.04E+08Y	1.00	3.546E+00	3.546E+00	0.498E+00	14.04	
PB-212	1.41E+10Y	1.00	1.647E+00	1.647E+00	0.164E+00	9.99	
PO-212	1.41E+10Y	1.00	1.647E+00	1.647E+00	0.164E+00	9.99	
BI-214	1600.00Y	1.00	9.657E-01	9.657E-01	1.938E-01	20.07	
PB-214	1600.00Y	1.00	1.233E+00	1.233E+00	0.185E+00	14.98	
PO-214	1600.00Y	1.00	1.233E+00	1.233E+00	0.185E+00	14.98	
PO-216	1.41E+10Y	1.00	1.647E+00	1.647E+00	0.164E+00	9.99	
PO-218	1600.00Y	1.00	1.233E+00	1.233E+00	0.185E+00	14.98	
RA-224	1.41E+10Y	1.00	4.263E+00	4.263E+00	1.156E+00	27.11	
RA-226	1600.00Y	1.00	9.657E-01	9.657E-01	1.938E-01	20.07	
AC-228	1.41E+10Y	1.00	1.458E+00	1.458E+00	0.377E+00	25.89	
RA-228	1.41E+10Y	1.00	1.458E+00	1.458E+00	0.377E+00	25.89	
TH-228	1.91Y	1.02	1.647E+00	1.673E+00	0.167E+00	9.99	
TH-230	4.47E+09Y	1.00	9.657E-01	9.657E-01	1.938E-01	20.07	
TH-232	1.41E+10Y	1.00	1.458E+00	1.458E+00	0.377E+00	25.89	
TH-234	4.47E+09Y	1.00	3.537E+00	3.537E+00	3.208E+00	90.72	
U-234	4.47E+09Y	1.00	9.657E-01	9.657E-01	1.938E-01	20.07	
NP-237	2.14E+06Y	1.00	1.006E+00	1.006E+00	0.398E+00	39.56	
U-238	4.47E+09Y	1.00	3.537E+00	3.537E+00	3.208E+00	90.72	
AM-243	7380.00Y	1.00	3.836E-01	3.836E-01	0.959E-01	25.00	
ANH-511	1.00E+09Y	1.00	1.309E-01	1.309E-01	0.831E-01	63.53	
Total Activity :			6.959E+01	6.970E+01			

Grand Total Activity : 6.959E+01 6.970E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
1	84.04	107	414	1.40	168.08	161	32	1.49E-02	68.7	4.97E+00	T
1	89.57	190	377	1.41	179.13	161	32	2.63E-02	40.1	5.39E+00	T
0	129.16	103	339	1.25	258.32	254	9	1.43E-02	67.4	6.32E+00	T
0	185.63	375	380	1.27	371.26	366	12	5.21E-02	23.9	5.49E+00	T
0	208.93	124	277	1.87	417.87	414	10	1.72E-02	53.4	5.09E+00	T
0	270.53	90	220	0.88	541.05	534	12	1.24E-02	70.9	4.22E+00	T
0	727.10	45	98	1.58	1454.21	1449	14	6.18E-03	****	1.88E+00	T
0	768.18	50	91	1.01	1536.36	1528	14	6.98E-03	85.3	1.79E+00	T
0	794.46	47	55	2.29	1588.91	1580	12	6.52E-03	69.2	1.73E+00	T
3	964.07	45	35	2.08	1928.14	1924	20	6.20E-03	54.8	1.45E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014508.CNF;1
* Acquisition date   : 22-JAN-2010 16:52:18   Detector SN#      :
* Detector ID        : GAM23                   Sensitivity       : 5.00000
* Geometry           : CAN                     Energy tolerance  : 1.50000
* Elapsed live time  : 0 02:00:00.00           Abundance limit      : 75.00000
* Elapsed real time  : 0 02:00:01.75           Half life ratio     : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library   : SOLID
* Sample ID          : G1202014508             Analyst initials: MXR1
* Batch Number       : 941239                  Sample Quantity    : 1.33170E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00.62MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                    LCS Isotope    :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.997E+01	3.035E+00	5.566E-01	4.164E-02	53.844
CD-109	3.491E+00	1.178E+00	1.315E+00	1.284E-01	2.655
SN-126	3.426E-01	1.156E-01	1.298E-01	1.263E-02	2.639
BA-137M	2.481E-01	6.805E-02	6.591E-02	3.367E-03	3.765
CS-137	2.623E-01	7.195E-02	6.967E-02	3.579E-03	3.765
TL-208	4.359E-01	8.842E-02	6.489E-02	4.213E-03	6.717
BI-211	3.546E+00	4.980E-01	3.646E-01	2.375E-02	9.726
PB-212	1.647E+00	1.645E-01	9.583E-02	6.890E-03	17.182
PO-212	1.647E+00	1.645E-01	9.583E-02	6.890E-03	17.182
BI-214	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
PB-214	1.233E+00	1.848E-01	1.235E-01	1.031E-02	9.983
PO-214	1.233E+00	1.848E-01	1.235E-01	1.031E-02	9.983
PO-216	1.647E+00	1.645E-01	9.583E-02	6.890E-03	17.182
PO-218	1.233E+00	1.848E-01	1.235E-01	1.031E-02	9.983
RA-224	4.263E+00	1.156E+00	1.091E+00	6.145E-02	3.909
RA-226	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
AC-228	1.458E+00	3.774E-01	2.496E-01	2.881E-02	5.840
RA-228	1.458E+00	3.774E-01	2.496E-01	2.881E-02	5.840

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.673E+00	1.671E-01	9.739E-02	7.002E-03	17.182
TH-230	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
TH-232	1.458E+00	3.774E-01	2.496E-01	2.881E-02	5.840
TH-234	3.537E+00	3.208E+00	2.690E+00	4.848E-01	1.315
U-234	9.657E-01	1.938E-01	1.210E-01	9.094E-03	7.983
NP-237	1.006E+00	3.979E-01	3.869E-01	8.811E-02	2.600
U-238	3.537E+00	3.208E+00	2.690E+00	4.848E-01	1.315
AM-243	3.836E-01	9.591E-02	1.050E-01	9.333E-03	3.653
ANH-511	1.309E-01	8.314E-02	4.960E-02	2.881E-03	2.639

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	9.734E-02		3.731E-01	6.248E-01	4.247E-02	0.156
NA-22	-2.649E-02		5.140E-02	7.914E-02	5.315E-03	-0.335
NA-24	-2.104E-01		1.276E+00	Half-Life too short		
AL-26	2.253E-02		3.354E-02	6.214E-02	3.735E-03	0.363
TI-44	3.542E-01	+	6.384E-02	8.953E-02	8.116E-03	3.956
SC-46	-3.697E-03		4.664E-02	7.718E-02	6.896E-03	-0.048
V-48	5.318E-02		8.094E-02	1.421E-01	1.182E-02	0.374
CR-51	-2.893E-01		4.132E-01	6.666E-01	4.371E-02	-0.434
MN-52	-1.910E-01		2.970E-01	4.308E-01	3.117E-02	-0.443
MN-54	-2.516E-03		4.144E-02	6.895E-02	5.459E-03	-0.036
CO-56	-2.040E-02		4.172E-02	6.652E-02	5.412E-03	-0.307
CO-57	9.824E-03		2.802E-02	4.670E-02	2.753E-03	0.210
CO-58	-5.711E-03		4.387E-02	7.267E-02	5.459E-03	-0.079
FE-59	-1.494E-02		1.045E-01	1.696E-01	1.306E-02	-0.088
CO-60	-2.156E-02		4.581E-02	7.004E-02	5.142E-03	-0.308
ZN-65	3.969E-02		1.256E-01	1.840E-01	1.215E-02	0.216
GE-68	2.324E+00		1.462E+00	2.727E+00	1.952E-01	0.852
AS-73	3.215E-01		1.226E+00	2.080E+00	1.836E-01	0.155
AS-74	-3.253E-02		1.151E-01	1.835E-01	1.012E-02	-0.177
SE-75	1.018E-03		5.600E-02	7.812E-02	4.547E-03	0.013
BR-77	-6.002E-01		1.521E+01	2.487E+01	1.439E+00	-0.024
SR-82	-4.264E-01		4.477E-01	6.735E-01	4.646E-02	-0.633
RB-83	-5.602E-03		7.370E-02	1.201E-01	6.955E-03	-0.047
RB-84	-3.700E-02		7.939E-02	1.266E-01	1.113E-02	-0.292
KR-85	1.043E+01		8.411E+00	1.335E+01	7.749E-01	0.781
SR-85	5.409E-02		4.362E-02	6.925E-02	4.019E-03	0.781
RB-86	2.462E-01		1.002E+00	1.686E+00	1.209E-01	0.146
Y-88	-3.685E-03		3.768E-02	6.109E-02	3.597E-03	-0.060
ZR-88	-2.956E-02		3.313E-02	5.192E-02	2.998E-03	-0.569
Y-91	7.822E+00		2.423E+01	4.066E+01	2.426E+00	0.192
NB-94	5.770E-03		3.942E-02	6.432E-02	3.675E-03	0.090
NB-95	5.358E-02		6.444E-02	9.652E-02	6.486E-03	0.555
NB-95M	6.301E-01		1.808E-01	2.914E-01	2.149E-02	2.162
ZR-95	-2.857E-02		8.089E-02	1.256E-01	9.640E-03	-0.227

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	6.417E-01		2.114E-01	Half-Life too short		
ZR-97	2.074E+01		3.629E+00	Half-Life too short		
MO-99	1.114E+00		1.665E+01	2.695E+01	3.772E+00	0.041
TC-99M	-1.586E+12		4.982E+11	Half-Life too short		
RH-101	-2.452E-02		3.778E-02	5.879E-02	3.134E-03	-0.417
RH-102	-6.263E-04		3.314E-02	5.453E-02	3.192E-03	-0.011
RU-103	1.257E-02		4.448E-02	7.387E-02	9.352E-03	0.170
RH-106	-4.791E-01		3.626E-01	5.156E-01	5.946E-02	-0.929
RU-106	-4.791E-01		3.593E-01	5.156E-01	2.771E-02	-0.929
AG-108M	-1.996E-02		3.591E-02	5.720E-02	3.626E-03	-0.349
AG-110M	6.645E-02		5.144E-02	8.085E-02	4.493E-03	0.822
IN-111	1.991E-01		1.591E+00	2.247E+00	1.272E-01	0.089
IN-113M	-3.827E-02		4.818E-02	7.606E-02	4.686E-03	-0.503
SN-113	-3.827E-02		4.818E-02	7.606E-02	4.686E-03	-0.503
IN-114M	-3.931E-02		2.246E-01	3.146E-01	1.658E-02	-0.125
CD-115	3.059E+00		1.601E+01	2.662E+01	1.536E+00	0.115
SN-117M	-2.410E-02		6.314E-02	1.013E-01	5.264E-03	-0.238
SB-122	-2.865E+00		3.002E+00	4.527E+00	2.561E-01	-0.633
I-123	-7.770E+00		1.243E+01	Half-Life too short		
TE-123M	-9.757E-03		3.122E-02	5.023E-02	2.651E-03	-0.194
I-124	-7.649E-01		1.073E+00	1.383E+00	7.581E-02	-0.553
SB-124	-4.549E-03		8.906E-02	1.467E-01	1.023E-02	-0.031
SB-125	-1.166E-03		9.891E-02	1.636E-01	9.954E-03	-0.007
TE-125M	7.147E+00		1.070E+01	1.804E+01	1.610E+00	0.396
I-126	-1.837E-02		2.657E-01	3.681E-01	1.905E-02	-0.050
SB-126	4.691E-02		1.942E-01	2.903E-01	1.739E-02	0.162
SB-127	7.575E-01		1.888E+00	3.150E+00	3.029E-01	0.240
XE-127	2.576E-02		5.514E-02	8.787E-02	4.717E-03	0.293
I-131	-4.722E-02		1.369E-01	2.236E-01	1.463E-02	-0.211
TE-132	1.829E-01		9.640E-01	1.564E+00	2.266E-01	0.117
BA-133	6.239E-04		5.127E-02	7.449E-02	8.643E-03	0.008
I-133	-1.165E-02		7.661E-03	Half-Life too short		
CS-134	1.010E-01	+	7.025E-02	9.721E-02	7.099E-03	1.039
CS-135	1.591E-01		2.057E-01	3.014E-01	2.303E-02	0.528
I-135	3.253E+10		5.240E+10	Half-Life too short		
CS-136	-2.926E-02		1.389E-01	2.249E-01	1.792E-02	-0.130
CE-139	-1.374E-02		3.396E-02	5.437E-02	2.772E-03	-0.253
BA-140	-3.501E-01		3.054E-01	4.154E-01	1.351E-01	-0.843
LA-140	-7.051E-02		9.012E-02	1.299E-01	8.915E-03	-0.543
CE-141	4.963E-02		7.081E-02	1.188E-01	6.700E-03	0.418
CE-143	1.730E-03		2.527E-04	Half-Life too short		
CE-144	-1.069E-01		2.636E-01	3.700E-01	5.226E-02	-0.289
PM-144	2.017E-02		4.320E-02	7.209E-02	4.056E-03	0.280
PR-144	1.368E+00		2.929E+00	4.888E+00	2.747E-01	0.280
PM-146	-3.898E-02		5.079E-02	7.954E-02	6.889E-03	-0.490
ND-147	-4.246E-01		6.428E-01	9.935E-01	1.342E-01	-0.427
PM-149	6.764E+01		1.349E+02	2.323E+02	3.297E+01	0.291
EU-152	-4.248E-03		1.220E-01	1.769E-01	1.172E-02	-0.024

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	8.557E-02		9.795E-02	1.484E-01	1.212E-02	0.577
EU-154	-7.525E-02		1.435E-01	2.205E-01	2.189E-02	-0.341
EU-155	-9.178E-02		1.209E-01	1.938E-01	1.429E-02	-0.474
TB-160	-4.873E-02		1.595E-01	2.587E-01	2.262E-02	-0.188
HO-166M	4.348E-02		7.035E-02	1.191E-01	6.968E-03	0.365
TM-171	3.800E-01		4.102E+01	6.026E+01	5.240E+00	0.006
LU-176	2.292E-02		2.777E-02	4.620E-02	2.722E-03	0.496
LU-177	3.332E+00	+	1.788E+00	2.372E+00	1.283E-01	1.404
LU-177M	-1.689E-01		1.893E-01	2.955E-01	1.720E-02	-0.572
HF-181	-1.397E-02		4.867E-02	7.853E-02	4.593E-03	-0.178
W-181	2.063E-02		5.529E-01	8.139E-01	7.071E-02	0.025
TA-182	-1.857E-01		2.346E-01	3.558E-01	2.184E-02	-0.522
RE-183	1.327E-01		1.254E-01	2.124E-01	1.092E-02	0.625
RE-184	3.956E-02		2.607E-01	4.208E-01	2.400E-02	0.094
OS-185	-1.688E-02		4.988E-02	7.860E-02	4.102E-03	-0.215
RE-188	3.898E-02		1.910E-01	3.142E-01	1.649E-02	0.124
W-188	-4.613E+00		8.893E+00	1.255E+01	7.351E-01	-0.367
IR-192	7.377E-03		3.608E-02	6.120E-02	3.631E-03	0.121
AU-195	2.381E-01		2.843E-01	4.297E-01	3.429E-02	0.554
TL-200	7.705E-04		4.863E-04	Half-Life	too short	
TL-201	-6.416E+00		1.010E+01	1.600E+01	8.166E-01	-0.401
TL-202	8.805E-02		8.029E-02	1.417E-01	8.291E-03	0.621
HG-203	5.478E-02		4.797E-02	7.583E-02	4.684E-03	0.722
BI-207	5.146E-02		5.904E-02	1.049E-01	7.710E-03	0.490
TL-207	-2.597E-01		7.525E-01	1.238E+00	2.049E-01	-0.210
PO-209	-5.692E+00		8.581E+00	1.343E+01	1.219E+00	-0.424
BI-210	8.100E-01		6.122E+00	1.007E+01	7.841E-01	0.080
PB-210	8.100E-01		6.122E+00	1.007E+01	7.841E-01	0.080
PO-210	8.100E-01		6.122E+00	1.007E+01	6.756E-01	0.080
PB-211	-8.099E-01		1.133E+00	1.601E+00	9.982E-01	-0.506
BI-212	5.666E-01	+	5.771E-01	6.794E-01	5.393E-02	0.834
PO-215	-2.597E-01		7.525E-01	1.238E+00	2.049E-01	-0.210
RN-219	2.507E-01		4.238E-01	7.274E-01	9.895E-02	0.345
RN-220	1.727E+01		2.871E+01	4.901E+01	2.797E+00	0.352
RA-223	-2.597E-01		7.525E-01	1.238E+00	2.049E-01	-0.210
AC-227	2.202E-01		4.408E-01	7.217E-01	1.005E-01	0.305
TH-227	2.202E-01		4.413E-01	7.217E-01	1.218E-01	0.305
TH-229	1.346E-01		5.559E-01	9.093E-01	4.817E-02	0.148
PA-231	-6.978E-01		1.664E+00	2.668E+00	3.680E-01	-0.262
TH-231	-2.597E-01		7.525E-01	1.238E+00	2.049E-01	-0.210
U-231	-1.369E-01		1.599E+00	2.318E+00	1.944E-01	-0.059
PA-233	-8.334E-02		6.832E-02	1.068E-01	6.679E-03	-0.780
PA-234	2.441E-01		3.482E-01	6.080E-01	1.143E-01	0.401
PA-234M	2.549E+00		5.507E+00	9.339E+00	8.911E-01	0.273
U-235	2.312E-01		2.363E-01	3.894E-01	6.298E-02	0.594
NP-236	-7.473E-02		8.999E-02	1.416E-01	7.325E-03	-0.528
NP-239	-1.106E-01		2.078E-01	3.349E-01	2.090E-02	-0.330
AM-241	-1.560E-02		2.195E-01	3.230E-01	3.005E-02	-0.048

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	8.550E-02		1.062E-01	1.804E-01	1.337E-02	0.474
AM-246	1.198E-01		1.695E-01	2.963E-01	2.114E-02	0.404
CM-247	2.534E-02		3.826E-02	6.608E-02	3.830E-03	0.383
CF-249	4.483E-02		4.468E-02	7.769E-02	4.495E-03	0.577
CF-251	-6.658E-03		1.445E-01	2.342E-01	1.210E-02	-0.028



## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202014508          *
* Acquisition date   : 22-JAN-2010 16:52:18 Detector SN#      :              *
* Detector ID        : GAM23                      Sensitivity   : 5.000        *
* Geometry           : CAN                          Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00                Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.75                Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID            *
* Sample ID          : G1202014508                Analyst initials: MXR1       *
* Batch Number       : 941239                      Sample Quantity : 1.3317E+02 GRAM *
* Recovery           : 1.00000                     Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 2-JUN-2009 11:17:00 MS Isotope      :                  *
* MSD DPM             : 0.000                        MSD Isotope :                  *
* LCS DPM             : 0.000                        LCS Isotope  :                  *
* LCSD DPM            : 0.000                        LCSD Isotope :                  *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.997E+01	2.974E+00	2.789E-01	1.517E+00
CD-109	3.491E+00	1.155E+00	6.918E-01	5.891E-01
SN-126	3.426E-01	1.133E-01	6.830E-02	5.781E-02
BA-137M	2.481E-01	6.669E-02	3.350E-02	3.403E-02
CS-137	2.623E-01	7.051E-02	3.541E-02	3.597E-02
TL-208	4.359E-01	8.665E-02	3.306E-02	4.421E-02
BI-211	3.546E+00	4.880E-01	1.874E-01	2.490E-01
PB-212	1.647E+00	1.612E-01	4.958E-02	8.223E-02
PO-212	1.647E+00	1.612E-01	4.958E-02	8.223E-02
BI-214	9.657E-01	1.899E-01	6.158E-02	9.690E-02
PB-214	1.233E+00	1.811E-01	6.350E-02	9.239E-02
PO-214	1.233E+00	1.811E-01	6.350E-02	9.239E-02
PO-216	1.647E+00	1.612E-01	4.958E-02	8.223E-02
PO-218	1.233E+00	1.811E-01	6.350E-02	9.239E-02
RA-224	4.263E+00	1.132E+00	5.642E-01	5.778E-01
RA-226	9.657E-01	1.899E-01	6.158E-02	9.690E-02
AC-228	1.458E+00	3.698E-01	1.262E-01	1.887E-01
RA-228	1.458E+00	3.698E-01	1.262E-01	1.887E-01
TH-228	1.673E+00	1.638E-01	5.038E-02	8.357E-02
TH-230	9.657E-01	1.899E-01	6.158E-02	9.689E-02
TH-232	1.458E+00	3.698E-01	1.262E-01	1.887E-01
TH-234	3.537E+00	3.144E+00	1.423E+00	1.604E+00
U-234	9.657E-01	1.899E-01	6.158E-02	9.689E-02
NP-237	1.006E+00	3.900E-01	2.036E-01	1.990E-01
U-238	3.537E+00	3.144E+00	1.423E+00	1.604E+00
AM-243	3.836E-01	9.399E-02	5.540E-02	4.795E-02
ANH-511	1.309E-01	8.148E-02	2.533E-02	4.157E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	9.734E-02	3.657E-01	3.194E-01	1.866E-01	NOT IDENT.
NA-22	-2.649E-02	5.037E-02	3.976E-02	2.570E-02	NOT IDENT.
NA-24	-2.104E+05	2.501E+06	0.000E+00	1.276E+06	SHORT HLIF
AL-26	2.253E-02	3.287E-02	3.102E-02	1.677E-02	NOT IDENT.
TI-44	3.542E-01	6.256E-02	4.719E-02	3.192E-02	FAIL ABUN
SC-46	-3.697E-03	4.570E-02	3.902E-02	2.332E-02	FAIL ABUN
V-48	5.318E-02	7.932E-02	7.172E-02	4.047E-02	NOT IDENT.
CR-51	-2.893E-01	4.050E-01	3.432E-01	2.066E-01	NOT IDENT.
MN-52	-1.910E-01	2.911E-01	2.159E-01	1.485E-01	NOT IDENT.
MN-54	-2.516E-03	4.061E-02	3.490E-02	2.072E-02	NOT IDENT.
CO-56	-2.040E-02	4.088E-02	3.367E-02	2.086E-02	NOT IDENT.
CO-57	9.824E-03	2.746E-02	2.444E-02	1.401E-02	NOT IDENT.
CO-58	-5.711E-03	4.299E-02	3.680E-02	2.193E-02	NOT IDENT.
FE-59	-1.494E-02	1.024E-01	8.542E-02	5.227E-02	NOT IDENT.
CO-60	-2.156E-02	4.490E-02	3.516E-02	2.291E-02	NOT IDENT.
ZN-65	3.969E-02	1.231E-01	9.267E-02	6.278E-02	NOT IDENT.
GE-68	2.324E+00	1.433E+00	1.374E+00	7.312E-01	NOT IDENT.
AS-73	3.215E-01	1.202E+00	1.103E+00	6.132E-01	NOT IDENT.
AS-74	-3.253E-02	1.128E-01	9.345E-02	5.754E-02	NOT IDENT.
SE-75	1.018E-03	5.488E-02	4.034E-02	2.800E-02	NOT IDENT.
BR-77	-6.002E-01	1.491E+01	1.269E+01	7.606E+00	FAIL ABUN
SR-82	-4.264E-01	4.388E-01	3.414E-01	2.239E-01	NOT IDENT.
RB-83	-5.602E-03	7.223E-02	6.132E-02	3.685E-02	NOT IDENT.
RB-84	-3.700E-02	7.781E-02	6.404E-02	3.970E-02	NOT IDENT.
KR-85	1.043E+01	8.242E+00	6.818E+00	4.205E+00	NOT IDENT.
SR-85	5.409E-02	4.275E-02	3.536E-02	2.181E-02	NOT IDENT.
RB-86	2.462E-01	9.821E-01	8.497E-01	5.011E-01	NOT IDENT.
Y-88	-3.685E-03	3.693E-02	3.049E-02	1.884E-02	NOT IDENT.
ZR-88	-2.956E-02	3.247E-02	2.663E-02	1.657E-02	NOT IDENT.
Y-91	7.822E+00	2.375E+01	2.045E+01	1.212E+01	NOT IDENT.
NB-94	5.770E-03	3.863E-02	3.266E-02	1.971E-02	NOT IDENT.
NB-95	5.358E-02	6.315E-02	4.893E-02	3.222E-02	NOT IDENT.
NB-95M	6.301E-01	1.772E-01	1.508E-01	9.041E-02	NOT IDENT.
ZR-95	-2.857E-02	7.927E-02	6.371E-02	4.044E-02	NOT IDENT.
NB-97	6.417E+05	4.144E+05	0.000E+00	2.114E+05	SHORT HLIF
ZR-97	2.074E+07	7.112E+06	0.000E+00	3.629E+06	SHORT HLIF
MO-99	1.114E+00	1.632E+01	1.367E+01	8.326E+00	NOT IDENT.
TC-99M	-1.586E+18	9.765E+17	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.452E-02	3.702E-02	3.051E-02	1.889E-02	NOT IDENT.
RH-102	-6.263E-04	3.248E-02	2.788E-02	1.657E-02	FAIL ABUN
RU-103	1.257E-02	4.359E-02	3.774E-02	2.224E-02	NOT IDENT.
RH-106	-4.791E-01	3.554E-01	2.624E-01	1.813E-01	NOT IDENT.
RU-106	-4.791E-01	3.521E-01	2.624E-01	1.797E-01	NOT IDENT.
AG-108M	-1.996E-02	3.519E-02	2.929E-02	1.796E-02	NOT IDENT.
AG-110M	6.645E-02	5.042E-02	4.110E-02	2.572E-02	NOT IDENT.
IN-111	1.991E-01	1.559E+00	1.162E+00	7.957E-01	NOT IDENT.
IN-113M	-3.827E-02	4.722E-02	3.902E-02	2.409E-02	NOT IDENT.
SN-113	-3.827E-02	4.722E-02	3.902E-02	2.409E-02	NOT IDENT.
IN-114M	-3.931E-02	2.202E-01	1.634E-01	1.123E-01	NOT IDENT.
CD-115	3.059E+00	1.569E+01	1.359E+01	8.007E+00	NOT IDENT.
SN-117M	-2.410E-02	6.187E-02	5.277E-02	3.157E-02	NOT IDENT.
SB-122	-2.865E+00	2.942E+00	2.308E+00	1.501E+00	NOT IDENT.
I-123	-7.770E+06	2.436E+07	0.000E+00	1.243E+07	SHORT HLIF
TE-123M	-9.757E-03	3.059E-02	2.617E-02	1.561E-02	NOT IDENT.
I-124	-7.649E-01	1.051E+00	7.043E-01	5.363E-01	NOT IDENT.
SB-124	-4.549E-03	8.727E-02	7.334E-02	4.453E-02	FAIL ABUN
SB-125	-1.166E-03	9.693E-02	8.381E-02	4.946E-02	NOT IDENT.
TE-125M	7.147E+00	1.048E+01	9.458E+00	5.349E+00	NOT IDENT.
I-126	-1.837E-02	2.604E-01	1.871E-01	1.329E-01	NOT IDENT.
SB-126	4.691E-02	1.904E-01	1.473E-01	9.712E-02	NOT IDENT.
SB-127	7.575E-01	1.851E+00	1.600E+00	9.442E-01	NOT IDENT.
XE-127	2.576E-02	5.404E-02	4.559E-02	2.757E-02	NOT IDENT.
I-131	-4.722E-02	1.341E-01	1.148E-01	6.844E-02	NOT IDENT.
TE-132	1.829E-01	9.447E-01	8.097E-01	4.820E-01	NOT IDENT.
BA-133	6.239E-04	5.025E-02	3.828E-02	2.564E-02	FAIL ABUN
I-133	-1.165E+04	1.502E+04	0.000E+00	7.661E+03	SHORT HLIF
CS-134	1.010E-01	6.884E-02	4.925E-02	3.512E-02	FAIL ABUN
CS-135	1.591E-01	2.016E-01	1.556E-01	1.029E-01	NOT IDENT.
I-135	3.253E+16	1.027E+17	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-2.926E-02	1.362E-01	1.134E-01	6.947E-02	FAIL ABUN
CE-139	-1.374E-02	3.328E-02	2.830E-02	1.698E-02	NOT IDENT.
BA-140	-3.501E-01	2.993E-01	2.119E-01	1.527E-01	NOT IDENT.
LA-140	-7.051E-02	8.831E-02	6.501E-02	4.506E-02	NOT IDENT.
CE-141	4.963E-02	6.940E-02	6.198E-02	3.541E-02	NOT IDENT.
CE-143	1.730E+03	4.953E+02	0.000E+00	2.527E+02	SHORT HLIF
CE-144	-1.069E-01	2.583E-01	1.933E-01	1.318E-01	NOT IDENT.
PM-144	2.017E-02	4.234E-02	3.661E-02	2.160E-02	NOT IDENT.
PR-144	1.368E+00	2.871E+00	2.482E+00	1.465E+00	NOT IDENT.

PM-146	-3.898E-02	4.978E-02	4.070E-02	2.540E-02	NOT IDENT.
ND-147	-4.246E-01	6.299E-01	5.070E-01	3.214E-01	FAIL ABUN
PM-149	6.764E+01	1.322E+02	1.198E+02	6.746E+01	NOT IDENT.
EU-152	-4.248E-03	1.195E-01	9.094E-02	6.099E-02	FAIL ABUN
GD-153	8.557E-02	9.599E-02	7.793E-02	4.898E-02	FAIL ABUN
EU-154	-7.525E-02	1.406E-01	1.108E-01	7.173E-02	NOT IDENT.
EU-155	-9.178E-02	1.185E-01	1.016E-01	6.044E-02	FAIL ABUN
TB-160	-4.873E-02	1.563E-01	1.308E-01	7.975E-02	FAIL ABUN
HO-166M	4.348E-02	6.894E-02	6.044E-02	3.518E-02	FAIL ABUN
TM-171	3.800E-01	4.020E+01	3.185E+01	2.051E+01	NOT IDENT.
LU-176	2.292E-02	2.722E-02	2.380E-02	1.389E-02	FAIL ABUN
LU-177	3.332E+00	1.752E+00	1.230E+00	8.940E-01	FAIL ABUN
LU-177M	-1.689E-01	1.855E-01	1.515E-01	9.467E-02	NOT IDENT.
HF-181	-1.397E-02	4.770E-02	4.014E-02	2.434E-02	NOT IDENT.
W-181	2.063E-02	5.419E-01	4.303E-01	2.765E-01	NOT IDENT.
TA-182	-1.857E-01	2.299E-01	1.789E-01	1.173E-01	NOT IDENT.
RE-183	1.327E-01	1.229E-01	1.106E-01	6.269E-02	FAIL ABUN
RE-184	3.956E-02	2.555E-01	2.175E-01	1.304E-01	NOT IDENT.
OS-185	-1.688E-02	4.888E-02	3.997E-02	2.494E-02	NOT IDENT.
RE-188	3.898E-02	1.872E-01	1.637E-01	9.551E-02	NOT IDENT.
W-188	-4.613E+00	8.715E+00	6.472E+00	4.446E+00	FAIL ABUN
IR-192	7.377E-03	3.536E-02	3.151E-02	1.804E-02	FAIL ABUN
AU-195	2.381E-01	2.786E-01	2.257E-01	1.422E-01	FAIL ABUN
TL-200	7.705E+02	9.532E+02	0.000E+00	4.863E+02	SHORT HLIF
TL-201	-6.416E+00	9.897E+00	8.328E+00	5.050E+00	NOT IDENT.
TL-202	8.805E-02	7.869E-02	7.255E-02	4.015E-02	NOT IDENT.
HG-203	5.478E-02	4.701E-02	3.913E-02	2.399E-02	FAIL ABUN
BI-207	5.146E-02	5.786E-02	5.289E-02	2.952E-02	FAIL ABUN
TL-207	-2.597E-01	7.374E-01	6.371E-01	3.762E-01	FAIL ABUN
PO-209	-5.692E+00	8.409E+00	6.787E+00	4.290E+00	NOT IDENT.
BI-210	8.100E-01	6.000E+00	5.353E+00	3.061E+00	NOT IDENT.
PB-210	8.100E-01	6.000E+00	5.353E+00	3.061E+00	NOT IDENT.
PO-210	8.100E-01	6.000E+00	5.353E+00	3.061E+00	NOT IDENT.
PB-211	-8.099E-01	1.111E+00	8.210E-01	5.666E-01	NOT IDENT.
BI-212	5.666E-01	5.655E-01	3.448E-01	2.885E-01	FAIL ABUN
PO-215	-2.597E-01	7.374E-01	6.371E-01	3.762E-01	FAIL ABUN
RN-219	2.507E-01	4.153E-01	3.730E-01	2.119E-01	FAIL ABUN
RN-220	1.727E+01	2.813E+01	2.500E+01	1.435E+01	NOT IDENT.
RA-223	-2.597E-01	7.374E-01	6.371E-01	3.762E-01	FAIL ABUN
AC-227	2.202E-01	4.320E-01	3.729E-01	2.204E-01	FAIL ABUN
TH-227	2.202E-01	4.325E-01	3.729E-01	2.207E-01	FAIL ABUN
TH-229	1.346E-01	5.448E-01	4.721E-01	2.780E-01	FAIL ABUN
PA-231	-6.978E-01	1.631E+00	1.376E+00	8.319E-01	FAIL ABUN
TH-231	-2.597E-01	7.374E-01	6.371E-01	3.762E-01	FAIL ABUN
U-231	-1.369E-01	1.567E+00	1.218E+00	7.997E-01	FAIL ABUN
PA-233	-8.334E-02	6.695E-02	5.502E-02	3.416E-02	FAIL ABUN
PA-234	2.441E-01	3.412E-01	3.071E-01	1.741E-01	FAIL ABUN
PA-234M	2.549E+00	5.397E+00	4.712E+00	2.754E+00	NOT IDENT.
U-235	2.312E-01	2.316E-01	2.032E-01	1.182E-01	FAIL ABUN
NP-236	-7.473E-02	8.819E-02	7.377E-02	4.499E-02	NOT IDENT.
NP-239	-1.106E-01	2.036E-01	1.754E-01	1.039E-01	FAIL ABUN
AM-241	-1.560E-02	2.151E-01	1.710E-01	1.097E-01	NOT IDENT.
CM-243	8.550E-02	1.041E-01	9.468E-02	5.311E-02	FAIL ABUN
AM-246	1.198E-01	1.661E-01	1.493E-01	8.475E-02	NOT IDENT.
CM-247	2.534E-02	3.749E-02	3.388E-02	1.913E-02	FAIL ABUN
CF-249	4.483E-02	4.379E-02	3.986E-02	2.234E-02	NOT IDENT.
CF-251	-6.658E-03	1.416E-01	1.218E-01	7.224E-02	NOT IDENT.

```

*****
*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD      *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
*****

```

ENERGY	MDA COUNTS
46.50	306.2625
46.50	306.2625
46.50	306.2625
48.70	335.5962
49.72	337.1104
51.35	307.0852
52.39	321.3257
52.97	329.8657
53.15	330.8803
53.44	326.4694
54.07	343.2927
56.28	339.0338
56.28	339.0352
57.37	0.0000
57.53	337.3298
57.53	337.3305
57.60	341.7872
57.98	343.4702
57.98	343.4702
59.32	342.7268
59.32	342.7268
59.40	342.7700
59.54	342.8457
59.72	335.5524
60.01	335.7055
61.10	354.0545
61.14	348.1504
61.30	348.2372
63.00	407.6505
63.29	407.8301
63.29	407.8301
63.58	408.0106
64.28	408.4426
65.12	481.4344
65.20	481.4916
65.20	481.4916
66.05	473.1473
66.72	464.6493
66.83	464.7271
66.91	461.4196
67.20	461.6155
67.20	461.6155
67.75	453.8818
67.85	453.9484
68.90	434.6584
68.90	434.6584
69.30	464.9035
69.67	467.6541
70.82	479.4424
70.82	479.4424
70.83	479.4501
72.80	455.1640
72.87	455.2083
72.87	455.2083
74.67	456.3474
74.81	456.4359
74.81	456.4359
74.81	456.4359
74.81	456.4359
74.81	456.4359
74.81	456.4359
74.81	456.4359
74.97	456.5354
75.28	456.7308
75.70	456.9925
77.11	457.8699
77.11	457.8699

77.11	457.8699
77.11	457.8699
77.11	457.8699
77.11	457.8699
77.11	457.8699
78.38	417.6479
79.62	418.3377
79.80	418.4367
79.80	418.4367
80.11	418.6096
80.18	418.6482
80.30	418.7137
80.30	418.7137
80.57	418.8631
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81.07	419.1383
81.07	419.1383
81.07	419.1383
81.07	419.1383
82.60	368.0516
83.37	368.4164
83.78	368.6120
83.78	368.6120
83.78	368.6120
83.78	368.6120
84.21	368.8165
84.90	369.1416
85.43	369.3902
86.29	369.7932
86.50	369.8918
86.54	369.9094
86.59	369.9330
86.72	369.9947
86.79	370.0256
86.94	370.0962
87.30	370.2639
87.30	370.2639
87.30	370.2639
87.30	370.2639
87.30	370.2639
87.30	370.2639
87.30	370.2639
87.57	370.3889
87.88	370.5331
88.03	370.6022
88.36	370.7537
88.47	370.8052
89.95	371.4848
91.11	372.0143
92.29	372.5483
92.38	372.5895
92.38	372.5895
93.35	373.0263
94.00	373.3176
94.67	376.7145
94.67	376.7167
94.90	392.3276
94.90	392.3276
94.90	392.3276
94.90	392.3276
95.87	386.5701
95.87	386.5701
96.73	365.2067
97.43	335.9549
98.44	347.2506
98.44	347.2520
98.88	341.1970
99.55	357.3148
99.55	357.3148
99.86	345.3726
100.00	345.4280
100.10	345.4699
103.18	353.2565
103.76	326.0706
105.00	376.5337
105.31	386.4730
108.00	377.7891
109.28	359.6004

111.00	375.0801
111.00	375.0801
111.76	406.9990
112.95	372.8999
115.19	347.0200
116.30	338.4920
117.00	347.6808
117.00	347.6808
117.66	359.8499
121.11	322.2287
121.62	321.3994
121.78	324.4458
122.06	324.5388
122.32	338.6082
122.32	338.6082
122.32	338.6082
122.32	338.6082
123.07	323.3015
127.23	334.0613
129.76	350.9981
131.20	351.4930
133.02	363.4195
133.54	365.2195
135.34	324.7740
136.00	335.1011
136.25	328.0935
136.48	340.3195
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140.51	0.0000
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142.65	332.1060
143.76	307.9722
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144.24	304.0272
144.24	304.0272
144.24	304.0272
145.22	310.4269
145.44	328.8737
147.16	384.6289
152.43	309.3660
152.70	303.2712
153.22	326.0380
154.21	320.1446
154.21	320.1446
154.21	320.1446
154.21	320.1446
155.03	328.6183
156.02	315.4995
158.56	322.3975
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159.00	321.4851
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161.27	321.0782
162.32	307.8878
162.64	300.7130
163.35	311.2701
163.89	309.3371
165.85	343.1223
167.43	341.4932
171.28	334.2285
171.86	340.6595
172.10	340.7266
176.55	322.0324
176.60	322.0441
181.06	294.7720
184.41	319.1959
185.71	303.2493
186.00	303.3194
190.27	279.9360
192.34	295.9557
193.63	278.5289
197.04	286.7094
198.01	312.5174
198.60	306.2513
200.40	291.7058
201.83	311.2678
202.84	278.9286
205.31	284.8282

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208.81	297.5972
209.75	251.3207
209.75	251.3207
210.97	256.7103
215.65	293.8726
216.55	278.9239
218.09	245.6765
222.10	276.7565
223.80	273.8235
226.40	252.5428
227.00	246.1133
227.08	245.0380
227.20	245.0586
228.16	243.0386
228.18	243.0420
228.18	243.0420
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236.00	257.6968
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238.63	228.2950
238.63	228.2950
238.63	228.2950
239.00	228.3506
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241.98	228.8013
241.98	228.8013
241.98	228.8013
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248.90	206.6299
249.79	211.1708
252.40	201.5577
252.85	204.9394
252.85	204.9394
254.15	0.0000
256.20	210.9262
256.20	210.9262
260.50	225.9682
260.90	231.5942
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264.65	192.8496
268.24	205.8040
268.79	193.3427
269.46	189.5414
269.46	189.5414
269.46	189.5414
269.46	189.5414
271.23	147.9139
273.65	201.9974
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277.35	185.3522
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277.60	176.3809
278.00	174.0236
278.60	174.0850
279.20	160.6371
279.53	162.1692
280.46	178.7857
281.68	181.9234
283.67	191.6710
284.30	195.1567
285.00	178.0623
285.90	168.2106
286.10	167.3243
286.10	167.3243
287.40	156.1386
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290.67	190.4458
290.80	190.4586
291.72	205.6851
293.26	0.0000
293.70	172.6119
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295.21	177.3067

295.21	177.3067
295.96	177.3853
296.50	177.4400
297.23	177.5138
298.57	177.6495
299.80	167.1395
299.80	167.1395
300.09	167.1664
300.09	167.1664
300.09	167.1664
300.12	167.1686
301.29	167.2805
302.84	178.0827
303.76	184.2670
303.91	184.2818
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304.40	166.0525
304.84	156.9497
306.84	151.0258
308.46	157.5757
311.98	184.5044
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318.01	147.3594
319.02	166.7909
319.41	176.9648
320.08	177.0305
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323.87	194.0270
323.87	194.0270
323.87	194.0270
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334.20	187.3614
334.30	187.3713
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338.28	150.5225
338.28	150.5225
338.28	150.5225
338.32	150.5244
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338.32	150.5244
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340.57	164.6847
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351.92	145.3390
351.92	145.3390
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367.43	128.5243
367.94	0.0000
369.80	122.9985
374.96	110.9800
383.85	153.3784
387.95	114.5449
388.63	123.1752
391.69	141.5232
391.69	141.5232
392.90	140.6477
398.62	123.7594
400.65	124.8378
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401.81	106.6505
402.60	107.6510
404.84	144.3256
410.95	122.5414
411.60	118.7178
413.65	136.2185
414.70	133.3843
415.30	123.7531



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427.08	111.7783
427.89	113.7636
432.53	108.1532
433.93	123.8188
439.47	95.7797
439.56	95.7833
439.89	99.7077
443.98	125.3469
444.90	117.5596
445.03	117.5669
445.03	117.5669
445.03	117.5669
445.03	117.5669
453.90	136.7043
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468.07	126.6469
473.00	122.9435
475.06	112.1324
475.35	110.1613
476.78	106.2542
477.59	109.2709
477.96	102.3324
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487.03	101.7186
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497.08	83.1094
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510.53	0.0000
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511.00	92.6340
511.85	92.6660
511.85	92.6660
513.99	84.0068
513.99	84.0068
520.41	87.9240
520.65	87.9324
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528.96	0.0000
529.64	100.4115
529.87	0.0000
531.02	94.3759
537.32	95.6202
543.00	81.5547
546.56	0.0000
549.76	80.7416
552.65	96.1756
555.20	81.9297
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563.90	103.7716
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569.32	70.0055
569.50	71.0400
569.67	71.0434
573.80	116.5230
574.00	112.4062
574.64	103.1494
578.91	67.1503
579.30	0.0000
583.14	90.0161
585.48	86.2956
591.81	92.3723
592.07	90.3050
593.00	88.2581
595.88	107.0561
600.56	92.3988
602.52	0.0000
602.71	105.9259
602.71	105.9259
603.60	92.0642
604.41	85.1399
604.70	85.1479
609.31	87.7222

609.31	87.7222
609.31	87.7222
609.31	87.7222
610.33	88.7976
612.46	113.2581
614.37	80.2061
618.01	73.3240
621.84	99.6410
621.84	99.6410
631.29	82.0771
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633.10	78.9679
634.78	71.6391
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636.97	85.3980
645.85	90.9404
646.12	87.7761
656.30	100.8076
657.75	86.7010
657.90	0.0000
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661.65	85.0410
664.57	0.0000
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666.33	94.0439
675.00	83.2768
677.61	76.9359
685.20	72.8394
692.80	106.3041
695.00	87.0374
696.49	93.5292
696.49	93.5292
697.00	94.6193
697.49	103.2375
698.33	98.9606
698.50	88.2101
699.00	91.4518
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706.58	0.0000
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717.42	82.2418
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722.78	88.5194
722.78	88.5194
722.89	88.5234
722.95	88.5254
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724.18	84.9446
727.18	79.2342
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735.90	63.9380
739.58	64.2806
742.81	69.7969
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747.13	74.2571
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756.15	73.3630
756.87	59.1416
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765.79	93.3402
766.42	89.6958
766.84	86.7785
776.49	84.1212
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778.57	74.4016
778.89	74.4082
783.80	65.3159
785.46	73.6312
792.07	67.9763

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801.93	71.2084
805.60	64.8018
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831.96	78.3433
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867.82	57.4543
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873.19	59.4240
874.81	49.0706
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876.40	46.2585
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880.27	67.0984
880.51	67.1027
881.50	63.3387
883.24	53.9095
884.67	47.3073
889.25	66.3114
896.60	70.2377
898.02	74.0613
899.00	72.1808
903.28	45.6396
911.07	64.7876
911.07	64.7876
911.07	64.7876
919.63	57.2925
920.93	63.9984
925.00	57.3718
925.24	58.3317
926.50	54.5253
935.52	52.7341
937.48	61.3932
944.10	70.1455
946.00	51.9137
949.00	64.4605
962.29	51.2994
964.01	66.2207
966.15	55.0761
968.20	55.1039
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969.11	48.0717
969.11	48.0717
977.42	47.5668
980.50	65.9386
983.50	44.6392
989.30	60.2517
996.32	73.9837
1001.03	54.5770
1001.68	49.7113
1004.76	79.9880
1021.30	0.0000
1024.50	0.0000
1034.80	48.1447
1036.00	45.2083
1037.82	53.0947
1038.57	57.0371
1038.76	0.0000
1045.16	63.0365
1046.59	62.0720
1048.07	65.0493

1050.47	52.2668
1050.47	52.2668
1062.04	36.5875
1063.62	44.5148
1076.63	59.5313
1077.35	39.6940
1078.86	51.6191
1085.78	64.6271
1099.22	55.8496
1112.02	53.1537
1112.84	56.5944
1115.52	65.2065
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1120.29	58.4067
1120.29	58.4067
1120.29	58.4067
1120.51	58.4090
1121.28	63.5731
1124.00	0.0000
1129.67	58.2407
1131.51	0.0000
1147.95	0.0000
1167.94	76.9587
1173.22	66.9104
1175.09	61.8663
1177.93	75.0960
1189.05	56.9661
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1205.75	0.0000
1213.00	63.3901
1221.42	78.8673
1230.97	88.2606
1235.34	74.9872
1236.41	0.0000
1238.25	71.9482
1246.25	72.0679
1260.41	0.0000
1271.85	39.3282
1274.45	54.8805
1274.54	54.8827
1291.56	37.4063
1298.22	0.0000
1312.09	34.4301
1325.50	42.8902
1325.50	42.8902
1332.49	40.8551
1333.61	36.6720
1360.21	25.2773
1362.66	0.0000
1365.15	29.5176
1368.21	20.0422
1368.53	0.0000
1376.25	22.1860
1384.27	25.3945
1394.10	27.5615
1395.20	27.5679
1407.95	23.3822
1434.06	28.8369
1436.60	27.7816
1457.56	0.0000
1460.81	20.3931
1489.15	17.2617
1509.49	10.8276
1596.49	22.6147
1620.62	11.3538
1678.03	0.0000
1691.02	17.2310
1691.02	17.2310
1706.46	0.0000
1750.46	0.0000
1764.49	10.1708
1764.49	10.1708
1764.49	10.1708
1764.49	10.1708
1770.23	35.8721
1771.40	20.3635
1791.20	0.0000
1808.65	9.7538

1836.01

13.7129

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202014508

Total Uranium Activity	1.0629E+01	ug/g
Total Uranium Counting Unc.	9.3548E+00	ug/g
Total Uranium Tpu	4.7729E-06	ug/g
Total Uranium Mda	4.2348E+00	ug/g

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*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941239                          SAMPLE ID   : G1202014508
*  ANALYST       : MXR1                             DETECTOR    : GAM23
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 22-JAN-2010 16:52:18.44          SAMPLE ALQT  : 133.170 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.167E+00
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.443E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.137E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 1.521E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 17:53:24.38

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014509.CNF;1
Sample date     : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 16:52:55
Sample ID       : G1202014509 Sample quantity : 1.55440E+02 GRAM
Detector name   : GAM19 Detector geometry: CAN
Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.53 0.0%
Energy tolerance : 1.50000 keV Analyst Initials : MXR1
Abundance limit  : 75.00000 Sensitivity : 5.00000
Batch ID        : 941239 Detector SN# :
Matrix Spike ID : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	59.53	3201	955	1.16	118.92	112	14	8.89E-01	2.7	
2	3	74.93*	165	467	1.40	149.71	145	16	4.59E-02	24.0	1.67E+00
3	3	77.15	261	573	1.78	154.15	145	16	7.24E-02	19.8	
4	0	88.13*	1522	628	1.20	176.08	171	11	4.23E-01	4.1	
5	0	121.82	329	367	1.62	243.41	236	14	9.13E-02	13.5	
6	0	238.67*	400	297	1.22	476.95	473	8	1.11E-01	9.0	
7	0	295.04	109	190	1.46	589.60	586	9	3.03E-02	24.6	
8	0	352.16*	174	217	1.56	703.78	697	12	4.84E-02	18.7	
9	0	511.20*	8	169	2.03	1021.70	1016	12	2.32E-03	344.8	
10	0	583.88*	162	160	1.58	1167.01	1160	16	4.50E-02	19.6	
11	0	608.83*	144	177	1.56	1216.90	1213	15	3.99E-02	21.4	
12	0	661.82*	2449	98	1.58	1322.85	1314	17	6.80E-01	2.2	
13	0	911.71*	95	138	1.67	1822.54	1815	12	2.64E-02	26.8	
14	0	1121.76*	92	37	1.55	2242.66	2236	16	2.54E-02	18.6	
15	0	1173.74	1885	44	1.90	2346.64	2338	17	5.24E-01	2.4	
16	0	1333.11*	1677	26	2.02	2665.48	2657	19	4.66E-01	2.6	

Flag: "\*" = Peak area was modified by background subtraction



Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014509.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 16:52:55  
 Sample ID : G1202014509 Sample quantity : 155.44 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA19 Detector geometry: CAN  
 Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.53 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	+	122.06	*	2.759E-01	7.653E-02	6.064E-02	3.619E-03	4.550
		136.48		-1.768E-02	3.369E-01	5.458E-01	3.603E-02	-0.032
CO-60	+	1173.22		6.532E+00	4.793E-01	1.182E-01	6.478E-03	55.255
	+	1332.49	*	6.468E+00	5.803E-01	7.277E-02	5.363E-03	88.873
CD-109	+	88.03	*	3.251E+01	3.957E+00	2.245E+00	2.011E-01	14.480
SN-126		64.28		-1.010E+00	8.935E-01	1.209E+00	1.765E-01	-0.836
	+	86.94		1.343E+01	5.675E+00	9.975E-01	4.131E-01	13.467
	+	87.57	*	3.231E+00	3.933E-01	2.241E-01	1.999E-02	14.419
BA-137M	+	661.65	*	5.717E+00	4.190E-01	9.755E-02	5.681E-03	58.601
CS-137	+	661.65	*	6.043E+00	4.441E-01	1.031E-01	6.030E-03	58.601
TL-208		277.35		-4.415E-01	6.380E-01	1.038E+00	1.095E-01	-0.425
	+	510.84		6.588E-02	4.544E-01	4.382E-01	4.474E-02	0.150
	+	583.14	*	3.640E-01	1.446E-01	1.096E-01	7.456E-03	3.319
		860.37		-2.629E-01	6.205E-01	9.705E-01	8.690E-02	-0.271
BI-211		72.87		6.372E+00	5.712E+00	8.605E+00	6.742E-01	0.741
	+	351.07	*	1.717E+00	6.513E-01	6.153E-01	3.929E-02	2.790
PB-212	+	74.81		1.467E+00	7.273E-01	8.783E-01	1.077E-01	1.670
	+	77.11		1.319E+00	5.336E-01	4.998E-01	4.038E-02	2.640
	+	87.30		1.495E+01	2.354E+00	1.106E+00	1.480E-01	13.515
	+	238.63	*	8.643E-01	1.679E-01	1.858E-01	1.341E-02	4.651
		300.09		7.690E-01	1.582E+00	2.384E+00	1.969E-01	0.323
PO-212	+	74.81		1.467E+00	7.273E-01	8.783E-01	1.077E-01	1.670
	+	77.11		1.319E+00	5.336E-01	4.998E-01	4.038E-02	2.640
	+	87.30		1.495E+01	2.354E+00	1.106E+00	1.480E-01	13.515
		115.19		-1.146E+00	6.158E+00	8.681E+00	5.527E-01	-0.132
	+	238.63	*	8.643E-01	1.679E-01	1.858E-01	1.341E-02	4.651
		300.09		7.690E-01	1.582E+00	2.384E+00	1.969E-01	0.323
BI-214	+	609.31	*	6.082E-01	2.649E-01	1.958E-01	1.539E-02	3.106
	+	1120.29		2.016E+00	7.731E-01	9.156E-01	8.376E-02	2.201
		1764.49		3.808E-01	3.863E-01	7.355E-01	4.457E-02	0.518
PB-214	+	74.81		2.527E+00	1.245E+00	1.513E+00	1.643E-01	1.670
	+	77.11		2.262E+00	9.308E-01	8.568E-01	9.515E-02	2.640
	+	87.30		2.560E+01	3.689E+00	1.894E+00	2.230E-01	13.515
		241.98		1.259E+00	7.450E-01	1.136E+00	9.063E-02	1.108

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		6.365E-01	3.174E-01	4.047E-01	3.454E-02	1.573
	+	351.92	*	5.971E-01	2.287E-01	2.145E-01	1.768E-02	2.784
	+	74.81		2.527E+00	1.245E+00	1.513E+00	1.643E-01	1.670
	+	77.11		2.262E+00	9.308E-01	8.568E-01	9.515E-02	2.640
	+	87.30		2.560E+01	3.689E+00	1.894E+00	2.230E-01	13.515
PO-216		241.98		1.259E+00	7.450E-01	1.136E+00	9.063E-02	1.108
	+	295.21		6.365E-01	3.174E-01	4.047E-01	3.454E-02	1.573
	+	351.92	*	5.971E-01	2.287E-01	2.145E-01	1.768E-02	2.784
	+	74.81		1.467E+00	7.273E-01	8.783E-01	1.077E-01	1.670
	+	77.11		1.319E+00	5.336E-01	4.998E-01	4.038E-02	2.640
PO-218	+	87.30		1.495E+01	2.354E+00	1.106E+00	1.480E-01	13.515
	+	238.63	*	8.643E-01	1.679E-01	1.858E-01	1.341E-02	4.651
		300.09		7.690E-01	1.582E+00	2.384E+00	1.969E-01	0.323
	+	74.81		2.527E+00	1.245E+00	1.513E+00	1.643E-01	1.670
	+	77.11		2.262E+00	9.308E-01	8.568E-01	9.515E-02	2.640
RA-226	+	87.30		2.560E+01	3.689E+00	1.894E+00	2.230E-01	13.515
		241.98		1.259E+00	7.450E-01	1.136E+00	9.063E-02	1.108
	+	295.21		6.365E-01	3.174E-01	4.047E-01	3.454E-02	1.573
	+	351.92	*	5.971E-01	2.287E-01	2.145E-01	1.768E-02	2.784
	+	609.31	*	6.082E-01	2.649E-01	1.958E-01	1.539E-02	3.106
TH-228	+	1120.29		2.016E+00	7.731E-01	9.156E-01	8.376E-02	2.201
		1764.49		3.808E-01	3.863E-01	7.355E-01	4.457E-02	0.518
	+	74.81		1.478E+00	7.200E-01	8.851E-01	7.096E-02	1.670
	+	77.11		1.330E+00	5.377E-01	5.037E-01	4.069E-02	2.640
	+	87.30		1.506E+01	1.833E+00	1.114E+00	9.912E-02	13.515
TH-230	+	238.63	*	8.709E-01	1.692E-01	1.872E-01	1.351E-02	4.651
		300.09		7.749E-01	1.657E+00	2.403E+00	1.416E+00	0.323
	+	609.31	*	6.081E-01	2.649E-01	1.958E-01	1.539E-02	3.106
	+	1120.29		2.016E+00	7.731E-01	9.156E-01	8.376E-02	2.201
		1764.49		3.808E-01	3.863E-01	7.354E-01	4.457E-02	0.518
U-234	+	609.31	*	6.081E-01	2.649E-01	1.958E-01	1.539E-02	3.106
	+	1120.29		2.016E+00	7.731E-01	9.156E-01	8.376E-02	2.201
AM-241		1764.49		3.808E-01	3.863E-01	7.354E-01	4.457E-02	0.518
	+	59.54	*	1.403E+01	1.385E+00	4.892E-01	4.027E-02	28.681
AM-243	+	74.67	*	2.378E-01	1.158E-01	1.428E-01	1.133E-02	1.665
	+	86.72		3.558E+02	4.331E+01	2.588E+01	2.288E+00	13.751
ANH-511		117.66		-2.521E+00	6.542E+00	9.090E+00	5.648E-01	-0.277
		142.18		6.051E+00	2.749E+01	4.501E+01	2.506E+00	0.134
	+	511.00	*	1.423E-02	9.813E-02	9.468E-02	5.587E-03	0.150

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	3.786E-01	6.440E-01	1.097E+00	7.447E-02	0.345
NA-22		1274.54	*	-1.939E-02	5.144E-02	8.078E-02	5.388E-03	-0.240
NA-24		1368.53	*	8.928E-05	5.144E-02	Half-Life too short		
AL-26		1129.67		-3.812E-01	3.346E+00	4.745E+00	2.928E-01	-0.080
		1808.65	*	5.595E-03	3.803E-02	6.430E-02	3.754E-03	0.087

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40		1460.81	*	2.943E-01	5.040E-01	9.429E-01	7.022E-02	0.312
TI-44		67.85		2.164E-02	7.329E-02	1.218E-01	9.298E-03	0.178
	+	78.38	*	2.434E-01	9.844E-02	1.085E-01	8.855E-03	2.244
SC-46		889.25	*	8.193E-02	8.985E-02	1.534E-01	1.333E-02	0.534
	+	1120.51		3.245E-01	1.226E-01	1.675E-01	1.057E-02	1.937
V-48		944.10		-1.031E+00	1.709E+00	2.635E+00	2.220E-01	-0.391
		983.50	*	1.019E-02	1.204E-01	1.946E-01	1.564E-02	0.052
		1312.09		5.187E-02	6.202E-02	1.164E-01	8.280E-03	0.446
CR-51		320.08	*	2.883E-01	5.511E-01	9.474E-01	6.130E-02	0.304
MN-52		744.21		-8.944E-03	1.915E-01	3.103E-01	2.110E-02	-0.029
		848.13		-1.759E+00	6.355E+00	1.008E+01	8.194E-01	-0.175
		935.52		-1.816E-02	2.553E-01	4.090E-01	3.477E-02	-0.044
		1246.25		-1.155E+00	3.216E+00	5.080E+00	3.211E-01	-0.227
	+	1333.61		3.314E+02	2.974E+01	3.777E+01	2.783E+00	8.777
		1434.06	*	9.459E-02	1.095E-01	2.081E-01	1.501E-02	0.455
MN-54		834.83	*	1.315E-02	7.701E-02	1.261E-01	1.003E-02	0.104
CO-56		846.75	*	7.009E-03	8.337E-02	1.356E-01	1.100E-02	0.052
		977.42		1.423E+00	6.405E+00	1.046E+01	8.473E-01	0.136
		1037.82		1.014E-01	5.762E-01	9.787E-01	7.785E-02	0.104
	+	1175.09		3.058E+02	2.244E+01	3.238E+01	1.781E+00	9.444
		1238.25		4.166E-02	8.778E-02	1.543E-01	1.014E-02	0.270
		1360.21		1.972E-01	1.049E+00	1.794E+00	1.316E-01	0.110
		1771.40		-2.566E-01	3.896E-01	5.588E-01	3.367E-02	-0.459
CO-58		810.76	*	7.530E-02	7.388E-02	1.285E-01	9.847E-03	0.586
FE-59		142.65		1.076E+00	3.769E+00	6.189E+00	3.441E-01	0.174
		192.34		-2.594E-01	1.432E+00	2.285E+00	2.654E-01	-0.114
		1099.22	*	-1.496E-01	1.610E-01	2.489E-01	1.868E-02	-0.601
		1291.56		-7.172E-02	1.238E-01	1.861E-01	1.541E-02	-0.385
ZN-65		1115.52	*	3.598E-02	1.931E-01	2.838E-01	1.814E-02	0.127
GE-68		1077.35	*	-1.981E+00	2.483E+00	3.895E+00	2.695E-01	-0.508
AS-73		53.44	*	1.718E-02	1.997E+00	2.898E+00	2.144E-01	0.006
AS-74		595.88	*	8.232E-02	1.279E-01	2.189E-01	1.297E-02	0.376
		634.78		-2.881E-01	5.074E-01	7.960E-01	4.678E-02	-0.362
SE-75		66.05		-2.683E+00	7.791E+00	1.170E+01	1.123E+00	-0.229
		96.73		-1.866E+00	1.222E+00	1.836E+00	2.415E-01	-1.016
	+	121.11		1.448E+00	4.150E-01	4.770E-01	4.468E-02	3.036
		136.00		2.663E-02	6.112E-02	1.011E-01	5.821E-03	0.263
		198.60		-2.413E-01	3.023E+00	4.845E+00	3.307E-01	-0.050
		264.65	*	3.767E-02	7.524E-02	1.296E-01	7.534E-03	0.291
		279.53		-2.715E-02	1.825E-01	3.053E-01	1.911E-02	-0.089
		303.91		-1.780E+00	3.619E+00	5.934E+00	5.668E-01	-0.300
		400.65		-1.044E-01	4.666E-01	7.678E-01	6.894E-02	-0.136
BR-77	+	87.88		8.125E+02	9.889E+01	1.111E+02	9.941E+00	7.315
		200.40		1.096E+01	3.309E+01	5.397E+01	2.936E+00	0.203
	+	239.00		1.588E+01	3.001E+00	5.096E+00	2.883E-01	3.115
		249.79		8.652E+00	1.428E+01	2.347E+01	1.339E+00	0.369
		281.68		7.099E+00	1.845E+01	3.158E+01	1.830E+00	0.225
		297.23		1.885E+01	1.304E+01	2.063E+01	1.199E+00	0.914
		303.76		-1.806E+01	3.671E+01	6.024E+01	3.504E+00	-0.300

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	439.47			1.941E+01	3.312E+01	5.665E+01	3.253E+00	0.343
	484.57			-1.574E+01	5.070E+01	8.230E+01	4.820E+00	-0.191
	520.65	*		-5.390E-01	2.313E+00	3.760E+00	2.223E-01	-0.143
	574.64			-2.970E+01	4.416E+01	6.915E+01	4.104E+00	-0.430
	578.91			-3.527E-01	2.038E+01	2.895E+01	1.718E+00	-0.012
	585.48			1.245E+02	4.237E+01	7.903E+01	4.687E+00	1.575
	755.35			3.253E+01	3.728E+01	6.434E+01	4.463E+00	0.506
	817.79			-3.335E+00	3.293E+01	5.293E+01	4.092E+00	-0.063
SR-82	698.33			-3.294E+01	5.135E+01	7.966E+01	4.977E+00	-0.413
	776.49	*		-3.615E-01	6.202E-01	9.609E-01	6.920E-02	-0.376
	1395.20			3.933E+00	1.209E+01	2.098E+01	1.528E+00	0.187
RB-83	520.41	*		-5.575E-02	1.277E-01	2.049E-01	1.211E-02	-0.272
	529.64			2.138E-02	1.908E-01	3.168E-01	1.876E-02	0.067
	552.65			8.907E-02	3.322E-01	5.570E-01	3.305E-02	0.160
RB-84	881.50	*		-6.044E-02	1.397E-01	2.182E-01	1.873E-02	-0.277
KR-85	513.99	*		2.980E+00	1.518E+01	2.208E+01	1.304E+00	0.135
SR-85	513.99	*		1.413E-02	7.198E-02	1.047E-01	6.183E-03	0.135
RB-86	1076.63	*		-1.270E-01	1.212E+00	2.012E+00	1.394E-01	-0.063
Y-88	898.02			4.781E-02	9.258E-02	1.546E-01	1.368E-02	0.309
	1836.01	*		-8.724E-03	3.955E-02	6.050E-02	3.453E-03	-0.144
ZR-88	392.90	*		-3.290E-02	5.523E-02	8.908E-02	4.960E-03	-0.369
Y-91	1204.90	*		-2.330E+01	2.031E+01	2.866E+01	1.674E+00	-0.813
NB-94	702.63	*		5.152E-02	6.118E-02	1.057E-01	6.657E-03	0.487
	871.10			-3.060E-02	7.724E-02	1.210E-01	1.021E-02	-0.253
NB-95	765.79	*		1.914E-02	7.336E-02	1.214E-01	8.581E-03	0.158
NB-95M	235.69	*		7.390E-02	2.410E-01	3.424E-01	2.537E-02	0.216
ZR-95	724.18			-2.655E-01	1.682E-01	2.398E-01	1.801E-02	-1.107
	756.15	*		9.291E-02	1.302E-01	2.222E-01	1.779E-02	0.418
NB-97	657.90	*		3.656E-04	1.302E-01	Half-Life	too short	
	1024.50			-7.544E-03	1.302E-01	Half-Life	too short	
ZR-97	254.15			-7.820E-03	1.302E-01	Half-Life	too short	
	355.39			1.528E-03	1.302E-01	Half-Life	too short	
	507.63	*		1.965E-03	1.302E-01	Half-Life	too short	
	602.52			-4.653E-03	1.302E-01	Half-Life	too short	
	1021.30			1.577E-02	1.302E-01	Half-Life	too short	
	1147.95			1.326E-03	1.302E-01	Half-Life	too short	
	1362.66			-2.371E-03	1.302E-01	Half-Life	too short	
	1750.46			6.083E-04	1.302E-01	Half-Life	too short	
MO-99	140.51			-3.310E+00	6.446E+00	1.012E+01	2.722E+00	-0.327
	181.06			-3.635E+00	4.383E+00	6.724E+00	1.142E+00	-0.541
	366.43			-2.737E+01	2.486E+01	3.906E+01	2.223E+00	-0.701
	739.58	*		4.879E-01	3.605E+00	5.921E+00	8.410E-01	0.082
	778.00			-4.333E+00	1.020E+01	1.599E+01	1.154E+00	-0.271
TC-99M	140.51	*		-3.753E+01	1.020E+01	Half-Life	too short	
RH-101	127.23			2.448E-02	5.791E-02	8.443E-02	4.927E-03	0.290
	198.01	*		3.145E-03	5.710E-02	9.210E-02	4.996E-03	0.034
	325.23			-1.067E-02	4.096E-01	6.860E-01	3.982E-02	-0.016
RH-102	418.52			-1.439E-01	5.510E-01	9.031E-01	5.122E-02	-0.159
	475.06	*		2.685E-02	6.487E-02	1.096E-01	6.398E-03	0.245

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	631.29			1.904E-02	9.917E-02	1.647E-01	9.689E-03	0.116
	697.49			-1.313E-01	1.443E-01	2.191E-01	1.366E-02	-0.599
	766.84			-8.479E-02	2.087E-01	3.290E-01	2.329E-02	-0.258
	1046.59			5.187E-03	2.356E-01	3.954E-01	2.894E-02	0.013
	1112.84			2.658E-01	4.469E-01	7.643E-01	4.907E-02	0.348
RU-103	497.08	*		-5.661E-02	7.096E-02	1.110E-01	1.407E-02	-0.510
	610.33	+		5.761E+00	2.623E+00	3.102E+00	4.796E-01	1.857
RH-106	511.85	+		7.009E-02	4.833E-01	5.709E-01	3.369E-02	0.123
	621.84	*		-4.906E-01	5.960E-01	9.137E-01	1.077E-01	-0.537
	1050.47			5.899E-01	4.755E+00	8.038E+00	5.843E-01	0.073
RU-106	511.85	+		7.009E-02	4.833E-01	5.709E-01	3.369E-02	0.123
	621.84	*		-4.906E-01	5.939E-01	9.137E-01	5.388E-02	-0.537
	1050.47			5.899E-01	4.755E+00	8.038E+00	5.843E-01	0.073
AG-108M	433.93	*		-1.703E-02	6.724E-02	1.098E-01	6.839E-03	-0.155
	614.37			-5.570E-02	8.927E-02	1.192E-01	7.614E-03	-0.468
	722.95			-1.326E-01	8.123E-02	1.151E-01	8.033E-03	-1.152
AG-110M	657.75	*		1.359E-01	7.565E-02	1.244E-01	7.721E-03	1.092
	677.61			-5.450E-01	5.779E-01	8.746E-01	5.553E-02	-0.623
	706.67			-2.711E-01	3.776E-01	5.809E-01	3.872E-02	-0.467
	763.93			1.883E-01	2.977E-01	5.059E-01	3.713E-02	0.372
	884.67			-1.271E-01	1.205E-01	1.790E-01	1.594E-02	-0.710
	937.48			-9.137E-02	2.811E-01	4.426E-01	3.895E-02	-0.206
	1384.27			-4.243E-02	2.006E-01	3.201E-01	2.428E-02	-0.133
IN-111	171.28			-7.672E-02	2.572E-01	4.093E-01	2.148E-02	-0.187
	245.39	*		-5.897E-01	3.381E-01	4.926E-01	2.801E-02	-1.197
IN-113M	391.69	*		-2.964E-02	8.281E-02	1.354E-01	8.081E-03	-0.219
SN-113	391.69	*		-2.964E-02	8.281E-02	1.354E-01	8.081E-03	-0.219
IN-114M	190.27	*		-2.408E-01	2.809E-01	4.339E-01	2.332E-02	-0.555
CD-115	260.90			-9.841E+00	2.432E+01	3.799E+01	2.182E+00	-0.259
	492.35			6.097E+00	6.732E+00	1.173E+01	6.887E-01	0.520
	527.90	*		5.527E-01	2.038E+00	3.419E+00	2.024E-01	0.162
SN-117M	156.02			2.190E+00	2.562E+00	4.295E+00	2.302E-01	0.510
	158.56	*		-1.144E-03	6.180E-02	9.988E-02	5.316E-03	-0.011
SB-122	563.90	*		-9.975E-01	5.921E-01	8.576E-01	5.091E-02	-1.163
	692.80			1.058E+01	1.143E+01	1.991E+01	1.231E+00	0.531
I-123	159.00	*		-1.870E-04	1.143E+01	Half-Life	too short	
	528.96			4.879E-02	1.143E+01	Half-Life	too short	
TE-123M	159.00	*		-1.090E-02	4.521E-02	7.234E-02	3.907E-03	-0.151
I-124	602.71	*		-1.473E-01	3.677E-01	5.264E-01	3.115E-02	-0.280
	722.78			-3.838E+00	2.484E+00	3.556E+00	2.325E-01	-1.079
	1325.50			8.402E+00	1.489E+01	2.369E+01	1.725E+00	0.355
	1376.25			2.383E+00	1.073E+01	1.836E+01	1.343E+00	0.130
	1509.49			-2.123E+00	6.081E+00	9.389E+00	6.605E-01	-0.226
	1691.02			-1.535E-01	1.368E+00	2.176E+00	1.392E-01	-0.071
SB-124	602.71			-2.696E-02	6.730E-02	9.635E-02	5.705E-03	-0.280
	645.85			6.772E-01	9.312E-01	1.595E+00	1.052E-01	0.425
	709.31			-8.024E-01	4.469E+00	7.179E+00	4.578E-01	-0.112
	713.82			-1.367E+00	2.669E+00	4.160E+00	4.402E-01	-0.329
	722.78			-1.018E+00	6.592E-01	9.435E-01	6.399E-02	-1.079

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-125		968.20		1.015E+01	6.062E+00	1.059E+01	8.679E-01	0.959
		1045.16		4.376E-01	4.547E+00	7.676E+00	5.631E-01	0.057
		1325.50		2.381E+00	4.220E+00	6.714E+00	4.890E-01	0.355
		1368.21		7.402E-01	1.855E+00	3.279E+00	4.160E-01	0.226
		1436.60		-1.638E+00	4.074E+00	6.188E+00	4.460E-01	-0.265
		1691.02	*	-9.606E-03	8.560E-02	1.362E-01	9.326E-03	-0.071
		427.89	*	-2.608E-02	1.834E-01	3.024E-01	1.800E-02	-0.086
		463.38		4.805E-02	6.229E-01	1.036E+00	7.015E-02	0.046
		600.56		-6.726E-02	3.187E-01	5.153E-01	3.510E-02	-0.131
		635.90		1.141E-01	5.140E-01	8.547E-01	5.860E-02	0.134
TE-125M		109.28	*	-1.031E+01	1.336E+01	2.102E+01	1.854E+00	-0.491
I-126		388.63		1.825E-01	2.651E-01	4.569E-01	2.550E-02	0.399
		666.33	*	-5.512E-02	2.568E-01	3.545E-01	2.083E-02	-0.155
SB-126		753.82		5.284E-01	1.979E+00	3.278E+00	2.268E-01	0.161
		223.80		4.360E+00	4.963E+00	8.257E+00	4.608E-01	0.528
		278.60		-5.957E-01	2.794E+00	4.660E+00	2.698E-01	-0.128
	+	296.50		4.182E+00	2.069E+00	3.140E+00	1.826E-01	1.332
		414.70		-1.813E-02	9.871E-02	1.626E-01	9.200E-03	-0.111
		415.30		-1.603E+00	8.206E+00	1.351E+01	7.645E-01	-0.119
		555.20		8.834E-01	4.705E+00	7.844E+00	4.655E-01	0.113
		573.80		-9.495E-01	1.324E+00	2.071E+00	1.229E-01	-0.458
		593.00		-1.145E+00	1.186E+00	1.751E+00	1.038E-01	-0.654
		656.30		-3.023E+00	4.773E+00	6.282E+00	3.666E-01	-0.481
SB-127		666.33		-2.264E-02	1.055E-01	1.456E-01	8.558E-03	-0.155
		675.00		-1.385E+00	2.519E+00	3.944E+00	2.357E-01	-0.351
		695.00		-5.263E-03	9.303E-02	1.511E-01	9.380E-03	-0.035
		697.00		-3.266E-01	3.287E-01	4.945E-01	3.082E-02	-0.660
		720.50	*	1.732E-01	1.701E-01	2.978E-01	1.939E-02	0.582
		856.80		-3.574E-01	6.860E-01	1.066E+00	8.789E-02	-0.335
		989.30		-6.090E-01	1.962E+00	3.075E+00	2.453E-01	-0.198
		1034.80		-1.091E+00	1.175E+01	1.957E+01	1.460E+00	-0.056
		1213.00		-1.096E+00	3.443E+00	5.493E+00	3.259E-01	-0.200
		61.10		1.031E+03	9.912E+01	1.035E+02	8.636E+00	9.965
XE-127		252.40		8.341E-01	2.118E+00	3.406E+00	1.399E+00	0.245
		290.80		-9.496E+00	1.144E+01	1.581E+01	1.081E+00	-0.601
		411.60		4.583E+00	6.526E+00	1.118E+01	1.448E+00	0.410
		444.90		1.330E+00	5.231E+00	8.797E+00	7.804E-01	0.151
		473.00		-8.310E-02	9.968E-01	1.644E+00	1.542E-01	-0.051
		543.00		2.095E+00	8.396E+00	1.405E+01	1.607E+00	0.149
		603.60		-2.818E+00	5.927E+00	7.981E+00	7.136E-01	-0.353
		685.20	*	3.905E-01	6.663E-01	1.133E+00	8.421E-02	0.345
		698.50		-4.727E+00	7.391E+00	1.143E+01	1.524E+00	-0.413
		722.20		-1.285E+01	1.461E+01	2.214E+01	1.653E+00	-0.580
XE-127		783.80		5.182E-01	1.824E+00	3.023E+00	2.960E-01	0.171
		57.60		2.320E+02	2.494E+01	3.382E+01	2.533E+00	6.860
		145.22		2.036E-01	9.354E-01	1.531E+00	8.451E-02	0.133
		172.10		-4.562E-02	1.665E-01	2.653E-01	1.394E-02	-0.172
		202.84	*	3.485E-02	7.142E-02	1.172E-01	6.396E-03	0.297
		374.96		-1.473E-01	3.370E-01	5.499E-01	3.108E-02	-0.268

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131	80.18			-2.417E+00	4.566E+00	6.404E+00	5.319E-01	-0.378
	284.30			-1.842E-01	1.448E+00	2.423E+00	1.549E-01	-0.076
	364.48	*		6.661E-02	1.131E-01	1.946E-01	1.232E-02	0.342
	636.97			-2.851E-01	1.580E+00	2.554E+00	1.662E-01	-0.112
TE-132	722.89			-1.156E+01	7.215E+00	1.027E+01	6.733E-01	-1.126
	49.72			2.589E+00	8.471E+00	1.412E+01	1.116E+00	0.183
	111.76			-1.692E+00	9.300E+00	1.504E+01	1.113E+00	-0.112
	116.30			-4.463E+00	9.853E+00	1.364E+01	9.733E-01	-0.327
BA-133	228.16	*		-1.554E-01	2.668E-01	4.146E-01	5.434E-02	-0.375
	53.15			8.169E-01	9.103E+00	1.325E+01	9.788E-01	0.062
	79.62			1.185E+00	2.422E+00	3.554E+00	5.337E-01	0.333
	81.00			-2.872E-01	1.937E-01	2.519E-01	3.964E-02	-1.140
I-133	276.40			-2.163E-01	6.177E-01	1.023E+00	1.325E-01	-0.211
	302.84			5.081E-03	2.597E-01	4.367E-01	5.094E-02	0.012
	356.01	*		5.192E-02	8.928E-02	1.351E-01	1.557E-02	0.384
	383.85			-1.909E-01	5.736E-01	9.395E-01	1.012E-01	-0.203
I-133	510.53	+		3.789E-04	5.736E-01	Half-Life	too short	
	529.87	*		1.156E-06	5.736E-01	Half-Life	too short	
	706.58			-1.392E-03	5.736E-01	Half-Life	too short	
	856.28			-3.201E-04	5.736E-01	Half-Life	too short	
CS-134	875.33			4.551E-05	5.736E-01	Half-Life	too short	
	1236.41			-1.096E-04	5.736E-01	Half-Life	too short	
	1298.22			2.938E-04	5.736E-01	Half-Life	too short	
	475.35			2.807E-01	4.221E+00	7.011E+00	4.093E-01	0.040
CS-134	563.23			-9.835E-01	6.789E-01	1.002E+00	6.064E-02	-0.982
	569.32			7.257E-01	4.007E-01	7.299E-01	4.456E-02	0.994
	604.70			-3.233E-02	6.298E-02	8.431E-02	5.015E-03	-0.383
	795.84	*		4.683E-02	9.089E-02	1.529E-01	1.149E-02	0.306
CS-135	801.93			4.262E-01	7.909E-01	1.338E+00	1.014E-01	0.319
	1038.57			1.230E+00	7.648E+00	1.298E+01	9.624E-01	0.095
	1167.94			-1.047E+00	4.394E+00	6.095E+00	3.393E-01	-0.172
	1365.15			-1.882E+00	1.424E+00	1.700E+00	1.324E-01	-1.107
I-135	268.24	*		3.121E-02	2.742E-01	4.645E-01	3.545E-02	0.067
	288.45			3.603E+01	2.742E-01	Half-Life	too short	
	417.63			-2.340E+02	2.742E-01	Half-Life	too short	
	546.56			3.192E+01	2.742E-01	Half-Life	too short	
CS-136	836.80			-1.292E+01	2.742E-01	Half-Life	too short	
	1038.76			3.040E+01	2.742E-01	Half-Life	too short	
	1124.00			6.920E+02	2.742E-01	Half-Life	too short	
	1131.51			1.223E+02	2.742E-01	Half-Life	too short	
CS-136	1260.41	*		-1.966E+01	2.742E-01	Half-Life	too short	
	1457.56			2.362E+01	2.742E-01	Half-Life	too short	
	1678.03			2.365E-01	2.742E-01	Half-Life	too short	
	1706.46			-5.289E+01	2.742E-01	Half-Life	too short	
CS-136	1791.20			-3.956E+01	2.742E-01	Half-Life	too short	
	66.91			3.013E-03	8.168E-01	1.345E+00	2.003E-01	0.002
	86.29			2.028E+01	3.230E+00	3.526E+00	4.573E-01	5.750
	153.22			1.548E-01	7.268E-01	1.188E+00	8.193E-02	0.130
CS-136	163.89			2.600E-01	1.148E+00	1.874E+00	1.276E-01	0.139

---- Non-Identified Nuclides ----

	Line Nuclide	Energy Ided (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		176.55		2.850E-01	4.006E-01	6.673E-01	4.039E-02	0.427
		273.65		-2.683E-01	5.133E-01	8.442E-01	5.562E-02	-0.318
		340.57		1.674E-02	1.563E-01	2.629E-01	1.613E-02	0.064
		818.51		8.168E-02	1.077E-01	1.837E-01	1.423E-02	0.445
		1048.07	*	-1.207E-01	1.519E-01	2.390E-01	1.846E-02	-0.505
		1235.34		-2.341E-01	4.087E-01	6.264E-01	6.398E-02	-0.374
CE-139		165.85	*	1.166E-02	4.612E-02	7.538E-02	3.935E-03	0.155
BA-140		162.64		2.219E-01	8.074E-01	1.321E+00	7.996E-02	0.168
		304.84		4.940E-01	1.501E+00	2.550E+00	6.960E-01	0.194
		423.70		4.545E-01	2.429E+00	4.072E+00	1.293E+00	0.112
		537.32	*	-1.048E-01	3.158E-01	5.055E-01	1.645E-01	-0.207
LA-140		328.77		2.625E-01	3.580E-01	6.195E-01	4.024E-02	0.424
		432.53		1.531E+00	2.755E+00	4.709E+00	2.983E-01	0.325
		487.03		-2.820E-02	1.759E-01	2.882E-01	1.908E-02	-0.098
		751.79		6.349E-01	2.312E+00	3.832E+00	3.071E-01	0.166
		815.85		-1.010E-01	4.455E-01	7.088E-01	6.239E-02	-0.142
		867.82		1.868E+00	2.071E+00	3.552E+00	3.148E-01	0.526
		919.63		3.982E+00	4.698E+00	7.962E+00	8.489E-01	0.500
		925.24		-1.337E+00	1.926E+00	2.946E+00	2.691E-01	-0.454
		1596.49	*	-6.167E-02	9.071E-02	1.320E-01	8.931E-03	-0.467
CE-141		145.44	*	1.344E-02	8.325E-02	1.359E-01	7.828E-03	0.099
CE-143		57.37		7.057E+02	9.999E+01	1.401E+02	1.240E+01	5.037
		231.56		-5.958E+01	1.123E+02	1.730E+02	5.342E+01	-0.344
		293.26	*	8.592E+00	6.571E+00	1.003E+01	2.053E+00	0.857
		350.59		3.161E+02	1.319E+02	1.585E+02	4.807E+01	1.995
		490.36		3.406E+01	1.310E+02	2.193E+02	6.784E+01	0.155
		664.57		1.946E+03	6.315E+02	3.009E+02	9.531E+01	6.467
		721.93		-1.797E+01	5.994E+01	9.502E+01	2.719E+01	-0.189
CE-144		80.11		-1.820E+00	3.925E+00	5.524E+00	4.577E-01	-0.330
		133.54	*	-2.658E-01	3.372E-01	5.258E-01	7.448E-02	-0.505
PM-144		476.78		-4.051E-02	1.484E-01	2.421E-01	1.689E-02	-0.167
		618.01		3.417E-02	6.413E-02	9.985E-02	6.232E-03	0.342
		696.49	*	-7.359E-02	6.303E-02	9.331E-02	5.810E-03	-0.789
		778.57		-2.906E+00	4.462E+00	6.864E+00	4.961E-01	-0.423
PR-144		696.49	*	-4.967E+00	4.254E+00	6.298E+00	3.921E-01	-0.789
		1489.15		-5.630E+00	1.602E+01	2.470E+01	1.751E+00	-0.228
PM-146		453.90	*	7.336E-03	9.397E-02	1.564E-01	1.347E-02	0.047
		633.02		-7.271E-01	2.614E+00	4.172E+00	1.537E+00	-0.174
		735.90		-1.496E-01	2.962E-01	4.587E-01	1.288E-01	-0.326
		747.13		-5.220E-02	1.805E-01	2.868E-01	3.734E-02	-0.182
ND-147		91.11		4.393E-01	2.944E-01	4.486E-01	4.143E-02	0.979
		319.41		1.407E+00	3.693E+00	6.308E+00	3.666E-01	0.223
		439.89		1.740E+00	7.400E+00	1.244E+01	7.144E-01	0.140
		531.02	*	-1.776E-01	6.692E-01	1.084E+00	1.471E-01	-0.164
PM-149		285.90	*	7.591E+00	1.625E+01	2.785E+01	3.942E+00	0.273
EU-152	+	121.78		8.153E-01	2.297E-01	2.682E-01	2.077E-02	3.040
		244.69		-1.067E+00	6.508E-01	9.558E-01	5.431E-02	-1.116
		344.27	*	-2.327E-01	1.880E-01	2.738E-01	1.782E-02	-0.850
		443.98		-5.900E-01	1.940E+00	3.166E+00	1.823E-01	-0.186



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153		778.89		-3.234E-01	5.170E-01	7.968E-01	5.762E-02	-0.406
		867.32		9.610E-01	1.870E+00	3.130E+00	2.626E-01	0.307
		964.01		-1.885E-01	7.179E-01	1.135E+00	9.347E-02	-0.166
		1085.78		3.953E-01	8.444E-01	1.458E+00	9.924E-02	0.271
		1112.02		4.717E-01	6.146E-01	1.084E+00	6.972E-02	0.435
		1407.95		3.021E-01	2.308E-01	4.549E-01	3.304E-02	0.664
		69.67		-3.190E-02	2.903E+00	4.188E+00	3.223E-01	-0.008
		83.37		2.622E+01	3.262E+01	4.133E+01	3.531E+00	0.634
		97.43	*	-1.084E-01	1.220E-01	1.918E-01	1.492E-02	-0.565
		103.18		-2.073E-01	1.599E-01	2.452E-01	1.776E-02	-0.845
EU-154	+	123.07		5.721E-01	1.642E-01	1.851E-01	1.756E-02	3.091
		247.94		1.908E-01	6.728E-01	1.090E+00	1.033E-01	0.175
		591.81		-5.785E-01	1.294E+00	1.848E+00	1.820E-01	-0.313
		723.30		-6.925E-01	3.465E-01	4.723E-01	3.638E-02	-1.466
		756.87		3.457E-01	1.520E+00	2.511E+00	2.722E-01	0.138
		873.19		-5.818E-01	6.844E-01	1.028E+00	1.248E-01	-0.566
		996.32		-7.344E-01	8.672E-01	1.285E+00	2.240E-01	-0.571
		1004.76		2.071E-01	4.548E-01	7.860E-01	8.689E-02	0.264
		1274.45	*	-3.645E-02	1.411E-01	2.254E-01	2.231E-02	-0.162
		48.70		-1.652E+00	5.008E+00	8.207E+00	5.756E-01	-0.201
EU-155	+	60.01		4.551E+02	4.226E+01	3.842E+01	2.890E+00	11.845
		86.54		3.139E+00	3.871E-01	5.067E-01	4.514E-02	6.195
		105.31	*	4.926E-02	1.670E-01	2.761E-01	1.986E-02	0.178
	+	86.79		9.681E+00	1.178E+00	1.322E+00	1.170E-01	7.322
		197.04		3.649E-01	9.064E-01	1.484E+00	8.042E-02	0.246
		215.65		6.631E-01	1.245E+00	2.046E+00	1.132E-01	0.324
		298.57		1.103E-01	2.151E-01	3.248E-01	1.889E-02	0.340
		879.36	*	1.045E-01	2.974E-01	4.921E-01	4.209E-02	0.212
		962.29		-1.318E+00	1.190E+00	1.764E+00	1.456E-01	-0.747
		966.15		1.278E-01	4.711E-01	7.692E-01	6.319E-02	0.166
HO-166M		1177.93		2.383E+00	7.181E-01	1.361E+00	7.532E-02	1.750
		1271.85		6.649E-01	7.372E-01	1.376E+00	9.119E-02	0.483
		80.57		-5.763E-01	5.173E-01	7.029E-01	5.848E-02	-0.820
		184.41		3.726E-02	5.676E-02	9.459E-02	5.046E-03	0.394
		280.46		7.550E-02	1.498E-01	2.577E-01	1.492E-02	0.293
		410.95		5.280E-01	4.951E-01	8.646E-01	4.878E-02	0.611
		711.68	*	2.593E-02	1.037E-01	1.725E-01	1.105E-02	0.150
		752.31		1.394E-02	5.523E-01	8.995E-01	6.206E-02	0.016
		810.29		1.264E-01	1.185E-01	2.069E-01	1.579E-02	0.611
		51.35		5.270E+01	6.670E+01	1.124E+02	8.198E+00	0.469
TM-171		52.39		-1.871E+01	3.796E+01	5.717E+01	4.203E+00	-0.327
	+	59.40		2.383E+03	2.212E+02	2.102E+02	1.582E+01	11.333
		66.72	*	-6.684E+00	4.535E+01	7.174E+01	5.453E+00	-0.093
	+	88.36		7.664E+00	9.328E-01	1.042E+00	9.284E-02	7.352
		201.83		3.413E-02	4.986E-02	8.254E-02	4.498E-03	0.414
		306.84	*	-1.459E-02	4.307E-02	7.111E-02	4.136E-03	-0.205
		401.10		-2.465E+00	1.275E+01	2.101E+01	1.177E+00	-0.117
		112.95		2.450E-01	1.123E+00	1.848E+00	1.203E-01	0.133
		208.36	*	8.108E-01	8.488E-01	1.420E+00	7.796E-02	0.571

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-177M		52.97		2.390E-01	3.992E+00	5.806E+00	4.284E-01	0.041
		54.07		7.810E-01	2.123E+00	3.119E+00	2.314E-01	0.250
		61.30		8.797E+01	8.009E+00	9.408E+00	7.078E-01	9.351
	+	121.62		4.054E+00	1.124E+00	1.336E+00	7.988E-02	3.034
		147.16		-3.542E-01	9.863E-01	1.572E+00	8.629E-02	-0.225
		171.86		-4.136E-01	7.479E-01	1.175E+00	6.170E-02	-0.352
		218.09		3.932E-01	1.516E+00	2.460E+00	1.365E-01	0.160
		268.79		7.277E-01	1.336E+00	2.303E+00	1.328E-01	0.316
		319.02		6.031E-02	4.499E-01	7.596E-01	4.414E-02	0.079
		367.43		-2.007E+00	1.664E+00	2.594E+00	1.475E-01	-0.774
		413.65	*	-5.250E-02	3.472E-01	5.732E-01	3.240E-02	-0.092
HF-181		56.28		4.575E+00	2.252E+00	3.450E+00	2.577E-01	1.326
		57.53		1.779E+01	2.006E+00	2.797E+00	2.095E-01	6.361
		65.20		2.198E-02	1.450E+00	2.097E+00	1.587E-01	0.010
		133.02		-7.665E-02	9.729E-02	1.526E-01	8.731E-03	-0.502
		136.25		2.462E-01	6.574E-01	1.084E+00	6.142E-02	0.227
		345.85		3.139E-03	3.322E-01	4.839E-01	2.789E-02	0.006
		482.03	*	-3.625E-02	7.722E-02	1.243E-01	7.275E-03	-0.292
W-181		56.28		1.826E+00	9.567E-01	1.462E+00	1.092E-01	1.249
		57.53		7.515E+00	8.486E-01	1.184E+00	8.871E-02	6.345
		65.20	*	9.245E-03	6.098E-01	8.820E-01	6.674E-02	0.010
TA-182		67.75		6.620E-02	1.660E-01	2.768E-01	2.112E-02	0.239
		100.10		2.755E-01	2.573E-01	4.381E-01	3.292E-02	0.629
		152.43		2.665E-02	5.275E-01	8.561E-01	4.633E-02	0.031
		222.10		-4.434E-01	6.381E-01	9.907E-01	5.519E-02	-0.448
		1001.68		-3.193E+00	4.055E+00	6.405E+00	5.025E-01	-0.499
	+	1121.28		9.111E-01	3.442E-01	4.835E-01	3.044E-02	1.885
		1189.05		1.220E-01	3.710E-01	6.408E-01	3.626E-02	0.190
		1221.42	*	7.458E-03	2.075E-01	3.468E-01	2.091E-02	0.022
		1230.97		-1.503E-01	4.785E-01	7.623E-01	4.681E-02	-0.197
RE-183		57.98		1.318E+01	1.180E+00	1.375E+00	1.031E-01	9.584
	+	59.32		9.137E+00	8.484E-01	8.109E-01	6.099E-02	11.268
		67.20		6.829E-03	2.876E-01	4.739E-01	3.609E-02	0.014
		162.32	*	-6.842E-03	1.661E-01	2.680E-01	1.412E-02	-0.026
		208.81		1.623E+00	1.510E+00	2.539E+00	1.395E-01	0.639
		291.72		-1.058E+00	1.742E+00	2.447E+00	1.421E-01	-0.432
RE-184		57.98		5.071E+01	4.540E+00	5.292E+00	3.968E-01	9.584
	+	59.32		3.512E+01	3.262E+00	3.117E+00	2.345E-01	11.268
		67.20		2.627E-02	1.106E+00	1.823E+00	1.388E-01	0.014
		161.27		-4.514E-02	5.534E-01	8.915E-01	4.710E-02	-0.051
		216.55		5.645E-01	4.684E-01	7.901E-01	4.377E-02	0.714
		252.85	*	-3.298E-01	4.246E-01	6.504E-01	3.717E-02	-0.507
		318.01		1.832E-01	7.745E-01	1.314E+00	7.639E-02	0.139
		792.07		-6.979E-01	1.894E+00	2.986E+00	2.209E-01	-0.234
		903.28		1.446E-01	2.444E+00	3.725E+00	3.267E-01	0.039
		920.93		1.361E+00	1.087E+00	1.888E+00	1.629E-01	0.721
OS-185	+	59.72		2.539E+01	2.358E+00	2.190E+00	1.647E-01	11.598
		61.14		1.037E+01	9.271E-01	1.053E+00	7.920E-02	9.849
		69.30		6.091E-02	4.753E-01	7.280E-01	5.593E-02	0.084

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		592.07		-2.079E+00	5.013E+00	7.187E+00	4.260E-01	-0.289
		646.12	*	3.018E-02	8.265E-02	1.385E-01	8.109E-03	0.218
		717.42		-1.750E-01	1.568E+00	2.533E+00	1.640E-01	-0.069
		874.81		9.613E-02	1.243E+00	2.019E+00	1.714E-01	0.048
		880.27		-8.336E-01	1.711E+00	2.661E+00	2.279E-01	-0.313
RE-188		155.03	*	1.008E-01	2.662E-01	4.378E-01	2.353E-02	0.230
		477.96		5.197E+00	6.237E+00	1.075E+01	6.283E-01	0.483
		633.10		-1.479E+00	4.885E+00	7.821E+00	4.599E-01	-0.189
W-188		63.58		-7.242E+01	8.525E+01	1.185E+02	8.940E+00	-0.611
		227.08		3.688E+00	2.195E+01	3.544E+01	1.984E+00	0.104
		290.67	*	-2.801E+00	1.349E+01	1.949E+01	1.132E+00	-0.144
IR-192	+	295.96		4.527E-01	2.240E-01	3.431E-01	2.026E-02	1.319
		308.46		-3.219E-02	1.526E-01	2.535E-01	1.491E-02	-0.127
		316.51	*	1.745E-03	5.687E-02	9.557E-02	5.583E-03	0.018
		468.07		-1.147E-01	1.392E-01	2.206E-01	1.479E-02	-0.520
		604.41		-2.024E-01	7.909E-01	1.091E+00	1.245E-01	-0.186
		612.46		1.504E+00	1.496E+00	2.300E+00	1.761E-01	0.654
AU-195		65.12		-7.673E-03	2.863E-01	4.132E-01	3.126E-02	-0.019
		66.83		-1.500E-04	1.412E-01	2.324E-01	1.767E-02	-0.001
	+	75.70		7.481E-01	3.643E-01	5.864E-01	4.686E-02	1.276
		98.88	*	2.028E-01	3.394E-01	5.680E-01	4.335E-02	0.357
		129.76		4.602E+00	4.490E+00	7.593E+00	4.392E-01	0.606
TL-200		367.94	*	-3.163E+00	7.508E+00	1.226E+01	6.967E-01	-0.258
		579.30		-8.502E+00	6.379E+01	8.958E+01	5.315E+00	-0.095
		828.27		2.352E+01	8.648E+01	1.430E+02	1.125E+01	0.165
		1205.75		-2.191E+01	2.453E+01	3.589E+01	2.099E+00	-0.610
TL-201		68.90		3.399E-01	1.495E+00	2.300E+00	1.763E-01	0.148
		70.82		-9.672E-02	9.164E-01	1.316E+00	1.019E-01	-0.074
		80.30		-1.114E+00	1.733E+00	2.416E+00	2.005E-01	-0.461
		135.34		7.137E+00	7.513E+00	1.268E+01	7.203E-01	0.563
		167.43	*	5.345E-01	2.111E+00	3.449E+00	1.802E-01	0.155
TL-202		68.90		1.090E-01	4.796E-01	7.376E-01	5.656E-02	0.148
		70.82		-3.094E-02	2.931E-01	4.208E-01	3.258E-02	-0.074
		80.30		-3.562E-01	5.544E-01	7.729E-01	6.415E-02	-0.461
		439.56	*	5.021E-02	9.175E-02	1.566E-01	8.996E-03	0.321
HG-203		70.83		-6.322E-02	1.728E+00	2.489E+00	3.252E-01	-0.025
		72.87		1.135E+00	1.024E+00	1.532E+00	1.947E-01	0.741
		82.60		-3.002E-01	2.637E+00	2.707E+00	3.696E-01	-0.111
		279.20	*	2.741E-03	6.303E-02	1.064E-01	6.540E-03	0.026
BI-207		72.80		3.654E-01	3.311E-01	4.988E-01	3.906E-02	0.733
	+	74.97		4.266E-01	2.078E-01	3.195E-01	2.539E-02	1.335
		84.90		5.407E-01	3.725E-01	5.632E-01	4.886E-02	0.960
		569.67		1.429E-01	6.264E-02	1.155E-01	6.857E-03	1.237
		1063.62	*	-9.889E-02	1.094E-01	1.705E-01	1.211E-02	-0.580
		1770.23		-9.952E-01	9.144E-01	1.211E+00	7.306E-02	-0.822
TL-207		81.07		-6.321E-01	4.195E-01	5.569E-01	4.655E-02	-1.135
		83.78		2.357E-01	2.831E-01	3.591E-01	3.081E-02	0.656
		94.90		-1.861E-01	3.584E-01	5.743E-01	4.623E-02	-0.324
	+	122.32		1.944E+01	5.430E+00	6.386E+00	4.361E-01	3.044

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-209		144.24		8.268E-01	1.058E+00	1.772E+00	1.244E-01	0.467
		154.21		1.809E-01	6.603E-01	1.081E+00	7.217E-02	0.167
		269.46		2.210E-01	3.214E-01	5.573E-01	3.361E-02	0.397
		323.87	*	-7.129E-01	1.224E+00	1.986E+00	3.280E-01	-0.359
		338.28		5.300E+00	1.963E+00	3.526E+00	3.710E-01	1.503
		445.03		1.364E+00	4.645E+00	7.824E+00	8.017E-01	0.174
		260.50		-3.252E+00	1.783E+01	2.818E+01	1.618E+00	-0.115
		262.80		4.752E+01	4.941E+01	8.256E+01	4.746E+00	0.576
		896.60	*	6.558E+00	1.747E+01	2.891E+01	2.542E+00	0.227
	BI-210	46.50	*	-9.540E+00	6.906E+00	1.096E+01	8.350E-01	-0.871
	PB-210	46.50	*	-9.540E+00	6.906E+00	1.096E+01	8.350E-01	-0.871
PO-210		46.50	*	-9.540E+00	6.896E+00	1.096E+01	7.140E-01	-0.871
	PB-211	404.84	*	9.231E-01	1.910E+00	3.110E+00	1.938E+00	0.297
		427.08		-1.858E-01	4.025E+00	6.669E+00	4.121E+00	-0.028
		831.96		-1.090E+00	2.651E+00	4.015E+00	2.512E+00	-0.272
BI-212		727.18	*	7.491E-01	5.654E-01	9.980E-01	8.308E-02	0.751
		785.46		7.804E-01	3.401E+00	5.613E+00	4.106E-01	0.139
		1620.62		1.374E+00	1.740E+00	3.245E+00	2.167E-01	0.423
PO-215		81.07		-6.321E-01	4.195E-01	5.569E-01	4.655E-02	-1.135
		83.78		2.357E-01	2.831E-01	3.591E-01	3.081E-02	0.656
		94.90		-1.861E-01	3.584E-01	5.743E-01	4.623E-02	-0.324
	+	122.32		1.944E+01	5.430E+00	6.386E+00	4.361E-01	3.044
RN-219		144.24		8.268E-01	1.058E+00	1.772E+00	1.244E-01	0.467
		154.21		1.809E-01	6.603E-01	1.081E+00	7.217E-02	0.167
		269.46		2.210E-01	3.214E-01	5.573E-01	3.361E-02	0.397
		323.87	*	-7.129E-01	1.224E+00	1.986E+00	3.280E-01	-0.359
		338.28		5.300E+00	1.963E+00	3.526E+00	3.710E-01	1.503
		445.03		1.364E+00	4.645E+00	7.824E+00	8.017E-01	0.174
		271.23		3.436E-01	4.097E-01	7.140E-01	5.772E-02	0.481
		401.81	*	-3.904E-01	7.810E-01	1.263E+00	1.708E-01	-0.309
	RN-220	549.76	*	-5.103E+01	4.764E+01	7.231E+01	4.290E+00	-0.706
	RA-223	81.07		-6.321E-01	4.195E-01	5.569E-01	4.655E-02	-1.135
		83.78		2.357E-01	2.831E-01	3.591E-01	3.081E-02	0.656
RA-224		94.90		-1.861E-01	3.584E-01	5.743E-01	4.623E-02	-0.324
	+	122.32		1.944E+01	5.430E+00	6.386E+00	4.361E-01	3.044
		144.24		8.268E-01	1.058E+00	1.772E+00	1.244E-01	0.467
		154.21		1.809E-01	6.603E-01	1.081E+00	7.217E-02	0.167
		269.46		2.210E-01	3.214E-01	5.573E-01	3.361E-02	0.397
		323.87	*	-7.129E-01	1.224E+00	1.986E+00	3.280E-01	-0.359
		338.28		5.300E+00	1.963E+00	3.526E+00	3.710E-01	1.503
		445.03		1.364E+00	4.645E+00	7.824E+00	8.017E-01	0.174
		240.98	*	7.070E+00	1.628E+00	2.696E+00	1.527E-01	2.623
		79.80		9.733E-01	3.059E+00	4.457E+00	9.521E-01	0.218
	AC-227	236.00		7.007E-01	5.062E-01	7.543E-01	7.820E-02	0.929
AC-227		256.20	*	3.657E-01	6.639E-01	1.088E+00	1.516E-01	0.336
		286.10		1.226E+00	2.792E+00	4.783E+00	5.530E-01	0.256
		299.80		1.602E+00	2.946E+00	4.442E+00	7.237E-01	0.361
		304.40		3.621E-01	3.322E+00	5.608E+00	9.704E-01	0.065
		334.20		-1.001E+01	4.727E+00	6.492E+00	1.190E+00	-1.542

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		79.80		9.733E-01	3.060E+00	4.457E+00	9.644E-01	0.218
		94.00		3.378E+00	3.170E+00	5.018E+00	1.084E+00	0.673
		236.00		7.007E-01	5.049E-01	7.543E-01	6.757E-02	0.929
		256.20	*	3.657E-01	6.648E-01	1.088E+00	1.836E-01	0.336
		286.10		1.226E+00	3.047E+00	4.783E+00	4.792E+00	0.256
		299.80		1.602E+00	2.946E+00	4.442E+00	7.237E-01	0.361
		304.40		3.621E-01	3.322E+00	5.608E+00	9.704E-01	0.065
AC-228		334.20		-1.001E+01	4.727E+00	6.492E+00	1.190E+00	-1.542
		338.32		1.269E+00	6.860E-01	8.443E-01	3.442E-01	1.502
	+	911.07	*	9.507E-01	5.211E-01	6.970E-01	7.885E-02	1.364
		969.11		8.722E-01	6.609E-01	1.093E+00	2.535E-01	0.798
RA-228		338.32		1.269E+00	6.860E-01	8.443E-01	3.442E-01	1.502
	+	911.07	*	9.507E-01	5.211E-01	6.970E-01	7.885E-02	1.364
TH-229		969.11		8.722E-01	6.609E-01	1.093E+00	2.535E-01	0.798
		85.43		1.233E+00	4.068E-01	6.306E-01	5.500E-02	1.955
	+	88.47		4.412E+00	5.370E-01	5.983E-01	5.319E-02	7.374
		100.00		3.065E-01	2.797E-01	4.766E-01	3.587E-02	0.643
PA-231		193.63	*	-1.451E-01	8.648E-01	1.381E+00	7.451E-02	-0.105
		210.97		6.332E-01	1.286E+00	2.110E+00	1.162E-01	0.300
		283.67	*	-6.164E-01	2.830E+00	4.716E+00	6.499E-01	-0.131
		301.29		6.654E-01	1.077E+00	1.762E+00	1.843E-01	0.378
TH-231		81.07		-6.321E-01	4.195E-01	5.569E-01	4.655E-02	-1.135
		83.78		2.357E-01	2.831E-01	3.591E-01	3.081E-02	0.656
		94.90		-1.861E-01	3.584E-01	5.743E-01	4.623E-02	-0.324
	+	122.32		1.944E+01	5.430E+00	6.386E+00	4.361E-01	3.044
U-231		144.24		8.268E-01	1.058E+00	1.772E+00	1.244E-01	0.467
		154.21		1.809E-01	6.603E-01	1.081E+00	7.217E-02	0.167
		269.46		2.210E-01	3.214E-01	5.573E-01	3.361E-02	0.397
		323.87	*	-7.129E-01	1.224E+00	1.986E+00	3.280E-01	-0.359
		338.28		5.300E+00	1.963E+00	3.526E+00	3.710E-01	1.503
		445.03		1.364E+00	4.645E+00	7.824E+00	8.017E-01	0.174
		84.21		2.297E+00	3.283E+00	4.535E+00	3.907E-01	0.506
		92.29		7.883E-01	9.756E-01	1.491E+00	1.247E-01	0.529
TH-232		95.87	*	-9.179E-01	5.104E-01	7.668E-01	6.090E-02	-1.197
		108.00		3.703E-01	9.330E-01	1.548E+00	1.061E-01	0.239
		338.32		1.269E+00	4.567E-01	8.443E-01	4.881E-02	1.502
	+	911.07	*	9.507E-01	5.211E-01	6.970E-01	7.885E-02	1.364
PA-233		969.11		8.722E-01	6.609E-01	1.093E+00	2.535E-01	0.798
	+	75.28		1.246E+01	6.268E+00	9.601E+00	1.439E+00	1.297
		86.59		5.265E+01	1.482E+01	8.338E+00	2.242E+00	6.314
		300.12		3.922E-01	8.181E-01	1.231E+00	1.655E-01	0.319
PA-234		311.98	*	1.858E-02	1.104E-01	1.869E-01	1.154E-02	0.099
		340.50		1.743E-01	1.125E+00	1.895E+00	4.351E-01	0.092
		398.62		1.564E+00	3.883E+00	6.572E+00	1.696E+00	0.238
		415.76		-8.178E-01	3.296E+00	5.404E+00	1.110E+00	-0.151
		63.00		-1.008E+00	2.679E+00	3.818E+00	5.698E-01	-0.264
		94.67		1.042E-01	2.631E-01	4.221E-01	5.079E-02	0.247
		98.44		3.189E-02	1.437E-01	2.352E-01	1.309E-01	0.136
		99.86		8.380E-01	7.073E-01	1.209E+00	9.113E-02	0.693

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		-4.383E-02	2.835E-01	4.591E-01	4.944E-02	-0.095
		131.20		1.926E-02	1.729E-01	2.823E-01	1.625E-02	0.068
		152.70		7.918E-03	5.315E-01	8.612E-01	1.349E-01	0.009
		186.00		2.878E+00	2.211E+00	3.489E+00	1.063E+00	0.825
		226.40		4.316E-01	7.517E-01	1.233E+00	1.413E-01	0.350
		227.20		8.091E-02	7.980E-01	1.284E+00	7.191E-02	0.063
		248.90		2.444E+00	1.592E+00	2.592E+00	5.563E-01	0.943
	+	293.70		3.055E+00	1.580E+00	2.242E+00	3.607E-01	1.363
		369.80		5.329E-01	1.578E+00	2.674E+00	5.559E-01	0.199
		568.70		3.686E+00	2.020E+00	3.688E+00	2.189E-01	1.000
		569.50		1.047E+00	5.604E-01	1.023E+00	6.074E-02	1.023
		574.00		-2.290E+00	2.868E+00	4.457E+00	2.645E-01	-0.514
		699.00		-7.345E-01	1.317E+00	2.047E+00	3.711E-01	-0.359
		706.10		-1.195E+00	2.007E+00	3.008E+00	1.330E+00	-0.397
		733.00		-4.264E-01	7.571E-01	1.172E+00	2.521E-01	-0.364
		742.81		1.053E+00	2.822E+00	4.568E+00	3.061E+00	0.230
		796.30		3.132E-01	1.786E+00	2.931E+00	7.825E-01	0.107
		805.60		-1.922E+00	2.158E+00	3.126E+00	9.495E-01	-0.615
		819.60		4.388E+00	3.008E+00	4.588E+00	1.736E+00	0.956
		826.30		-1.725E+00	1.869E+00	2.532E+00	1.129E+00	-0.681
		831.60		-5.331E-01	1.324E+00	2.063E+00	6.115E-01	-0.258
		876.40		-3.118E-01	1.961E+00	3.086E+00	3.173E+00	-0.101
		880.51		-3.987E-01	6.584E-01	1.014E+00	8.692E-02	-0.393
		883.24		-3.441E-01	7.155E-01	1.052E+00	7.075E-01	-0.327
		899.00		1.347E+00	2.075E+00	3.359E+00	1.470E+00	0.401
		925.00		-2.079E+00	2.993E+00	4.580E+00	3.935E-01	-0.454
		926.50		-1.732E-01	4.454E-01	6.945E-01	1.755E-01	-0.249
		946.00	*	1.445E-01	7.963E-01	1.295E+00	2.418E-01	0.112
		949.00		5.264E-01	1.189E+00	1.965E+00	1.646E-01	0.268
		980.50		5.274E-02	1.729E+00	2.783E+00	2.246E-01	0.019
		1394.10		1.526E+00	1.818E+00	2.905E+00	1.886E+00	0.525
PA-234M		766.42		-4.494E+00	2.182E+01	3.472E+01	1.753E+01	-0.129
		1001.03	*	-1.043E+01	9.814E+00	1.514E+01	1.410E+00	-0.689
TH-234		63.29	*	-9.759E-01	2.271E+00	3.224E+00	5.641E-01	-0.303
		92.38		1.204E+00	8.681E-01	1.329E+00	2.386E-01	0.906
U-235		89.95		2.614E+01	8.481E+00	4.906E+00	1.515E+00	5.328
		93.35		1.397E+00	1.085E+00	1.595E+00	4.451E-01	0.876
		105.00		4.503E-01	1.629E+00	2.682E+00	7.895E-01	0.168
		143.76	*	2.185E-01	3.272E-01	5.431E-01	8.806E-02	0.402
		163.35		-2.907E-01	7.656E-01	1.213E+00	2.161E-01	-0.240
		185.71		7.196E-02	7.586E-02	1.278E-01	6.830E-03	0.563
		205.31		-7.596E-01	9.156E-01	1.399E+00	2.501E-01	-0.543
NP-236		94.67		8.097E-02	1.995E-01	3.204E-01	2.588E-02	0.253
		98.44		2.409E-02	1.078E-01	1.778E-01	1.365E-02	0.135
		111.00		-3.315E-02	2.144E-01	3.473E-01	2.307E-02	-0.095
		160.31	*	-1.179E-01	1.311E-01	2.031E-01	1.076E-02	-0.580
NP-237		86.50	*	7.539E+00	1.812E+00	1.229E+00	2.759E-01	6.132
		95.87		-2.763E+00	1.663E+00	2.308E+00	5.633E-01	-1.197
U-238		63.29	*	-9.759E-01	2.271E+00	3.224E+00	5.641E-01	-0.303

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	92.38			1.204E+00	8.467E-01	1.329E+00	1.110E-01	0.906
	99.55			2.430E-01	2.377E-01	4.040E-01	3.057E-02	0.601
	117.00	*		1.783E-02	3.199E-01	4.578E-01	2.863E-02	0.039
	209.75			1.126E+00	1.269E+00	2.119E+00	1.165E-01	0.532
	228.18			-2.496E-01	4.231E-01	6.589E-01	3.693E-02	-0.379
CM-243	277.60			-2.169E-01	3.072E-01	5.003E-01	2.895E-02	-0.434
	334.30			-5.517E+00	2.497E+00	3.706E+00	2.146E-01	-1.488
	99.55			2.499E-01	2.445E-01	4.155E-01	3.144E-02	0.601
	103.76	*		-1.385E-01	1.502E-01	2.349E-01	1.689E-02	-0.589
	117.00			1.833E-02	3.290E-01	4.708E-01	2.944E-02	0.039
AM-246	209.75			1.110E+00	1.251E+00	2.088E+00	1.148E-01	0.532
	228.18			-2.521E-01	4.274E-01	6.655E-01	3.729E-02	-0.379
	277.60			-2.186E-01	3.095E-01	5.041E-01	2.917E-02	-0.434
	798.80			-4.699E-02	2.853E-01	4.569E-01	3.420E-02	-0.103
	1036.00			-2.759E-01	6.121E-01	9.912E-01	7.382E-02	-0.278
CM-247	1062.04			-2.859E-01	4.578E-01	7.292E-01	5.193E-02	-0.392
	1078.86	*		-2.162E-01	2.932E-01	4.628E-01	3.193E-02	-0.467
	278.00			-1.162E+00	1.282E+00	2.067E+00	1.196E-01	-0.562
	287.40			1.339E-01	2.211E+00	3.731E+00	2.165E-01	0.036
	402.60	*		-2.291E-02	7.155E-02	1.171E-01	6.570E-03	-0.196
CF-249	252.85			-1.276E+00	1.642E+00	2.516E+00	1.438E-01	-0.507
	333.44			-6.292E-01	3.170E-01	4.760E-01	2.757E-02	-1.322
CF-251	387.95	*		6.198E-02	7.662E-02	1.328E-01	7.417E-03	0.467
	176.60	*		1.134E-01	2.060E-01	3.407E-01	1.800E-02	0.333
	227.00			1.482E-01	7.106E-01	1.149E+00	6.434E-02	0.129
	285.00			-9.851E-01	3.219E+00	5.344E+00	3.100E-01	-0.184

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014509      *
* Acquisition date   : 22-JAN-2010 16:52:55 Detector SN# :                  *
* Detector ID        : GAM19 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000           *
* Elapsed real time  : 0 01:00:01.53 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202014509 Analyst initials: MXR1                 *
* Batch Number      : 941239 Sample Quantity : 1.5544E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*                                     QC DATA                               *
*
* Standard Weight   : 0.00000                                              *
* CALIB. DATE/TIME : 12-MAR-2009 10:24:54 MS Isotope :                    *
* MSD DPM           : 0.000 MSD Isotope :                                *
* LCS DPM           : 0.000 LCS Isotope :                                *
* LCSD DPM          : 0.000 LCSD Isotope :                                *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
CO-57	2.759E-01	7.500E-02	6.531E-02	0.000E+00
CO-60	6.468E+00	5.687E-01	7.358E-02	0.000E+00
CD-109	3.251E+01	3.878E+00	2.438E+00	0.000E+00
SN-126	3.231E+00	3.854E-01	2.434E-01	0.000E+00
BA-137M	5.717E+00	4.106E-01	1.006E-01	0.000E+00
CS-137	6.043E+00	4.352E-01	1.063E-01	0.000E+00
TL-208	3.640E-01	1.417E-01	1.134E-01	0.000E+00
BI-211	1.717E+00	6.383E-01	6.451E-01	0.000E+00
PB-212	8.643E-01	1.645E-01	1.968E-01	0.000E+00
PO-212	8.643E-01	1.645E-01	1.968E-01	0.000E+00
BI-214	6.082E-01	2.596E-01	2.023E-01	0.000E+00
PB-214	5.971E-01	2.241E-01	2.248E-01	0.000E+00
PO-214	5.971E-01	2.241E-01	2.248E-01	0.000E+00
PO-216	8.643E-01	1.645E-01	1.968E-01	0.000E+00
PO-218	5.971E-01	2.241E-01	2.248E-01	0.000E+00
RA-226	6.082E-01	2.596E-01	2.023E-01	0.000E+00
TH-228	8.709E-01	1.658E-01	1.983E-01	0.000E+00
TH-230	6.081E-01	2.596E-01	2.023E-01	0.000E+00
U-234	6.081E-01	2.596E-01	2.023E-01	0.000E+00
AM-241	1.403E+01	1.357E+00	5.361E-01	0.000E+00
AM-243	2.378E-01	1.135E-01	1.557E-01	0.000E+00
ANH-511	1.423E-02	9.617E-02	9.828E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	3.786E-01	6.311E-01	1.141E+00	0.000E+00 NOT IDENT.
NA-22	-1.939E-02	5.042E-02	8.178E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	2.192E+02	0.000E+00	0.000E+00 SHORT HLIF
AL-26	5.595E-03	3.727E-02	6.445E-02	0.000E+00 NOT IDENT.
K-40	2.943E-01	4.940E-01	9.510E-01	0.000E+00 NOT IDENT.



TI-44	0.000E+00	9.647E-02	1.181E-01	0.000E+00	FAIL ABUN
SC-46	8.193E-02	8.806E-02	1.569E-01	0.000E+00	FAIL ABUN
V-48	1.019E-02	1.180E-01	1.984E-01	0.000E+00	NOT IDENT.
CR-51	2.883E-01	5.401E-01	9.956E-01	0.000E+00	NOT IDENT.
MN-52	9.459E-02	1.073E-01	2.100E-01	0.000E+00	FAIL ABUN
MN-54	1.315E-02	7.547E-02	1.292E-01	0.000E+00	NOT IDENT.
CO-56	7.009E-03	8.170E-02	1.389E-01	0.000E+00	FAIL ABUN
CO-58	7.530E-02	7.241E-02	1.317E-01	0.000E+00	NOT IDENT.
FE-59	-1.496E-01	1.578E-01	2.530E-01	0.000E+00	NOT IDENT.
ZN-65	3.598E-02	1.892E-01	2.884E-01	0.000E+00	NOT IDENT.
GE-68	-1.981E+00	2.433E+00	3.962E+00	0.000E+00	NOT IDENT.
AS-73	1.718E-02	1.957E+00	3.185E+00	0.000E+00	NOT IDENT.
AS-74	8.232E-02	1.254E-01	2.263E-01	0.000E+00	NOT IDENT.
SE-75	3.767E-02	7.373E-02	1.368E-01	0.000E+00	FAIL ABUN
BR-77	-5.390E-01	2.266E+00	3.901E+00	0.000E+00	FAIL ABUN
SR-82	-3.615E-01	6.078E-01	9.863E-01	0.000E+00	NOT IDENT.
RB-83	-5.575E-02	1.252E-01	2.126E-01	0.000E+00	NOT IDENT.
RB-84	-6.044E-02	1.369E-01	2.232E-01	0.000E+00	NOT IDENT.
KR-85	2.980E+00	1.488E+01	2.292E+01	0.000E+00	NOT IDENT.
SR-85	1.413E-02	7.054E-02	1.087E-01	0.000E+00	NOT IDENT.
RB-86	-1.270E-01	1.188E+00	2.047E+00	0.000E+00	NOT IDENT.
Y-88	-8.724E-03	3.876E-02	6.062E-02	0.000E+00	NOT IDENT.
ZR-88	-3.290E-02	5.412E-02	9.312E-02	0.000E+00	NOT IDENT.
Y-91	-2.330E+01	1.990E+01	2.906E+01	0.000E+00	NOT IDENT.
NB-94	5.152E-02	5.995E-02	1.088E-01	0.000E+00	NOT IDENT.
NB-95	1.914E-02	7.189E-02	1.247E-01	0.000E+00	NOT IDENT.
NB-95M	7.390E-02	2.362E-01	3.627E-01	0.000E+00	NOT IDENT.
ZR-95	9.291E-02	1.276E-01	2.283E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.469E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.542E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	4.879E-01	3.533E+00	6.086E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	7.116E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.145E-03	5.596E-02	9.799E-02	0.000E+00	NOT IDENT.
RH-102	2.685E-02	6.358E-02	1.140E-01	0.000E+00	NOT IDENT.
RU-103	-5.661E-02	6.954E-02	1.153E-01	0.000E+00	FAIL ABUN
RH-106	-4.906E-01	5.841E-01	9.435E-01	0.000E+00	FAIL ABUN
RU-106	-4.906E-01	5.821E-01	9.435E-01	0.000E+00	FAIL ABUN
AG-108M	-1.703E-02	6.590E-02	1.145E-01	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	7.413E-02	1.283E-01	0.000E+00	NOT IDENT.
IN-111	-5.897E-01	3.313E-01	5.213E-01	0.000E+00	NOT IDENT.
IN-113M	-2.964E-02	8.116E-02	1.416E-01	0.000E+00	NOT IDENT.
SN-113	-2.964E-02	8.116E-02	1.416E-01	0.000E+00	NOT IDENT.
IN-114M	-2.408E-01	2.752E-01	4.621E-01	0.000E+00	NOT IDENT.
CD-115	5.527E-01	1.997E+00	3.546E+00	0.000E+00	NOT IDENT.
SN-117M	-1.144E-03	6.056E-02	1.069E-01	0.000E+00	NOT IDENT.
SB-122	-9.975E-01	5.803E-01	8.879E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	7.601E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-1.090E-02	4.431E-02	7.740E-02	0.000E+00	NOT IDENT.
I-124	-1.473E-01	3.603E-01	5.440E-01	0.000E+00	NOT IDENT.
SB-124	-9.606E-03	8.388E-02	1.368E-01	0.000E+00	NOT IDENT.
SB-125	-2.608E-02	1.797E-01	3.153E-01	0.000E+00	NOT IDENT.
TE-125M	-1.031E+01	1.309E+01	2.270E+01	0.000E+00	NOT IDENT.
I-126	-5.512E-02	2.517E-01	3.654E-01	0.000E+00	NOT IDENT.
SB-126	1.732E-01	1.667E-01	3.063E-01	0.000E+00	FAIL ABUN
SB-127	3.905E-01	6.530E-01	1.167E+00	0.000E+00	NOT IDENT.
XE-127	3.485E-02	6.999E-02	1.247E-01	0.000E+00	NOT IDENT.
I-131	6.661E-02	1.109E-01	2.038E-01	0.000E+00	NOT IDENT.
TE-132	-1.554E-01	2.614E-01	4.395E-01	0.000E+00	NOT IDENT.
BA-133	5.192E-02	8.749E-02	1.416E-01	0.000E+00	NOT IDENT.
I-133	0.000E+00	2.960E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	4.683E-02	8.908E-02	1.568E-01	0.000E+00	NOT IDENT.
CS-135	3.121E-02	2.687E-01	4.904E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	4.172E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.207E-01	1.488E-01	2.433E-01	0.000E+00	NOT IDENT.
CE-139	1.166E-02	4.520E-02	8.057E-02	0.000E+00	NOT IDENT.
BA-140	-1.048E-01	3.095E-01	5.241E-01	0.000E+00	NOT IDENT.
LA-140	-6.167E-02	8.890E-02	1.328E-01	0.000E+00	NOT IDENT.
CE-141	1.344E-02	8.159E-02	1.458E-01	0.000E+00	NOT IDENT.
CE-143	8.592E+00	6.440E+00	1.057E+01	0.000E+00	NOT IDENT.
CE-144	-2.658E-01	3.305E-01	5.650E-01	0.000E+00	NOT IDENT.
PM-144	-7.359E-02	6.177E-02	9.606E-02	0.000E+00	NOT IDENT.
PR-144	-4.967E+00	4.169E+00	6.484E+00	0.000E+00	NOT IDENT.
PM-146	7.336E-03	9.209E-02	1.629E-01	0.000E+00	NOT IDENT.
ND-147	-1.776E-01	6.558E-01	1.124E+00	0.000E+00	NOT IDENT.
PM-149	7.591E+00	1.592E+01	2.935E+01	0.000E+00	NOT IDENT.
EU-152	-2.327E-01	1.843E-01	2.872E-01	0.000E+00	FAIL ABUN
GD-153	-1.084E-01	1.196E-01	2.077E-01	0.000E+00	NOT IDENT.
EU-154	-3.645E-02	1.383E-01	2.282E-01	0.000E+00	FAIL ABUN

EU-155	4.926E-02	1.637E-01	2.984E-01	0.000E+00	FAIL	ABUN
TB-160	1.045E-01	2.915E-01	5.034E-01	0.000E+00	FAIL	ABUN
HO-166M	2.593E-02	1.017E-01	1.775E-01	0.000E+00	NOT	IDENT.
TM-171	-6.684E+00	4.444E+01	7.841E+01	0.000E+00	FAIL	ABUN
LU-176	-1.459E-02	4.221E-02	7.481E-02	0.000E+00	FAIL	ABUN
LU-177	8.108E-01	8.319E-01	1.509E+00	0.000E+00	NOT	IDENT.
LU-177M	-5.250E-02	3.403E-01	5.984E-01	0.000E+00	FAIL	ABUN
HF-181	-3.625E-02	7.568E-02	1.293E-01	0.000E+00	NOT	IDENT.
W-181	9.245E-03	5.976E-01	9.646E-01	0.000E+00	NOT	IDENT.
TA-182	7.458E-03	2.034E-01	3.516E-01	0.000E+00	FAIL	ABUN
RE-183	-6.842E-03	1.628E-01	2.866E-01	0.000E+00	FAIL	ABUN
RE-184	-3.298E-01	4.161E-01	6.878E-01	0.000E+00	FAIL	ABUN
OS-185	3.018E-02	8.099E-02	1.428E-01	0.000E+00	FAIL	ABUN
RE-188	1.008E-01	2.609E-01	4.687E-01	0.000E+00	NOT	IDENT.
W-188	-2.801E+00	1.322E+01	2.054E+01	0.000E+00	NOT	IDENT.
IR-192	1.745E-03	5.574E-02	1.005E-01	0.000E+00	FAIL	ABUN
AU-195	2.028E-01	3.326E-01	6.149E-01	0.000E+00	FAIL	ABUN
TL-200	-3.163E+00	7.358E+00	1.284E+01	0.000E+00	NOT	IDENT.
TL-201	5.345E-01	2.069E+00	3.685E+00	0.000E+00	NOT	IDENT.
TL-202	5.021E-02	8.991E-02	1.633E-01	0.000E+00	NOT	IDENT.
HG-203	2.741E-03	6.177E-02	1.122E-01	0.000E+00	NOT	IDENT.
BI-207	-9.889E-02	1.072E-01	1.735E-01	0.000E+00	FAIL	ABUN
TL-207	-7.129E-01	1.199E+00	2.087E+00	0.000E+00	FAIL	ABUN
PO-209	6.558E+00	1.712E+01	2.956E+01	0.000E+00	NOT	IDENT.
BI-210	-9.540E+00	6.768E+00	1.208E+01	0.000E+00	NOT	IDENT.
PB-210	-9.540E+00	6.768E+00	1.208E+01	0.000E+00	NOT	IDENT.
PO-210	-9.540E+00	6.758E+00	1.208E+01	0.000E+00	NOT	IDENT.
PB-211	9.231E-01	1.872E+00	3.249E+00	0.000E+00	NOT	IDENT.
BI-212	7.491E-01	5.540E-01	1.026E+00	0.000E+00	NOT	IDENT.
PO-215	-7.129E-01	1.199E+00	2.087E+00	0.000E+00	FAIL	ABUN
RN-219	-3.904E-01	7.653E-01	1.319E+00	0.000E+00	NOT	IDENT.
RN-220	-5.103E+01	4.669E+01	7.492E+01	0.000E+00	NOT	IDENT.
RA-223	-7.129E-01	1.199E+00	2.087E+00	0.000E+00	FAIL	ABUN
RA-224	0.000E+00	1.596E+00	2.854E+00	0.000E+00	NOT	IDENT.
AC-227	3.657E-01	6.506E-01	1.150E+00	0.000E+00	NOT	IDENT.
TH-227	3.657E-01	6.515E-01	1.150E+00	0.000E+00	NOT	IDENT.
AC-228	0.000E+00	5.107E-01	7.123E-01	0.000E+00	FAIL	ABUN
RA-228	0.000E+00	5.107E-01	7.123E-01	0.000E+00	FAIL	ABUN
TH-229	-1.451E-01	8.475E-01	1.470E+00	0.000E+00	FAIL	ABUN
PA-231	-6.164E-01	2.773E+00	4.972E+00	0.000E+00	NOT	IDENT.
TH-231	-7.129E-01	1.199E+00	2.087E+00	0.000E+00	FAIL	ABUN
U-231	-9.179E-01	5.002E-01	8.308E-01	0.000E+00	NOT	IDENT.
TH-232	0.000E+00	5.107E-01	7.123E-01	0.000E+00	FAIL	ABUN
PA-233	1.858E-02	1.082E-01	1.966E-01	0.000E+00	FAIL	ABUN
PA-234	1.445E-01	7.804E-01	1.322E+00	0.000E+00	FAIL	ABUN
PA-234M	-1.043E+01	9.618E+00	1.543E+01	0.000E+00	NOT	IDENT.
TH-234	-9.759E-01	2.226E+00	3.528E+00	0.000E+00	NOT	IDENT.
U-235	2.185E-01	3.206E-01	5.826E-01	0.000E+00	NOT	IDENT.
NP-236	-1.179E-01	1.285E-01	2.173E-01	0.000E+00	NOT	IDENT.
NP-237	0.000E+00	1.776E+00	1.335E+00	0.000E+00	NOT	IDENT.
U-238	-9.759E-01	2.226E+00	3.528E+00	0.000E+00	NOT	IDENT.
NP-239	1.783E-02	3.135E-01	4.936E-01	0.000E+00	NOT	IDENT.
CM-243	-1.385E-01	1.472E-01	2.540E-01	0.000E+00	NOT	IDENT.
AM-246	-2.162E-01	2.874E-01	4.707E-01	0.000E+00	NOT	IDENT.
CM-247	-2.291E-02	7.012E-02	1.224E-01	0.000E+00	NOT	IDENT.
CF-249	6.198E-02	7.509E-02	1.389E-01	0.000E+00	NOT	IDENT.
CF-251	1.134E-01	2.019E-01	3.635E-01	0.000E+00	NOT	IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014509.CNF;1
Sample date        : 15-JAN-2010 00:00:00 Acquisition date : 22-JAN-2010 16:52:55
Sample ID          : G1202014509      Sample quantity   : 1.55440E+02 GRAM
Detector name      : GAM19             Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00     Elapsed real time: 0 01:00:01.53 0.0%
Energy tolerance   : 1.50000 keV       Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941239            Detector SN#     :
Matrix Spike ID    :                   LCS ID           : 1032-A
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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CO-57	122.06	329	85.51*	6.865E+00	2.705E-01	2.759E-01	27.74
	136.48	-----	10.60	6.738E+00	-----	Line Not Found	-----
CO-60	1173.22	1885	100.00	1.398E+00	6.513E+00	6.532E+00	7.34
	1332.49	1677	100.00*	1.256E+00	6.450E+00	6.468E+00	8.97
CD-109	88.03	1522	3.72*	6.147E+00	3.214E+01	3.251E+01	12.17
SN-126	64.28	-----	9.60	3.765E+00	-----	Line Not Found	-----
	86.94	1522	8.90	6.147E+00	1.343E+01	1.343E+01	42.24
	87.57	1522	37.00*	6.147E+00	3.231E+00	3.231E+00	12.17
BA-137M	661.65	2449	89.98*	2.301E+00	5.714E+00	5.717E+00	7.33
CS-137	661.65	2449	85.12*	2.301E+00	6.040E+00	6.043E+00	7.35
TL-208	277.35	-----	6.80	4.511E+00	-----	Line Not Found	-----
	510.84	8	21.60	2.840E+00	6.588E-02	6.588E-02	689.65
	583.14	162	84.20*	2.552E+00	3.640E-01	3.640E-01	39.72
	860.37	-----	12.46	1.837E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	4.857E+00	-----	Line Not Found	-----
	351.07	174	12.94*	3.785E+00	1.717E+00	1.717E+00	37.94
PB-212	74.81	165	10.70	5.080E+00	1.467E+00	1.467E+00	49.59
	77.11	261	18.00	5.304E+00	1.319E+00	1.319E+00	40.44
	87.30	1522	8.00	6.147E+00	1.495E+01	1.495E+01	15.75
	238.63	400	44.60*	5.015E+00	8.643E-01	8.643E-01	19.43
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
PO-212	74.81	165	10.70	5.080E+00	1.467E+00	1.467E+00	49.59
	77.11	261	18.00	5.304E+00	1.319E+00	1.319E+00	40.44
	87.30	1522	8.00	6.147E+00	1.495E+01	1.495E+01	15.75
	115.19	-----	0.60	6.866E+00	-----	Line Not Found	-----
	238.63	400	44.60*	5.015E+00	8.643E-01	8.643E-01	19.43
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
BI-214	609.31	144	46.30*	2.466E+00	6.081E-01	6.082E-01	43.55
	1120.29	92	15.10	1.454E+00	2.016E+00	2.016E+00	38.35
	1764.49	-----	15.80	1.030E+00	-----	Line Not Found	-----
PB-214	74.81	165	6.21	5.080E+00	2.527E+00	2.527E+00	49.26
	77.11	261	10.50	5.304E+00	2.262E+00	2.262E+00	41.15

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	87.30	1522	4.67	6.147E+00	2.560E+01	2.560E+01	14.41
	241.98	-----	7.49	4.968E+00	-----	Line Not Found	-----
	295.21	109	19.20	4.314E+00	6.365E-01	6.365E-01	49.87
	351.92	174	37.20*	3.785E+00	5.971E-01	5.971E-01	38.30
PO-214	74.81	165	6.21	5.080E+00	2.527E+00	2.527E+00	49.26
	77.11	261	10.50	5.304E+00	2.262E+00	2.262E+00	41.15
	87.30	1522	4.67	6.147E+00	2.560E+01	2.560E+01	14.41
	241.98	-----	7.49	4.968E+00	-----	Line Not Found	-----
	295.21	109	19.20	4.314E+00	6.365E-01	6.365E-01	49.87
	351.92	174	37.20*	3.785E+00	5.971E-01	5.971E-01	38.30
PO-216	74.81	165	10.70	5.080E+00	1.467E+00	1.467E+00	49.59
	77.11	261	18.00	5.304E+00	1.319E+00	1.319E+00	40.44
	87.30	1522	8.00	6.147E+00	1.495E+01	1.495E+01	15.75
	238.63	400	44.60*	5.015E+00	8.643E-01	8.643E-01	19.43
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
PO-218	74.81	165	6.21	5.080E+00	2.527E+00	2.527E+00	49.26
	77.11	261	10.50	5.304E+00	2.262E+00	2.262E+00	41.15
	87.30	1522	4.67	6.147E+00	2.560E+01	2.560E+01	14.41
	241.98	-----	7.49	4.968E+00	-----	Line Not Found	-----
	295.21	109	19.20	4.314E+00	6.365E-01	6.365E-01	49.87
	351.92	174	37.20*	3.785E+00	5.971E-01	5.971E-01	38.30
RA-226	609.31	144	46.30*	2.466E+00	6.081E-01	6.082E-01	43.55
	1120.29	92	15.10	1.454E+00	2.016E+00	2.016E+00	38.35
	1764.49	-----	15.80	1.030E+00	-----	Line Not Found	-----
TH-228	74.81	165	10.70	5.080E+00	1.467E+00	1.478E+00	48.71
	77.11	261	18.00	5.304E+00	1.319E+00	1.330E+00	40.44
	87.30	1522	8.00	6.147E+00	1.495E+01	1.506E+01	12.17
	238.63	400	44.60*	5.015E+00	8.643E-01	8.709E-01	19.43
	300.09	-----	3.41	4.261E+00	-----	Line Not Found	-----
TH-230	609.31	144	46.30*	2.466E+00	6.081E-01	6.081E-01	43.55
	1120.29	92	15.10	1.454E+00	2.016E+00	2.016E+00	38.35
	1764.49	-----	15.80	1.030E+00	-----	Line Not Found	-----
U-234	609.31	144	46.30*	2.466E+00	6.081E-01	6.081E-01	43.55
	1120.29	92	15.10	1.454E+00	2.016E+00	2.016E+00	38.35
	1764.49	-----	15.80	1.030E+00	-----	Line Not Found	-----
AM-241	59.54	3201	35.90*	3.070E+00	1.403E+01	1.403E+01	9.87
AM-243	74.67	165	66.00*	5.080E+00	2.378E-01	2.378E-01	48.70
	86.72	1522	0.34	6.147E+00	3.558E+02	3.558E+02	12.17
	117.66	-----	0.55	6.871E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.659E+00	-----	Line Not Found	-----
ANH-511	511.00	8	100.00*	2.840E+00	1.423E-02	1.423E-02	689.60

Flag: "\*" = Keyline

Total number of lines in spectrum 16  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 16 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	270.90D	1.02	2.705E-01	2.759E-01	0.765E-01	27.74	
CO-60	5.27Y	1.00	6.450E+00	6.468E+00	0.580E+00	8.97	
CD-109	464.00D	1.01	3.214E+01	3.251E+01	0.396E+01	12.17	
SN-126	1.00E+05Y	1.00	3.231E+00	3.231E+00	0.393E+00	12.17	
BA-137M	30.17Y	1.00	5.714E+00	5.717E+00	0.419E+00	7.33	
CS-137	30.17Y	1.00	6.040E+00	6.043E+00	0.444E+00	7.35	
TL-208	1.41E+10Y	1.00	3.640E-01	3.640E-01	1.446E-01	39.72	
BI-211	7.04E+08Y	1.00	1.717E+00	1.717E+00	0.651E+00	37.94	
PB-212	1.41E+10Y	1.00	8.643E-01	8.643E-01	1.679E-01	19.43	
PO-212	1.41E+10Y	1.00	8.643E-01	8.643E-01	1.679E-01	19.43	
BI-214	1600.00Y	1.00	6.081E-01	6.082E-01	2.649E-01	43.55	
PB-214	1600.00Y	1.00	5.971E-01	5.971E-01	2.287E-01	38.30	
PO-214	1600.00Y	1.00	5.971E-01	5.971E-01	2.287E-01	38.30	
PO-216	1.41E+10Y	1.00	8.643E-01	8.643E-01	1.679E-01	19.43	
PO-218	1600.00Y	1.00	5.971E-01	5.971E-01	2.287E-01	38.30	
RA-226	1600.00Y	1.00	6.081E-01	6.082E-01	2.649E-01	43.55	
TH-228	1.91Y	1.01	8.643E-01	8.709E-01	1.692E-01	19.43	
TH-230	4.47E+09Y	1.00	6.081E-01	6.081E-01	2.649E-01	43.55	
U-234	4.47E+09Y	1.00	6.081E-01	6.081E-01	2.649E-01	43.55	
AM-241	432.20Y	1.00	1.403E+01	1.403E+01	0.138E+01	9.87	
AM-243	7380.00Y	1.00	2.378E-01	2.378E-01	1.158E-01	48.70	
ANH-511	1.00E+09Y	1.00	1.423E-02	1.423E-02	9.813E-02	689.60	

Total Activity : 7.789E+01 7.830E+01

Grand Total Activity : 7.789E+01 7.830E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202014509

Page : 4  
Acquisition date : 22-JAN-2010 16:52:55

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	911.71	95	138	1.67	1822.54	1815	12	2.64E-02	53.6	1.75E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014509.CNF;1
* Acquisition date   : 22-JAN-2010 16:52:55  Detector SN#      :
* Detector ID        : GAM19                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 01:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 01:00:01.53          Half life ratio : 8.00000
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00  Nuclide Library : SOLID
* Sample ID          : G1202014509          Analyst initials: MXR1
* Batch Number       : 941239               Sample Quantity : 1.55440E+02 GRAM
*****
*
*                                     QC DATA                              *
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54.1MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A               LCS Isotope       :
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	2.759E-01	7.653E-02	6.064E-02	3.619E-03	4.550
CO-60	6.468E+00	5.803E-01	7.277E-02	5.363E-03	88.873
CD-109	3.251E+01	3.957E+00	2.245E+00	2.011E-01	14.480
SN-126	3.231E+00	3.933E-01	2.241E-01	1.999E-02	14.419
BA-137M	5.717E+00	4.190E-01	9.755E-02	5.681E-03	58.601
CS-137	6.043E+00	4.441E-01	1.031E-01	6.030E-03	58.601
TL-208	3.640E-01	1.446E-01	1.096E-01	7.456E-03	3.319
BI-211	1.717E+00	6.513E-01	6.153E-01	3.929E-02	2.790
PB-212	8.643E-01	1.679E-01	1.858E-01	1.341E-02	4.651
PO-212	8.643E-01	1.679E-01	1.858E-01	1.341E-02	4.651
BI-214	6.082E-01	2.649E-01	1.958E-01	1.539E-02	3.106
PB-214	5.971E-01	2.287E-01	2.145E-01	1.768E-02	2.784
PO-214	5.971E-01	2.287E-01	2.145E-01	1.768E-02	2.784
PO-216	8.643E-01	1.679E-01	1.858E-01	1.341E-02	4.651
PO-218	5.971E-01	2.287E-01	2.145E-01	1.768E-02	2.784
RA-226	6.082E-01	2.649E-01	1.958E-01	1.539E-02	3.106
TH-228	8.709E-01	1.692E-01	1.872E-01	1.351E-02	4.651
TH-230	6.081E-01	2.649E-01	1.958E-01	1.539E-02	3.106

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-234	6.081E-01	2.649E-01	1.958E-01	1.539E-02	3.106
AM-241	1.403E+01	1.385E+00	4.892E-01	4.027E-02	28.681
AM-243	2.378E-01	1.158E-01	1.428E-01	1.133E-02	1.665
ANH-511	1.423E-02	9.813E-02	9.468E-02	5.587E-03	0.150

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	3.786E-01		6.440E-01	1.097E+00	7.447E-02	0.345
NA-22	-1.939E-02		5.144E-02	8.078E-02	5.388E-03	-0.240
NA-24	8.928E-05		1.118E-04	Half-Life too short		
AL-26	5.595E-03		3.803E-02	6.430E-02	3.754E-03	0.087
K-40	2.943E-01		5.040E-01	9.429E-01	7.022E-02	0.312
TI-44	2.434E-01	+	9.844E-02	1.085E-01	8.855E-03	2.244
SC-46	8.193E-02		8.985E-02	1.534E-01	1.333E-02	0.534
V-48	1.019E-02		1.204E-01	1.946E-01	1.564E-02	0.052
CR-51	2.883E-01		5.511E-01	9.474E-01	6.130E-02	0.304
MN-52	9.459E-02		1.095E-01	2.081E-01	1.501E-02	0.455
MN-54	1.315E-02		7.701E-02	1.261E-01	1.003E-02	0.104
CO-56	7.009E-03		8.337E-02	1.356E-01	1.100E-02	0.052
CO-58	7.530E-02		7.388E-02	1.285E-01	9.847E-03	0.586
FE-59	-1.496E-01		1.610E-01	2.489E-01	1.868E-02	-0.601
ZN-65	3.598E-02		1.931E-01	2.838E-01	1.814E-02	0.127
GE-68	-1.981E+00		2.483E+00	3.895E+00	2.695E-01	-0.508
AS-73	1.718E-02		1.997E+00	2.898E+00	2.144E-01	0.006
AS-74	8.232E-02		1.279E-01	2.189E-01	1.297E-02	0.376
SE-75	3.767E-02		7.524E-02	1.296E-01	7.534E-03	0.291
BR-77	-5.390E-01		2.313E+00	3.760E+00	2.223E-01	-0.143
SR-82	-3.615E-01		6.202E-01	9.609E-01	6.920E-02	-0.376
RB-83	-5.575E-02		1.277E-01	2.049E-01	1.211E-02	-0.272
RB-84	-6.044E-02		1.397E-01	2.182E-01	1.873E-02	-0.277
KR-85	2.980E+00		1.518E+01	2.208E+01	1.304E+00	0.135
SR-85	1.413E-02		7.198E-02	1.047E-01	6.183E-03	0.135
RB-86	-1.270E-01		1.212E+00	2.012E+00	1.394E-01	-0.063
Y-88	-8.724E-03		3.955E-02	6.050E-02	3.453E-03	-0.144
ZR-88	-3.290E-02		5.523E-02	8.908E-02	4.960E-03	-0.369
Y-91	-2.330E+01		2.031E+01	2.866E+01	1.674E+00	-0.813
NB-94	5.152E-02		6.118E-02	1.057E-01	6.657E-03	0.487
NB-95	1.914E-02		7.336E-02	1.214E-01	8.581E-03	0.158
NB-95M	7.390E-02		2.410E-01	3.424E-01	2.537E-02	0.216
ZR-95	9.291E-02		1.302E-01	2.222E-01	1.779E-02	0.418
NB-97	3.656E-04		7.496E-05	Half-Life too short		
ZR-97	1.965E-03		1.297E-03	Half-Life too short		
MO-99	4.879E-01		3.605E+00	5.921E+00	8.410E-01	0.082
TC-99M	-3.753E+01		3.631E+01	Half-Life too short		
RH-101	3.145E-03		5.710E-02	9.210E-02	4.996E-03	0.034
RH-102	2.685E-02		6.487E-02	1.096E-01	6.398E-03	0.245



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RU-103	-5.661E-02		7.096E-02	1.110E-01	1.407E-02	-0.510
RH-106	-4.906E-01		5.960E-01	9.137E-01	1.077E-01	-0.537
RU-106	-4.906E-01		5.939E-01	9.137E-01	5.388E-02	-0.537
AG-108M	-1.703E-02		6.724E-02	1.098E-01	6.839E-03	-0.155
AG-110M	1.359E-01		7.565E-02	1.244E-01	7.721E-03	1.092
IN-111	-5.897E-01		3.381E-01	4.926E-01	2.801E-02	-1.197
IN-113M	-2.964E-02		8.281E-02	1.354E-01	8.081E-03	-0.219
SN-113	-2.964E-02		8.281E-02	1.354E-01	8.081E-03	-0.219
IN-114M	-2.408E-01		2.809E-01	4.339E-01	2.332E-02	-0.555
CD-115	5.527E-01		2.038E+00	3.419E+00	2.024E-01	0.162
SN-117M	-1.144E-03		6.180E-02	9.988E-02	5.316E-03	-0.011
SB-122	-9.975E-01		5.921E-01	8.576E-01	5.091E-02	-1.163
I-123	-1.870E-04		3.878E-04	Half-Life too short		
TE-123M	-1.090E-02		4.521E-02	7.234E-02	3.907E-03	-0.151
I-124	-1.473E-01		3.677E-01	5.264E-01	3.115E-02	-0.280
SB-124	-9.606E-03		8.560E-02	1.362E-01	9.326E-03	-0.071
SB-125	-2.608E-02		1.834E-01	3.024E-01	1.800E-02	-0.086
TE-125M	-1.031E+01		1.336E+01	2.102E+01	1.854E+00	-0.491
I-126	-5.512E-02		2.568E-01	3.545E-01	2.083E-02	-0.155
SB-126	1.732E-01		1.701E-01	2.978E-01	1.939E-02	0.582
SB-127	3.905E-01		6.663E-01	1.133E+00	8.421E-02	0.345
XE-127	3.485E-02		7.142E-02	1.172E-01	6.396E-03	0.297
I-131	6.661E-02		1.131E-01	1.946E-01	1.232E-02	0.342
TE-132	-1.554E-01		2.668E-01	4.146E-01	5.434E-02	-0.375
BA-133	5.192E-02		8.928E-02	1.351E-01	1.557E-02	0.384
I-133	1.156E-06		1.510E-05	Half-Life too short		
CS-134	4.683E-02		9.089E-02	1.529E-01	1.149E-02	0.306
CS-135	3.121E-02		2.742E-01	4.645E-01	3.545E-02	0.067
I-135	-1.966E+01		2.128E+01	Half-Life too short		
CS-136	-1.207E-01		1.519E-01	2.390E-01	1.846E-02	-0.505
CE-139	1.166E-02		4.612E-02	7.538E-02	3.935E-03	0.155
BA-140	-1.048E-01		3.158E-01	5.055E-01	1.645E-01	-0.207
LA-140	-6.167E-02		9.071E-02	1.320E-01	8.931E-03	-0.467
CE-141	1.344E-02		8.325E-02	1.359E-01	7.828E-03	0.099
CE-143	8.592E+00		6.571E+00	1.003E+01	2.053E+00	0.857
CE-144	-2.658E-01		3.372E-01	5.258E-01	7.448E-02	-0.505
PM-144	-7.359E-02		6.303E-02	9.331E-02	5.810E-03	-0.789
PR-144	-4.967E+00		4.254E+00	6.298E+00	3.921E-01	-0.789
PM-146	7.336E-03		9.397E-02	1.564E-01	1.347E-02	0.047
ND-147	-1.776E-01		6.692E-01	1.084E+00	1.471E-01	-0.164
PM-149	7.591E+00		1.625E+01	2.785E+01	3.942E+00	0.273
EU-152	-2.327E-01		1.880E-01	2.738E-01	1.782E-02	-0.850
GD-153	-1.084E-01		1.220E-01	1.918E-01	1.492E-02	-0.565
EU-154	-3.645E-02		1.411E-01	2.254E-01	2.231E-02	-0.162
EU-155	4.926E-02		1.670E-01	2.761E-01	1.986E-02	0.178
TB-160	1.045E-01		2.974E-01	4.921E-01	4.209E-02	0.212
HO-166M	2.593E-02		1.037E-01	1.725E-01	1.105E-02	0.150
TM-171	-6.684E+00		4.535E+01	7.174E+01	5.453E+00	-0.093

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	-1.459E-02		4.307E-02	7.111E-02	4.136E-03	-0.205
LU-177	8.108E-01		8.488E-01	1.420E+00	7.796E-02	0.571
LU-177M	-5.250E-02		3.472E-01	5.732E-01	3.240E-02	-0.092
HF-181	-3.625E-02		7.722E-02	1.243E-01	7.275E-03	-0.292
W-181	9.245E-03		6.098E-01	8.820E-01	6.674E-02	0.010
TA-182	7.458E-03		2.075E-01	3.468E-01	2.091E-02	0.022
RE-183	-6.842E-03		1.661E-01	2.680E-01	1.412E-02	-0.026
RE-184	-3.298E-01		4.246E-01	6.504E-01	3.717E-02	-0.507
OS-185	3.018E-02		8.265E-02	1.385E-01	8.109E-03	0.218
RE-188	1.008E-01		2.662E-01	4.378E-01	2.353E-02	0.230
W-188	-2.801E+00		1.349E+01	1.949E+01	1.132E+00	-0.144
IR-192	1.745E-03		5.687E-02	9.557E-02	5.583E-03	0.018
AU-195	2.028E-01		3.394E-01	5.680E-01	4.335E-02	0.357
TL-200	-3.163E+00		7.508E+00	1.226E+01	6.967E-01	-0.258
TL-201	5.345E-01		2.111E+00	3.449E+00	1.802E-01	0.155
TL-202	5.021E-02		9.175E-02	1.566E-01	8.996E-03	0.321
HG-203	2.741E-03		6.303E-02	1.064E-01	6.540E-03	0.026
BI-207	-9.889E-02		1.094E-01	1.705E-01	1.211E-02	-0.580
TL-207	-7.129E-01		1.224E+00	1.986E+00	3.280E-01	-0.359
PO-209	6.558E+00		1.747E+01	2.891E+01	2.542E+00	0.227
BI-210	-9.540E+00		6.906E+00	1.096E+01	8.350E-01	-0.871
PB-210	-9.540E+00		6.906E+00	1.096E+01	8.350E-01	-0.871
PO-210	-9.540E+00		6.896E+00	1.096E+01	7.140E-01	-0.871
PB-211	9.231E-01		1.910E+00	3.110E+00	1.938E+00	0.297
BI-212	7.491E-01		5.654E-01	9.980E-01	8.308E-02	0.751
PO-215	-7.129E-01		1.224E+00	1.986E+00	3.280E-01	-0.359
RN-219	-3.904E-01		7.810E-01	1.263E+00	1.708E-01	-0.309
RN-220	-5.103E+01		4.764E+01	7.231E+01	4.290E+00	-0.706
RA-223	-7.129E-01		1.224E+00	1.986E+00	3.280E-01	-0.359
RA-224	7.070E+00		1.628E+00	2.696E+00	1.527E-01	2.623
AC-227	3.657E-01		6.639E-01	1.088E+00	1.516E-01	0.336
TH-227	3.657E-01		6.648E-01	1.088E+00	1.836E-01	0.336
AC-228	9.507E-01	+	5.211E-01	6.970E-01	7.885E-02	1.364
RA-228	9.507E-01	+	5.211E-01	6.970E-01	7.885E-02	1.364
TH-229	-1.451E-01		8.648E-01	1.381E+00	7.451E-02	-0.105
PA-231	-6.164E-01		2.830E+00	4.716E+00	6.499E-01	-0.131
TH-231	-7.129E-01		1.224E+00	1.986E+00	3.280E-01	-0.359
U-231	-9.179E-01		5.104E-01	7.668E-01	6.090E-02	-1.197
TH-232	9.507E-01	+	5.211E-01	6.970E-01	7.885E-02	1.364
PA-233	1.858E-02		1.104E-01	1.869E-01	1.154E-02	0.099
PA-234	1.445E-01		7.963E-01	1.295E+00	2.418E-01	0.112
PA-234M	-1.043E+01		9.814E+00	1.514E+01	1.410E+00	-0.689
TH-234	-9.759E-01		2.271E+00	3.224E+00	5.641E-01	-0.303
U-235	2.185E-01		3.272E-01	5.431E-01	8.806E-02	0.402
NP-236	-1.179E-01		1.311E-01	2.031E-01	1.076E-02	-0.580
NP-237	7.539E+00		1.812E+00	1.229E+00	2.759E-01	6.132
U-238	-9.759E-01		2.271E+00	3.224E+00	5.641E-01	-0.303
NP-239	1.783E-02		3.199E-01	4.578E-01	2.863E-02	0.039

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.385E-01		1.502E-01	2.349E-01	1.689E-02	-0.589
AM-246	-2.162E-01		2.932E-01	4.628E-01	3.193E-02	-0.467
CM-247	-2.291E-02		7.155E-02	1.171E-01	6.570E-03	-0.196
CF-249	6.198E-02		7.662E-02	1.328E-01	7.417E-03	0.467
CF-251	1.134E-01		2.060E-01	3.407E-01	1.800E-02	0.333

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202014509          *
* Acquisition date   : 22-JAN-2010 16:52:55 Detector SN#      :             *
* Detector ID        : GAM19                      Sensitivity    : 5.000      *
* Geometry           : CAN                        Energy tolerance: 1.500      *
* Elapsed live time  : 0 01:00:00.00              Abundance limit : 75.000      *
* Elapsed real time  : 0 01:00:01.53              Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 15-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202014509              Analyst initials: MXR1        *
* Batch Number       : 941239                    Sample Quantity : 1.5544E+02 GRAM *
* Recovery           : 1.00000                  Carrier Weight  : 0.00000      *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 12-MAR-2009 10:24:54 MS Isotope       :             *
* MSD DPM             : 0.000                      MSD Isotope    :             *
* LCS DPM             : 0.000                      LCS Isotope    :             *
* LCSD DPM            : 0.000                      LCSD Isotope   :             *
*****

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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
CO-57	2.759E-01	7.500E-02	3.268E-02	3.826E-02
CO-60	6.468E+00	5.687E-01	3.681E-02	2.901E-01
CD-109	3.251E+01	3.878E+00	1.220E+00	1.979E+00
SN-126	3.231E+00	3.854E-01	1.218E-01	1.967E-01
BA-137M	5.717E+00	4.106E-01	5.031E-02	2.095E-01
CS-137	6.043E+00	4.352E-01	5.319E-02	2.220E-01
TL-208	3.640E-01	1.417E-01	5.674E-02	7.228E-02
BI-211	1.717E+00	6.383E-01	3.228E-01	3.257E-01
PB-212	8.643E-01	1.645E-01	9.844E-02	8.394E-02
PO-212	8.643E-01	1.645E-01	9.844E-02	8.394E-02
BI-214	6.082E-01	2.596E-01	1.012E-01	1.324E-01
PB-214	5.971E-01	2.241E-01	1.125E-01	1.144E-01
PO-214	5.971E-01	2.241E-01	1.125E-01	1.144E-01
PO-216	8.643E-01	1.645E-01	9.844E-02	8.394E-02
PO-218	5.971E-01	2.241E-01	1.125E-01	1.144E-01
RA-226	6.082E-01	2.596E-01	1.012E-01	1.324E-01
TH-228	8.709E-01	1.658E-01	9.920E-02	8.459E-02
TH-230	6.081E-01	2.596E-01	1.012E-01	1.324E-01
U-234	6.081E-01	2.596E-01	1.012E-01	1.324E-01
AM-241	1.403E+01	1.357E+00	2.682E-01	6.923E-01
AM-243	2.378E-01	1.135E-01	7.788E-02	5.790E-02
ANH-511	1.423E-02	9.617E-02	4.917E-02	4.907E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	3.786E-01	6.311E-01	5.708E-01	3.220E-01 NOT IDENT.
NA-22	-1.939E-02	5.042E-02	4.092E-02	2.572E-02 NOT IDENT.
NA-24	8.928E+01	2.192E+02	0.000E+00	1.118E+02 SHORT HLIF
AL-26	5.595E-03	3.727E-02	3.225E-02	1.901E-02 NOT IDENT.
K-40	2.943E-01	4.940E-01	4.758E-01	2.520E-01 NOT IDENT.

TI-44	2.434E-01	9.647E-02	5.909E-02	4.922E-02	FAIL ABUN
SC-46	8.193E-02	8.806E-02	7.849E-02	4.493E-02	FAIL ABUN
V-48	1.019E-02	1.180E-01	9.926E-02	6.020E-02	NOT IDENT.
CR-51	2.883E-01	5.401E-01	4.981E-01	2.756E-01	NOT IDENT.
MN-52	9.459E-02	1.073E-01	1.051E-01	5.475E-02	FAIL ABUN
MN-54	1.315E-02	7.547E-02	6.464E-02	3.850E-02	NOT IDENT.
CO-56	7.009E-03	8.170E-02	6.947E-02	4.168E-02	FAIL ABUN
CO-58	7.530E-02	7.241E-02	6.591E-02	3.694E-02	NOT IDENT.
FE-59	-1.496E-01	1.578E-01	1.266E-01	8.050E-02	NOT IDENT.
ZN-65	3.598E-02	1.892E-01	1.443E-01	9.653E-02	NOT IDENT.
GE-68	-1.981E+00	2.433E+00	1.982E+00	1.241E+00	NOT IDENT.
AS-73	1.718E-02	1.957E+00	1.593E+00	9.984E-01	NOT IDENT.
AS-74	8.232E-02	1.254E-01	1.132E-01	6.397E-02	NOT IDENT.
SE-75	3.767E-02	7.373E-02	6.846E-02	3.762E-02	FAIL ABUN
BR-77	-5.390E-01	2.266E+00	1.952E+00	1.156E+00	FAIL ABUN
SR-82	-3.615E-01	6.078E-01	4.935E-01	3.101E-01	NOT IDENT.
RB-83	-5.575E-02	1.252E-01	1.064E-01	6.386E-02	NOT IDENT.
RB-84	-6.044E-02	1.369E-01	1.117E-01	6.985E-02	NOT IDENT.
KR-85	2.980E+00	1.488E+01	1.147E+01	7.590E+00	NOT IDENT.
SR-85	1.413E-02	7.054E-02	5.437E-02	3.599E-02	NOT IDENT.
RB-86	-1.270E-01	1.188E+00	1.024E+00	6.059E-01	NOT IDENT.
Y-88	-8.724E-03	3.876E-02	3.033E-02	1.977E-02	NOT IDENT.
ZR-88	-3.290E-02	5.412E-02	4.659E-02	2.761E-02	NOT IDENT.
Y-91	-2.330E+01	1.990E+01	1.454E+01	1.016E+01	NOT IDENT.
NB-94	5.152E-02	5.995E-02	5.442E-02	3.059E-02	NOT IDENT.
NB-95	1.914E-02	7.189E-02	6.238E-02	3.668E-02	NOT IDENT.
NB-95M	7.390E-02	2.362E-01	1.815E-01	1.205E-01	NOT IDENT.
ZR-95	9.291E-02	1.276E-01	1.142E-01	6.510E-02	NOT IDENT.
NB-97	3.656E+02	1.469E+02	0.000E+00	7.496E+01	SHORT HLIF
ZR-97	1.965E+03	2.542E+03	0.000E+00	1.297E+03	SHORT HLIF
MO-99	4.879E-01	3.533E+00	3.045E+00	1.802E+00	NOT IDENT.
TC-99M	-3.753E+07	7.116E+07	0.000E+00	3.631E+07	SHORT HLIF
RH-101	3.145E-03	5.596E-02	4.903E-02	2.855E-02	NOT IDENT.
RH-102	2.685E-02	6.358E-02	5.704E-02	3.244E-02	NOT IDENT.
RU-103	-5.661E-02	6.954E-02	5.768E-02	3.548E-02	FAIL ABUN
RH-106	-4.906E-01	5.841E-01	4.720E-01	2.980E-01	FAIL ABUN
RU-106	-4.906E-01	5.821E-01	4.720E-01	2.970E-01	FAIL ABUN
AG-108M	-1.703E-02	6.590E-02	5.728E-02	3.362E-02	NOT IDENT.
AG-110M	1.359E-01	7.413E-02	6.418E-02	3.782E-02	NOT IDENT.
IN-111	-5.897E-01	3.313E-01	2.608E-01	1.690E-01	NOT IDENT.
IN-113M	-2.964E-02	8.116E-02	7.084E-02	4.141E-02	NOT IDENT.
SN-113	-2.964E-02	8.116E-02	7.084E-02	4.141E-02	NOT IDENT.
IN-114M	-2.408E-01	2.752E-01	2.312E-01	1.404E-01	NOT IDENT.
CD-115	5.527E-01	1.997E+00	1.774E+00	1.019E+00	NOT IDENT.
SN-117M	-1.144E-03	6.056E-02	5.347E-02	3.090E-02	NOT IDENT.
SB-122	-9.975E-01	5.803E-01	4.442E-01	2.961E-01	NOT IDENT.
I-123	-1.870E+02	7.601E+02	0.000E+00	3.878E+02	SHORT HLIF
TE-123M	-1.090E-02	4.431E-02	3.872E-02	2.261E-02	NOT IDENT.
I-124	-1.473E-01	3.603E-01	2.722E-01	1.838E-01	NOT IDENT.
SB-124	-9.606E-03	8.388E-02	6.842E-02	4.280E-02	NOT IDENT.
SB-125	-2.608E-02	1.797E-01	1.578E-01	9.168E-02	NOT IDENT.
TE-125M	-1.031E+01	1.309E+01	1.136E+01	6.680E+00	NOT IDENT.
I-126	-5.512E-02	2.517E-01	1.828E-01	1.284E-01	NOT IDENT.
SB-126	1.732E-01	1.667E-01	1.533E-01	8.504E-02	FAIL ABUN
SB-127	3.905E-01	6.530E-01	5.840E-01	3.332E-01	NOT IDENT.
XE-127	3.485E-02	6.999E-02	6.237E-02	3.571E-02	NOT IDENT.
I-131	6.661E-02	1.109E-01	1.020E-01	5.657E-02	NOT IDENT.
TE-132	-1.554E-01	2.614E-01	2.199E-01	1.334E-01	NOT IDENT.
BA-133	5.192E-02	8.749E-02	7.082E-02	4.464E-02	NOT IDENT.
I-133	1.156E+00	2.960E+01	0.000E+00	1.510E+01	SHORT HLIF
CS-134	4.683E-02	8.908E-02	7.844E-02	4.545E-02	NOT IDENT.
CS-135	3.121E-02	2.687E-01	2.454E-01	1.371E-01	NOT IDENT.
I-135	-1.966E+07	4.172E+07	0.000E+00	2.128E+07	SHORT HLIF
CS-136	-1.207E-01	1.488E-01	1.217E-01	7.594E-02	NOT IDENT.
CE-139	1.166E-02	4.520E-02	4.031E-02	2.306E-02	NOT IDENT.
BA-140	-1.048E-01	3.095E-01	2.622E-01	1.579E-01	NOT IDENT.
LA-140	-6.167E-02	8.890E-02	6.644E-02	4.536E-02	NOT IDENT.
CE-141	1.344E-02	8.159E-02	7.293E-02	4.163E-02	NOT IDENT.
CE-143	8.592E+00	6.440E+00	5.286E+00	3.286E+00	NOT IDENT.
CE-144	-2.658E-01	3.305E-01	2.827E-01	1.686E-01	NOT IDENT.
PM-144	-7.359E-02	6.177E-02	4.806E-02	3.151E-02	NOT IDENT.
PR-144	-4.967E+00	4.169E+00	3.244E+00	2.127E+00	NOT IDENT.
PM-146	7.336E-03	9.209E-02	8.151E-02	4.699E-02	NOT IDENT.
ND-147	-1.776E-01	6.558E-01	5.622E-01	3.346E-01	NOT IDENT.
PM-149	7.591E+00	1.592E+01	1.468E+01	8.124E+00	NOT IDENT.
EU-152	-2.327E-01	1.843E-01	1.437E-01	9.401E-02	FAIL ABUN
GD-153	-1.084E-01	1.196E-01	1.039E-01	6.101E-02	NOT IDENT.
EU-154	-3.645E-02	1.383E-01	1.142E-01	7.055E-02	FAIL ABUN

EU-155	4.926E-02	1.637E-01	1.493E-01	8.352E-02	FAIL ABUN
TB-160	1.045E-01	2.915E-01	2.518E-01	1.487E-01	FAIL ABUN
HO-166M	2.593E-02	1.017E-01	8.878E-02	5.187E-02	NOT IDENT.
TM-171	-6.684E+00	4.444E+01	3.923E+01	2.267E+01	FAIL ABUN
LU-176	-1.459E-02	4.221E-02	3.743E-02	2.153E-02	FAIL ABUN
LU-177	8.108E-01	8.319E-01	7.549E-01	4.244E-01	NOT IDENT.
LU-177M	-5.250E-02	3.403E-01	2.994E-01	1.736E-01	FAIL ABUN
HF-181	-3.625E-02	7.568E-02	6.466E-02	3.861E-02	NOT IDENT.
W-181	9.245E-03	5.976E-01	4.826E-01	3.049E-01	NOT IDENT.
TA-182	7.458E-03	2.034E-01	1.759E-01	1.038E-01	FAIL ABUN
RE-183	-6.842E-03	1.628E-01	1.434E-01	8.305E-02	FAIL ABUN
RE-184	-3.298E-01	4.161E-01	3.441E-01	2.123E-01	FAIL ABUN
OS-185	3.018E-02	8.099E-02	7.146E-02	4.132E-02	FAIL ABUN
RE-188	1.008E-01	2.609E-01	2.345E-01	1.331E-01	NOT IDENT.
W-188	-2.801E+00	1.322E+01	1.028E+01	6.747E+00	NOT IDENT.
IR-192	1.745E-03	5.574E-02	5.026E-02	2.844E-02	FAIL ABUN
AU-195	2.028E-01	3.326E-01	3.076E-01	1.697E-01	FAIL ABUN
TL-200	-3.163E+00	7.358E+00	6.421E+00	3.754E+00	NOT IDENT.
TL-201	5.345E-01	2.069E+00	1.844E+00	1.055E+00	NOT IDENT.
TL-202	5.021E-02	8.991E-02	8.168E-02	4.587E-02	NOT IDENT.
HG-203	2.741E-03	6.177E-02	5.612E-02	3.152E-02	NOT IDENT.
BI-207	-9.889E-02	1.072E-01	8.679E-02	5.470E-02	FAIL ABUN
TL-207	-7.129E-01	1.199E+00	1.044E+00	6.120E-01	FAIL ABUN
PO-209	6.558E+00	1.712E+01	1.479E+01	8.736E+00	NOT IDENT.
BI-210	-9.540E+00	6.768E+00	6.043E+00	3.453E+00	NOT IDENT.
PB-210	-9.540E+00	6.768E+00	6.043E+00	3.453E+00	NOT IDENT.
PO-210	-9.540E+00	6.758E+00	6.043E+00	3.448E+00	NOT IDENT.
PO-211	9.231E-01	1.872E+00	1.625E+00	9.552E-01	NOT IDENT.
BI-212	7.491E-01	5.540E-01	5.134E-01	2.827E-01	NOT IDENT.
PO-215	-7.129E-01	1.199E+00	1.044E+00	6.120E-01	FAIL ABUN
RN-219	-3.904E-01	7.653E-01	6.600E-01	3.905E-01	NOT IDENT.
RN-220	-5.103E+01	4.669E+01	3.748E+01	2.382E+01	NOT IDENT.
RA-223	-7.129E-01	1.199E+00	1.044E+00	6.120E-01	FAIL ABUN
RA-224	7.070E+00	1.596E+00	1.428E+00	8.142E-01	NOT IDENT.
AC-227	3.657E-01	6.506E-01	5.753E-01	3.319E-01	NOT IDENT.
TH-227	3.657E-01	6.515E-01	5.753E-01	3.324E-01	NOT IDENT.
AC-228	9.507E-01	5.107E-01	3.564E-01	2.606E-01	FAIL ABUN
RA-228	9.507E-01	5.107E-01	3.564E-01	2.606E-01	FAIL ABUN
TH-229	-1.451E-01	8.475E-01	7.355E-01	4.324E-01	FAIL ABUN
PA-231	-6.164E-01	2.773E+00	2.488E+00	1.415E+00	NOT IDENT.
TH-231	-7.129E-01	1.199E+00	1.044E+00	6.120E-01	FAIL ABUN
U-231	-9.179E-01	5.002E-01	4.156E-01	2.552E-01	NOT IDENT.
TH-232	9.507E-01	5.107E-01	3.564E-01	2.606E-01	FAIL ABUN
PA-233	1.858E-02	1.082E-01	9.835E-02	5.521E-02	FAIL ABUN
PA-234	1.445E-01	7.804E-01	6.616E-01	3.982E-01	FAIL ABUN
PA-234M	-1.043E+01	9.618E+00	7.722E+00	4.907E+00	NOT IDENT.
TH-234	-9.759E-01	2.226E+00	1.765E+00	1.136E+00	NOT IDENT.
U-235	2.185E-01	3.206E-01	2.914E-01	1.636E-01	NOT IDENT.
NP-236	-1.179E-01	1.285E-01	1.087E-01	6.557E-02	NOT IDENT.
NP-237	7.539E+00	1.776E+00	6.681E-01	9.062E-01	NOT IDENT.
U-238	-9.759E-01	2.226E+00	1.765E+00	1.136E+00	NOT IDENT.
NP-239	1.783E-02	3.135E-01	2.470E-01	1.600E-01	NOT IDENT.
CM-243	-1.385E-01	1.472E-01	1.271E-01	7.510E-02	NOT IDENT.
AM-246	-2.162E-01	2.874E-01	2.355E-01	1.466E-01	NOT IDENT.
CM-247	-2.291E-02	7.012E-02	6.122E-02	3.577E-02	NOT IDENT.
CF-249	6.198E-02	7.509E-02	6.948E-02	3.831E-02	NOT IDENT.
CF-251	1.134E-01	2.019E-01	1.819E-01	1.030E-01	NOT IDENT.

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*****
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON , SC 29417                          *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT            *
*****

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ENERGY	MDA COUNTS
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46.50	613.2177
46.50	613.2177
46.50	613.2177
48.70	622.6474
49.72	630.2322
51.35	642.1880
52.39	722.8800
52.97	695.6782
53.15	695.8218
53.44	711.7276
54.07	702.8218
56.28	715.5614
56.28	726.5728
57.37	729.0151
57.53	729.1423
57.53	729.1445
57.60	729.1981
57.98	576.0759
57.98	576.0759
59.32	576.9071
59.32	576.9071
59.40	576.9562
59.54	577.0432
59.72	577.1537
60.01	577.3322
61.10	403.1168
61.14	403.1331
61.30	403.2009
63.00	405.5004
63.29	405.6219
63.29	405.6219
63.58	431.1019
64.28	440.9279
65.12	406.3817
65.20	406.4145
65.20	406.4145
66.05	436.9536
66.72	430.4331
66.83	422.3882
66.91	422.4222
67.20	422.5438
67.20	422.5438
67.75	420.7845
67.85	430.7767
68.90	434.2104
68.90	434.2104
69.30	434.3817
69.67	441.7156
70.82	477.3287
70.82	477.3287
70.83	472.5449
72.80	463.8425
72.87	470.2726
72.87	470.2726
74.67	449.6423
74.81	449.7022
74.81	449.7022
74.81	449.7022
74.81	449.7022
74.81	449.7022
74.81	449.7022
74.97	449.7690
75.28	449.8992
75.70	450.0757
77.11	450.6649
77.11	450.6649

77.11	450.6649
77.11	450.6649
77.11	450.6649
77.11	450.6649
77.11	450.6649
78.38	424.4609
79.62	461.9607
79.80	462.0360
79.80	462.0360
80.11	495.9826
80.18	496.0127
80.30	496.0672
80.30	496.0672
80.57	521.9636
81.00	546.3396
81.07	546.3727
81.07	546.3727
81.07	546.3727
81.07	546.3727
82.60	496.2811
83.37	462.9709
83.78	463.1388
83.78	463.1388
83.78	463.1388
83.78	463.1388
84.21	484.8633
84.90	478.6875
85.43	512.8845
86.29	516.5059
86.50	550.6074
86.54	550.6261
86.59	550.6510
86.72	550.7133
86.79	550.7444
86.94	576.7378
87.30	576.9160
87.30	576.9160
87.30	576.9160
87.30	576.9160
87.30	576.9160
87.30	576.9160
87.30	576.9160
87.57	509.5795
87.88	509.7139
88.03	509.7791
88.36	509.9230
88.47	509.9710
89.95	445.0343
91.11	370.6809
92.29	327.1071
92.38	289.6987
92.38	289.6987
93.35	296.4465
94.00	302.8525
94.67	342.4241
94.67	342.4254
94.90	372.0509
94.90	372.0509
94.90	372.0509
94.90	372.0509
95.87	399.8880
95.87	399.8880
96.73	386.8968
97.43	340.1302
98.44	297.4717
98.44	297.4729
98.88	284.2834
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99.55	258.8564
99.86	250.7328
100.00	253.8314
100.10	253.8522
103.18	317.0579
103.76	306.9362
105.00	274.3497
105.31	280.5825
108.00	276.0110
109.28	309.2663



111.00	279.7313
111.00	279.7313
111.76	277.8249
112.95	254.2947
115.19	265.0684
116.30	268.5983
117.00	238.8753
117.00	238.8753
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121.11	241.2448
121.62	241.3315
121.78	241.3590
122.06	241.4068
122.32	241.4510
122.32	241.4510
122.32	241.4510
122.32	241.4510
123.07	259.9061
127.23	279.0400
129.76	277.2232
131.20	298.4377
133.02	326.0645
133.54	321.9832
135.34	257.2657
136.00	274.1862
136.25	274.2320
136.48	292.1384
140.51	291.8589
140.51	0.0000
142.18	267.9139
142.65	266.9402
143.76	252.3493
144.24	250.3153
144.24	250.3153
144.24	250.3153
144.24	250.3153
145.22	262.0980
145.44	262.1339
147.16	274.0592
152.43	284.5210
152.70	285.6299
153.22	279.3492
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154.21	288.0223
154.21	288.0223
154.21	288.0223
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158.56	274.9360
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159.00	284.6021
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161.27	262.5762
162.32	269.1497
162.64	255.3142
163.35	273.5898
163.89	249.0895
165.85	251.5181
167.43	259.2520
171.28	245.8755
171.86	256.6982
172.10	251.3618
176.55	231.5410
176.60	239.0863
181.06	290.4343
184.41	269.3422
185.71	260.8743
186.00	244.6770
190.27	297.3378
192.34	270.5105
193.63	270.6986
197.04	266.8360
198.01	276.7796
198.60	284.4970
200.40	279.3125
201.83	260.9595
202.84	269.8378
205.31	304.0943

208.36	249.7942
208.81	239.9891
209.75	237.9116
209.75	237.9116
210.97	255.6135
215.65	258.4190
216.55	248.6341
218.09	274.1504
222.10	318.8256
223.80	259.4696
226.40	265.3271
227.00	269.8293
227.08	269.8405
227.20	270.9613
228.16	292.1116
228.18	292.1136
228.18	292.1136
231.56	283.7246
235.69	296.7247
236.00	296.7695
236.00	296.7695
238.63	342.5123
238.63	342.5123
238.63	342.5123
238.63	342.5123
239.00	338.1221
240.98	265.4063
241.98	253.0571
241.98	253.0571
241.98	253.0571
244.69	327.8744
245.39	319.0552
247.94	231.1978
248.90	194.4265
249.79	225.8060
252.40	216.0045
252.85	251.8702
252.85	251.8702
254.15	0.0000
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256.20	189.4713
260.50	226.9079
260.90	238.1830
262.80	199.0278
264.65	216.0732
268.24	229.0403
268.79	219.1746
269.46	212.9243
269.46	212.9243
269.46	212.9243
269.46	212.9243
271.23	204.0594
273.65	229.5829
276.40	215.3795
277.35	229.0465
277.60	229.0712
277.60	229.0712
278.00	235.4504
278.60	220.1120
279.20	212.9200
279.53	222.0118
280.46	206.6890
281.68	212.2396
283.67	231.4828
284.30	226.0970
285.00	229.7970
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286.10	208.0959
286.10	208.0959
287.40	210.9368
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290.67	204.8538
290.80	232.1801
291.72	221.6436
293.26	208.1145
293.70	195.9959
295.21	222.5726
295.21	222.5726

295.21	222.5726
295.96	261.5728
296.50	263.1534
297.23	223.6732
298.57	217.7061
299.80	214.7703
299.80	214.7703
300.09	214.7961
300.09	214.7961
300.09	214.7961
300.09	214.7961
300.12	214.7990
301.29	208.0436
302.84	213.2069
303.76	216.9482
303.91	217.8781
304.40	197.7776
304.40	197.7776
304.84	187.7382
306.84	188.8074
308.46	177.0078
311.98	170.8307
316.51	179.4205
318.01	177.6863
319.02	183.2831
319.41	175.0206
320.08	173.2230
323.87	214.0846
323.87	214.0846
323.87	214.0846
323.87	214.0846
325.23	208.6582
328.77	190.4545
333.44	247.2977
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334.20	264.9724
334.30	264.9829
338.28	159.6039
338.28	159.6039
338.28	159.6039
338.28	159.6039
338.32	159.6060
338.32	159.6060
338.32	159.6060
340.50	210.8174
340.57	210.8229
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351.92	180.9443
351.92	180.9443
355.39	0.0000
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366.43	196.9135
367.43	195.1066
367.94	176.3785
369.80	157.7215
374.96	192.8131
383.85	178.3272
387.95	158.7407
388.63	163.5032
391.69	183.5469
391.69	183.5469
392.90	180.7832
398.62	149.8435
400.65	171.7755
401.10	171.8020
401.81	174.6922
402.60	179.4877
404.84	168.2213
410.95	169.5215
411.60	177.1791
413.65	189.6913
414.70	178.3166
415.30	177.3993

415.76	178.3805
417.63	0.0000
418.52	165.1778
423.70	151.1145
427.08	160.8571
427.89	169.5199
432.53	152.5115
433.93	174.6529
439.47	153.8164
439.56	153.8223
439.89	161.5298
443.98	168.4824
444.90	159.8642
445.03	158.9072
445.03	158.9072
445.03	158.9072
445.03	158.9072
453.90	181.5696
463.38	209.2342
468.07	211.4776
473.00	192.3684
475.06	176.9368
475.35	182.7859
476.78	189.6751
477.59	168.3160
477.96	159.5777
482.03	160.7501
484.57	140.4000
487.03	133.6737
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497.08	150.7158
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511.85	140.8882
513.99	137.6989
513.99	137.6989
520.41	135.9853
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528.96	0.0000
529.64	119.5495
529.87	0.0000
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537.32	111.8910
543.00	116.0374
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555.20	98.5190
563.23	139.6309
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568.70	92.8933
569.32	95.9063
569.50	95.9109
569.67	95.9156
573.80	130.0317
574.00	130.0381
574.64	119.0552
578.91	106.8385
579.30	110.1907
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585.48	110.3733
591.81	114.8661
592.07	114.8744
593.00	120.6475
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602.71	103.6783
603.60	102.5031
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604.70	97.4903
609.31	98.9546

609.31	98.9546
609.31	98.9546
609.31	98.9546
610.33	98.9810
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621.84	114.4704
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634.78	108.7502
635.90	97.5984
636.97	106.7791
645.85	100.9022
646.12	109.0637
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657.90	0.0000
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661.65	80.8361
664.57	80.2113
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666.33	99.0267
675.00	106.7650
677.61	110.9426
685.20	84.3883
692.80	75.2634
695.00	93.8715
696.49	113.5127
696.49	113.5127
697.00	111.4620
697.49	114.5717
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698.50	107.3719
699.00	104.2869
702.63	82.6738
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706.67	104.4768
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711.68	74.5664
713.82	89.1095
717.42	90.2221
720.50	71.6077
721.93	96.5465
722.20	109.0118
722.78	128.7529
722.78	128.7529
722.89	128.7560
722.95	128.7590
723.30	138.1141
724.18	130.8727
727.18	85.2311
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763.93	82.8034
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785.46	89.5198
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796.30	95.0120
798.80	102.4562
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810.29	74.1221
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815.85	94.3539
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828.27	82.9131
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836.80	0.0000
846.75	107.7810
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867.32	96.4534
867.82	87.8877
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873.19	115.8838
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876.40	108.4443
879.36	98.8394
880.27	113.9008
880.51	117.1324
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883.24	117.1963
884.67	136.5901
889.25	102.2688
896.60	103.4977
898.02	101.3713
899.00	102.4706
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911.07	129.7471
911.07	129.7471
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925.00	133.3601
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962.29	157.2645
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969.11	129.0395
969.11	129.0395
969.11	129.0395
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980.50	101.9208
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1001.68	102.6940
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1038.76	0.0000
1045.16	78.5634
1046.59	84.1313
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1050.47	85.1157
1050.47	85.1157
1062.04	87.1458
1063.62	98.3010
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1085.78	81.9307
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1120.29	80.2839
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1177.93	35.6717
1189.05	32.2181
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1213.00	31.3940
1221.42	28.5791
1230.97	29.5784
1235.34	32.4630
1236.41	0.0000
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1260.41	0.0000
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1274.45	24.9801
1274.54	26.9028
1291.56	24.0845
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1332.49	16.4812
1333.61	16.4840
1360.21	13.6303
1362.66	0.0000
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1434.06	8.8586
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1620.62	10.1017
1678.03	0.0000
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1691.02	9.1758
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1764.49	12.3496
1764.49	12.3496
1764.49	12.3496
1764.49	12.3496
1770.23	28.8363
1771.40	21.6298
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1808.65	7.2435

1836.01

8.3060



TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202014509

Total Uranium Activity	-2.8022E+00	ug/g
Total Uranium Counting Unc.	6.6242E+00	ug/g
Total Uranium Tpu	3.3797E-06	ug/g
Total Uranium Mda	5.2534E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GROSS GAMMA REPORT                             *
*
*****
*
*  BATCH ID      : 941239                SAMPLE ID   : G1202014509                *
*  ANALYST       : MXR1                  DETECTOR    : GAM19                    *
*  SAMPLE DATE   : 15-JAN-2010 00:00:00.00  COUNT TIME : 0 01:00:00.00          *
*  ANALYSIS DATE: 22-JAN-2010 16:52:55.25  SAMPLE ALQT: 155.440 GRAM          *
*
*****

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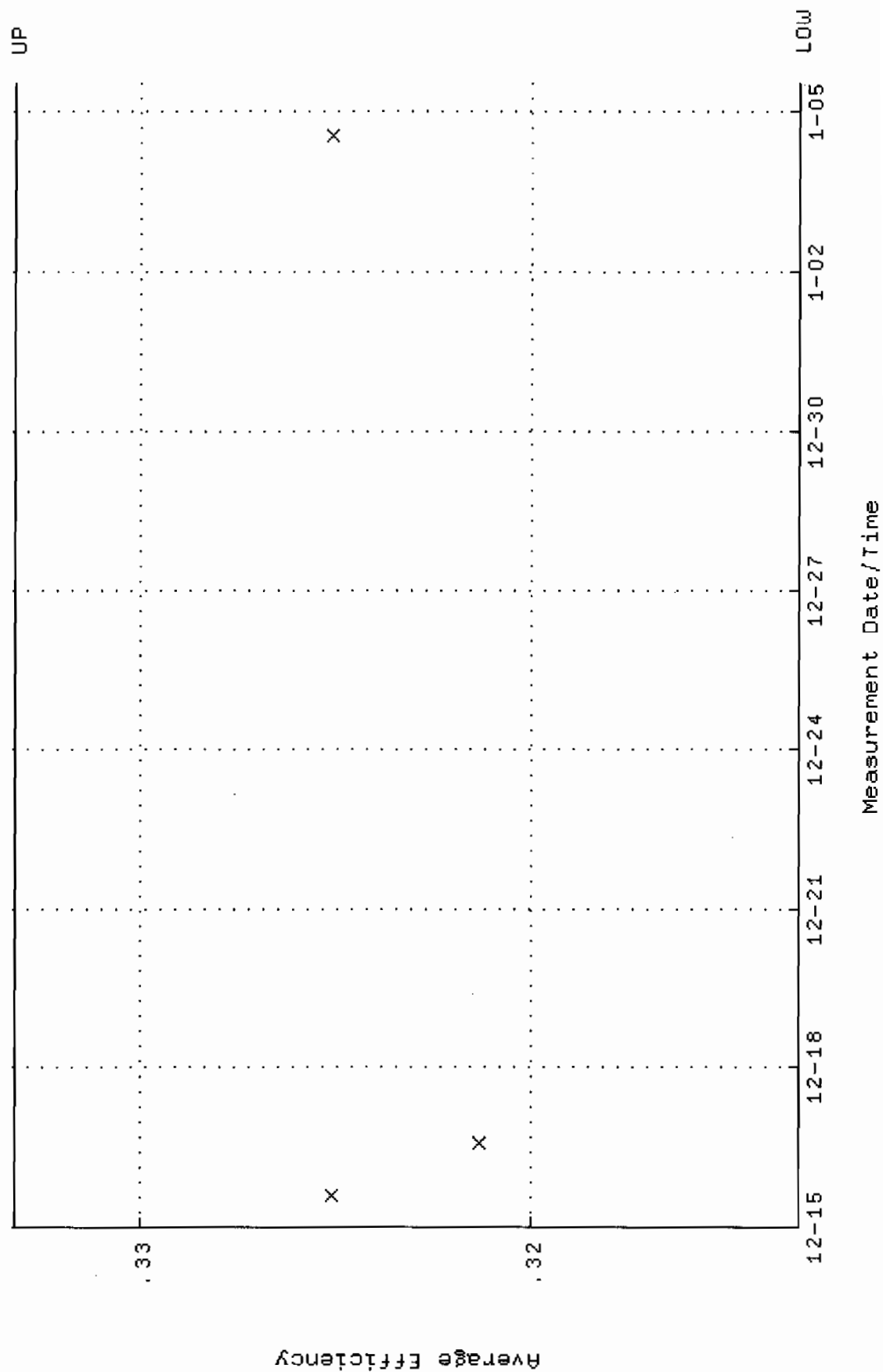
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.686E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 3.133E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.685E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.804E+00

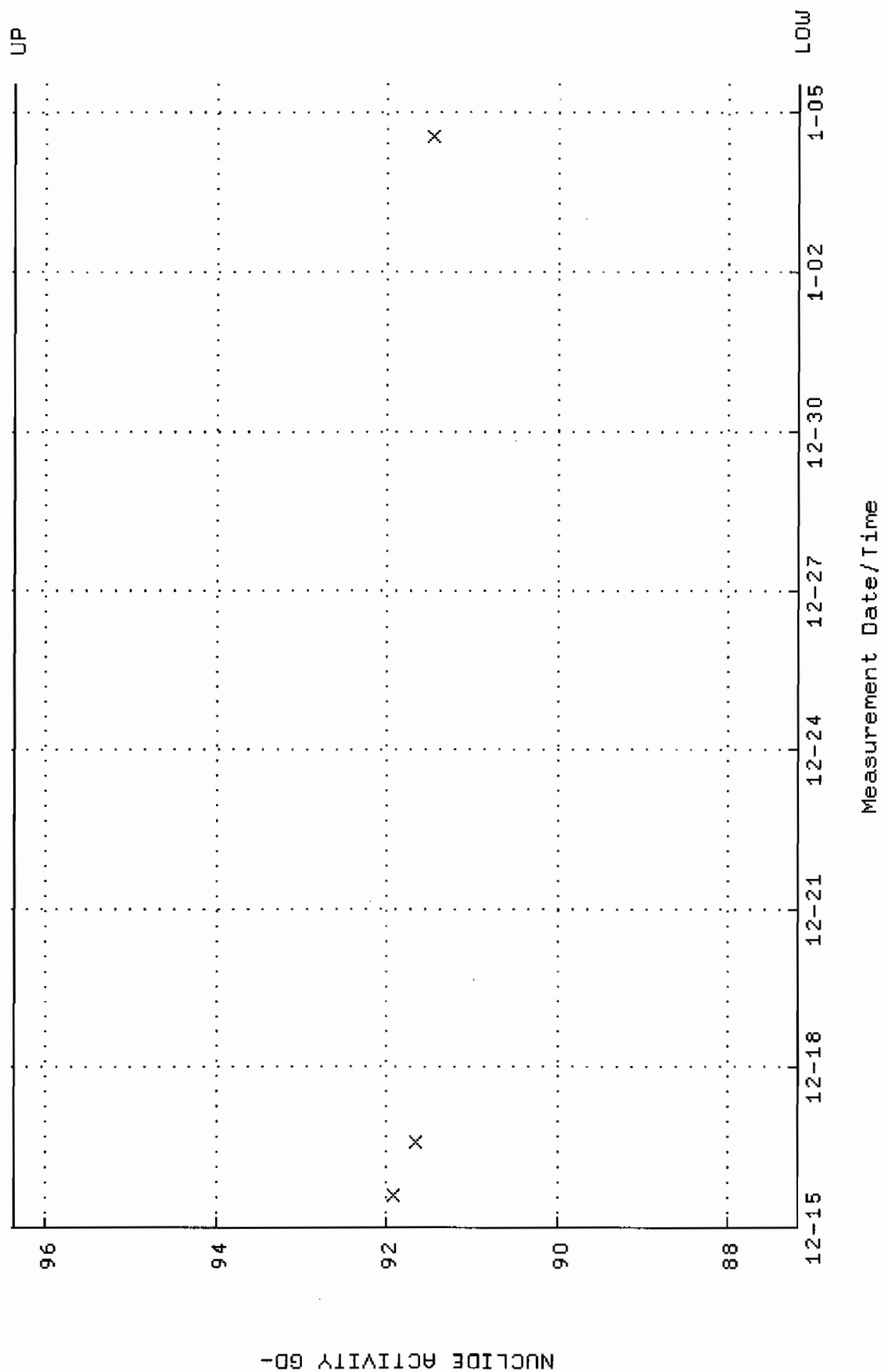
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# BACKGROUND AND EFFICIENCY DATA

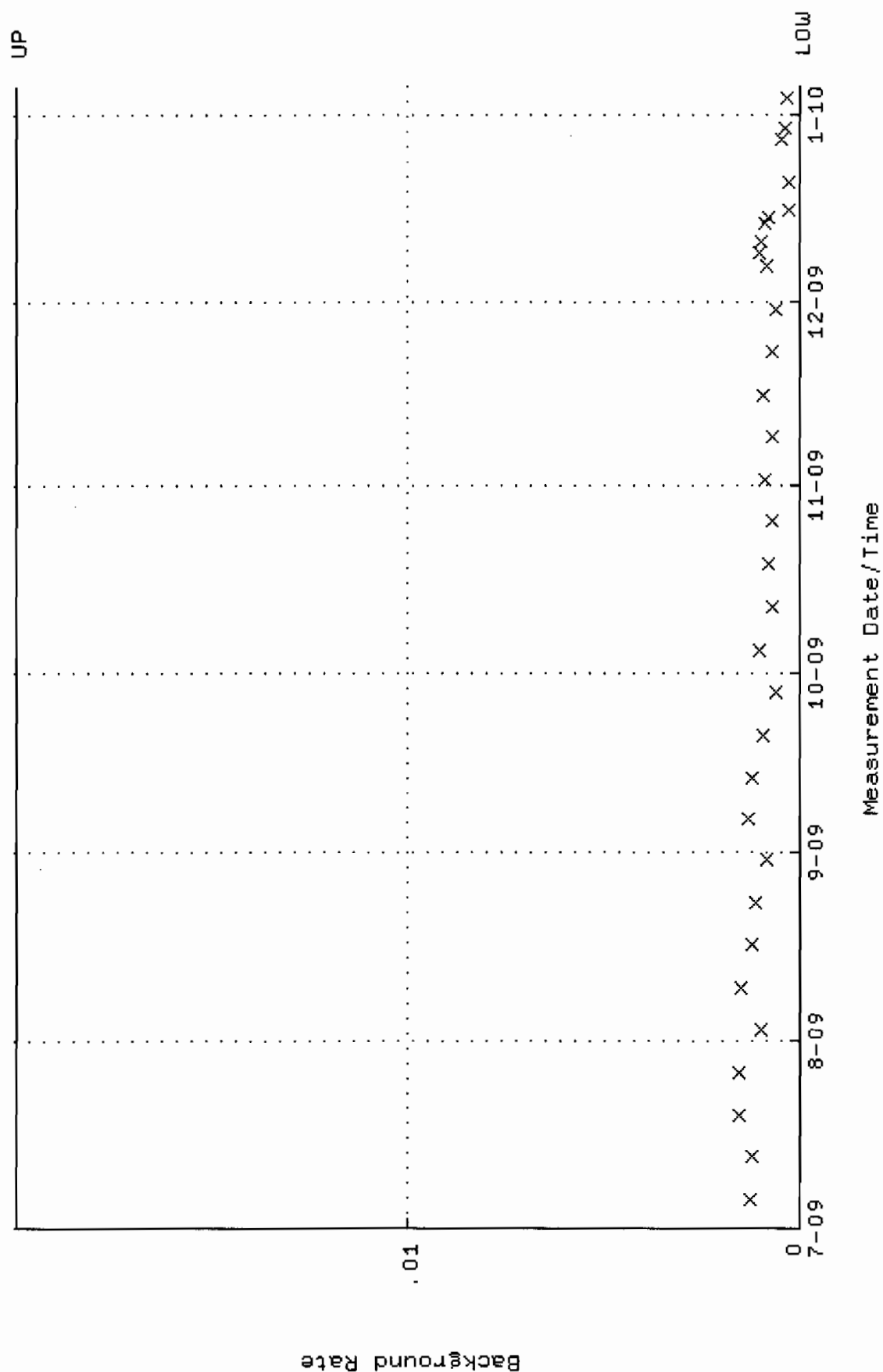
QA filename : DKA100:[ENV\_ALPHA.QA.W]W001.QAF;7  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.313195 through 0.333195



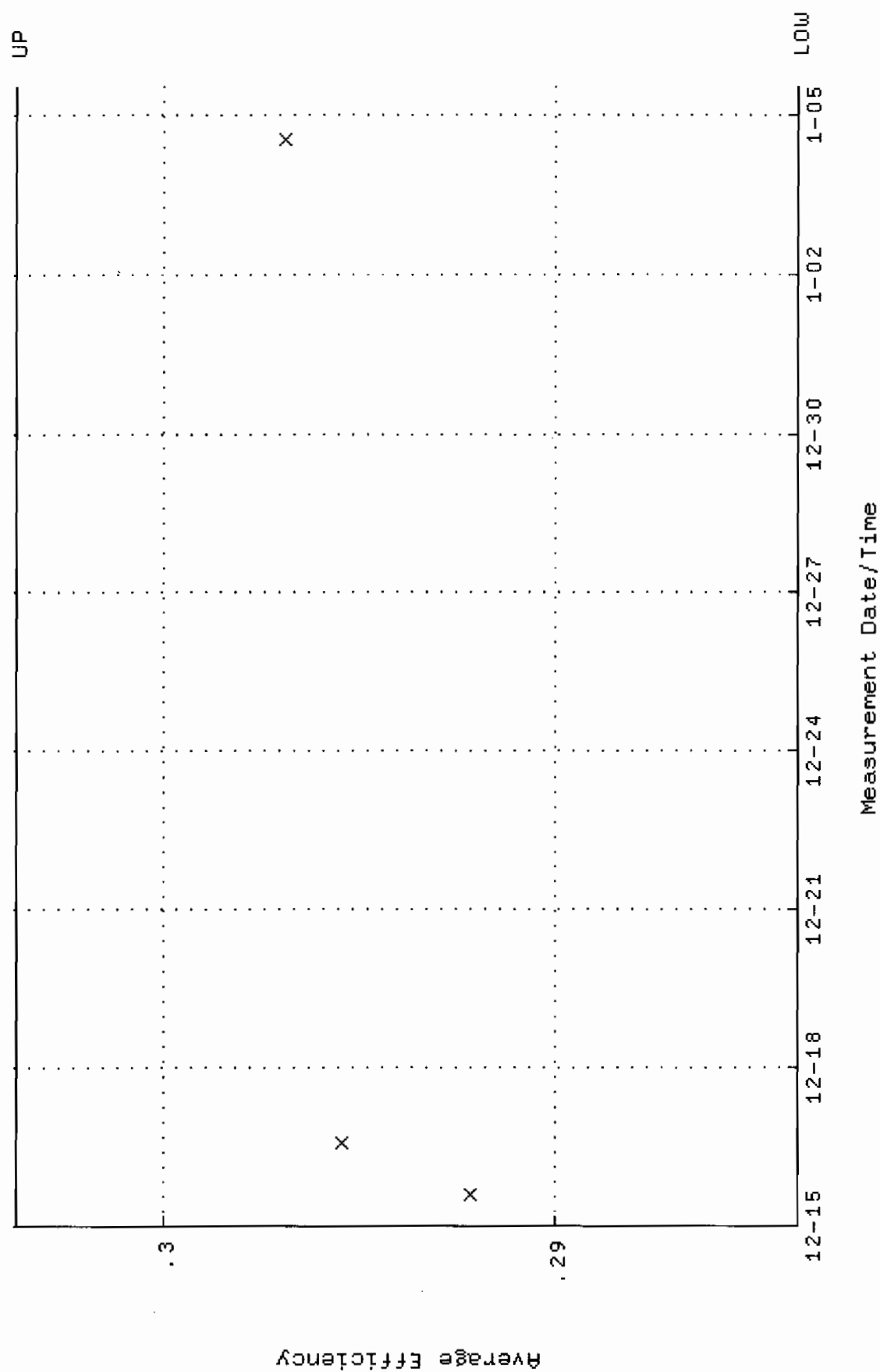
QA filename : OKA100:[ENV-ALPHA.QA.W]W001.QAF;7  
 Parameter Name : NLAIVITY-G0148 (NUCLIDE ACTIVITY G0-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.1884 through 96.3662



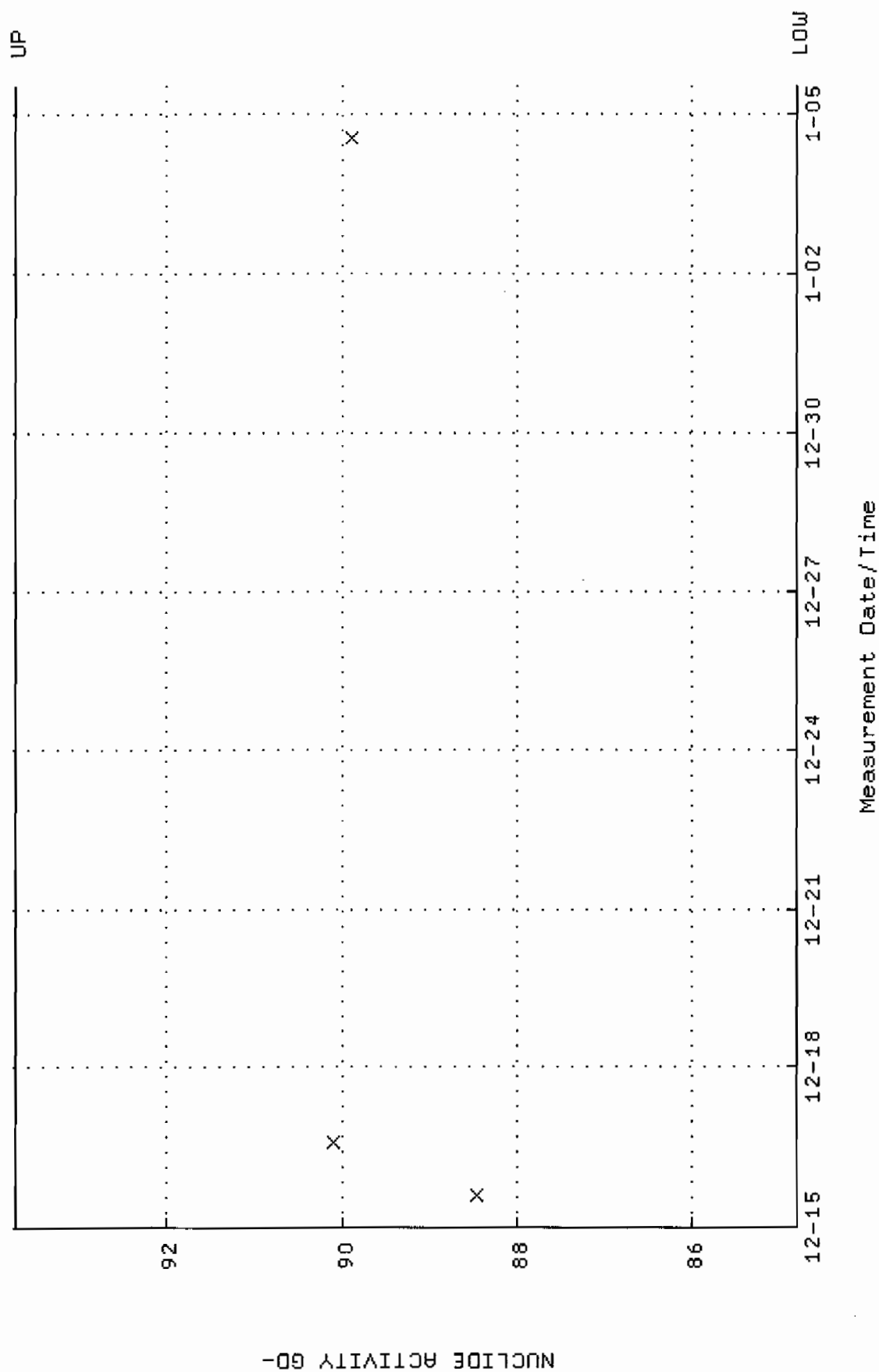
QA filename : DKA100:[ENV\_ALPHA.QA.B]B001.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W002.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.283765 through 0.303765

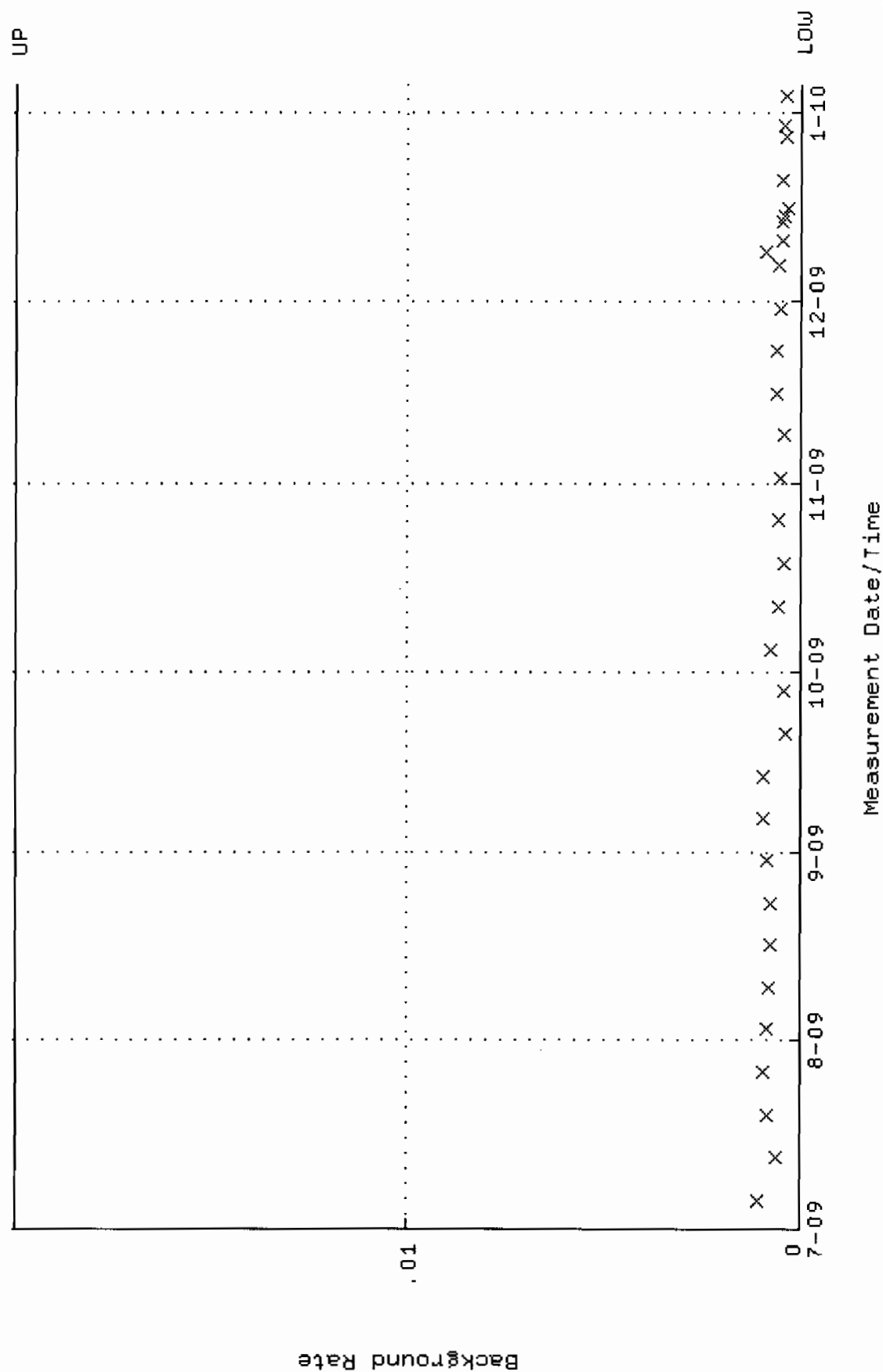


QA filename : DKA100:[ENV\_ALPHA.QA.W]W002.QAF;4  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.8037 through 93.7305

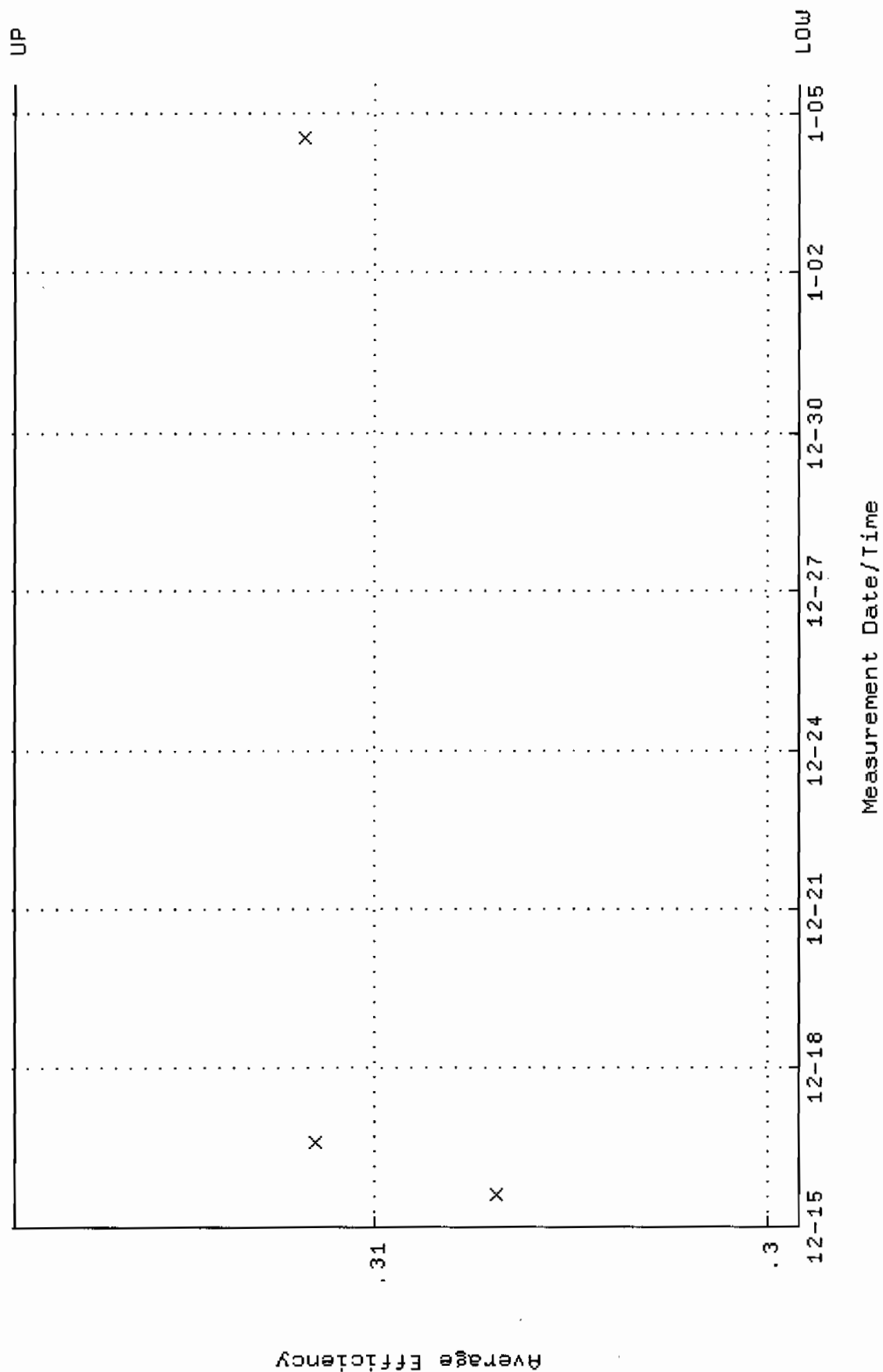




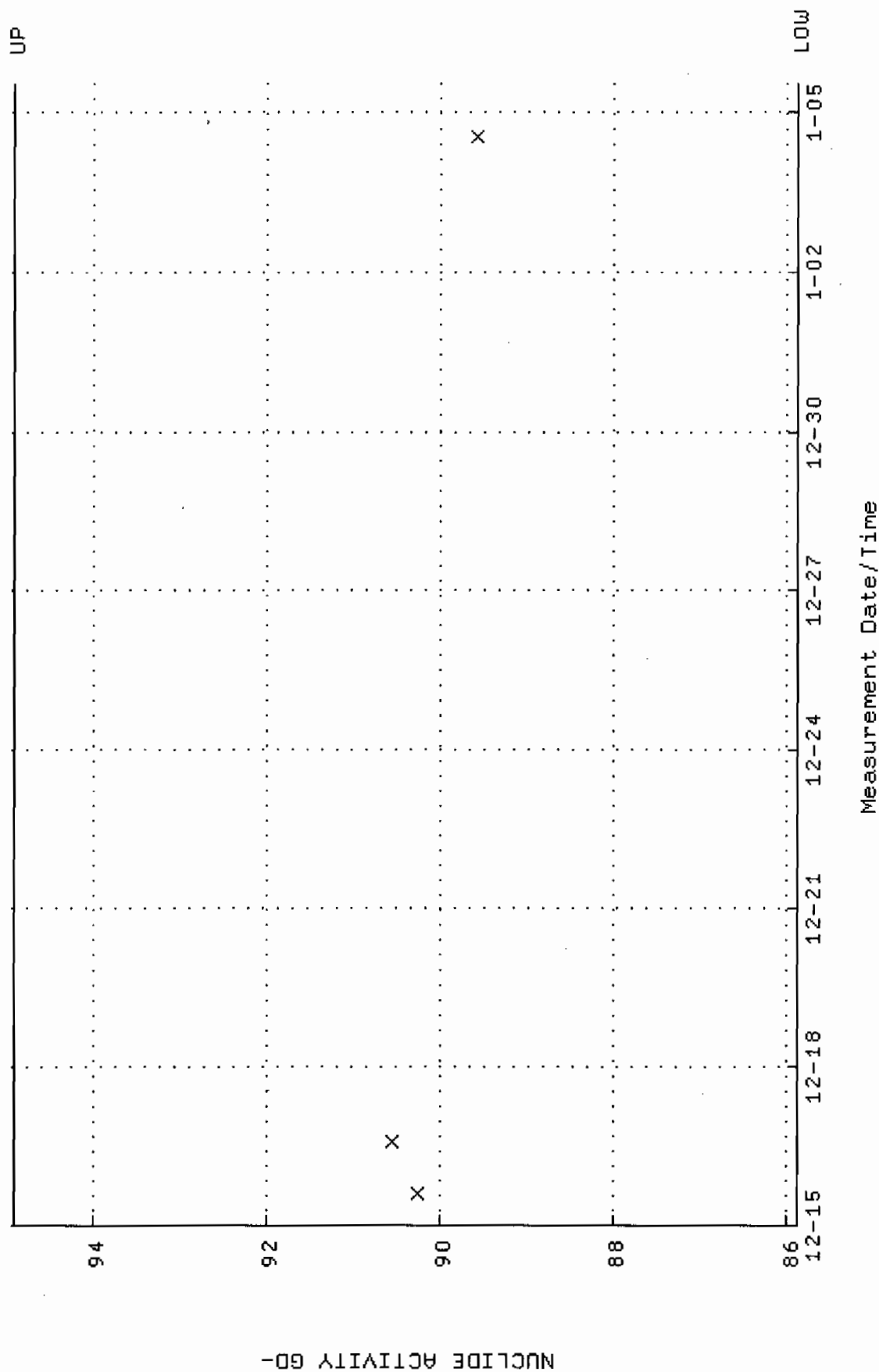
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 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



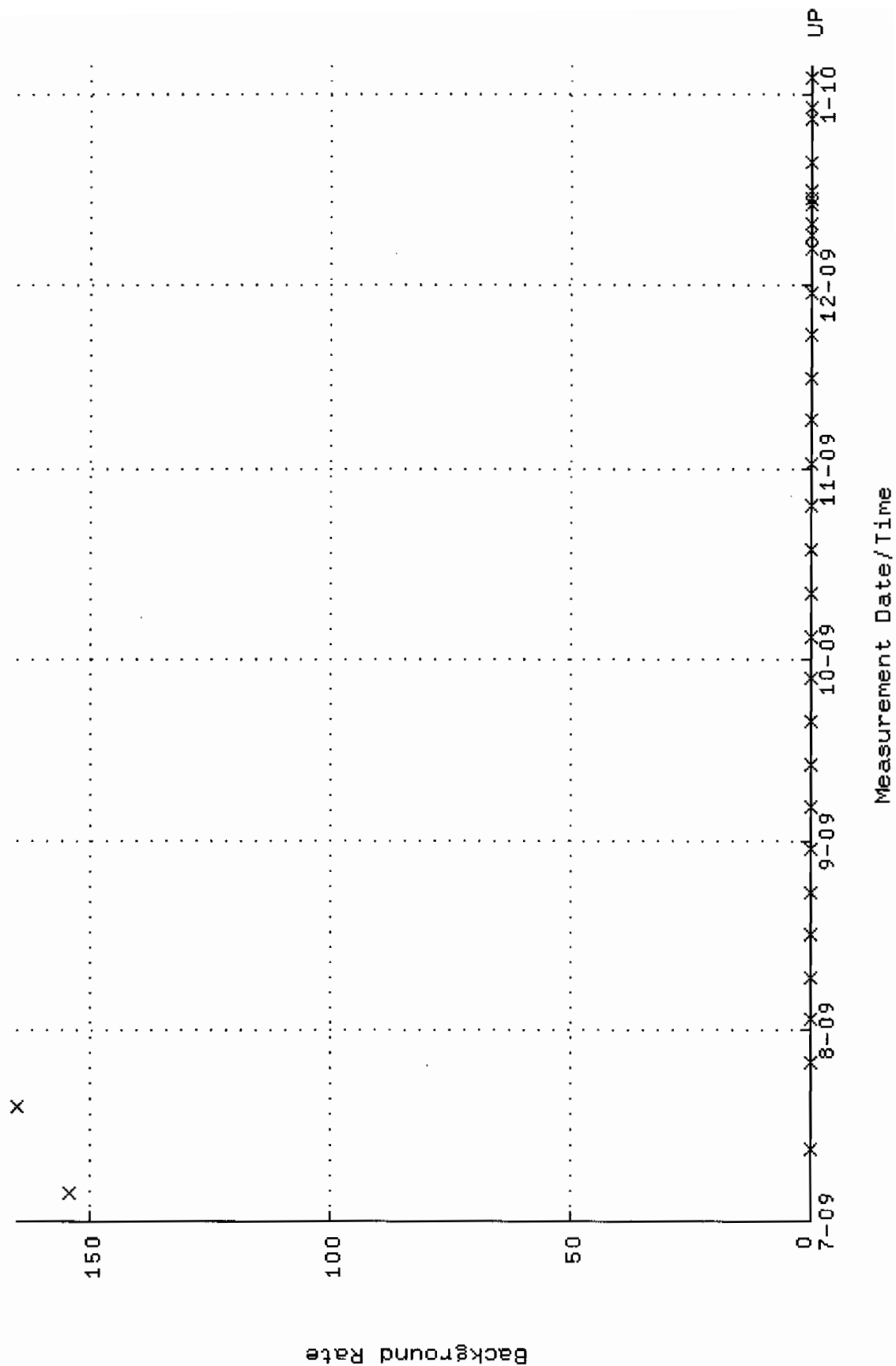
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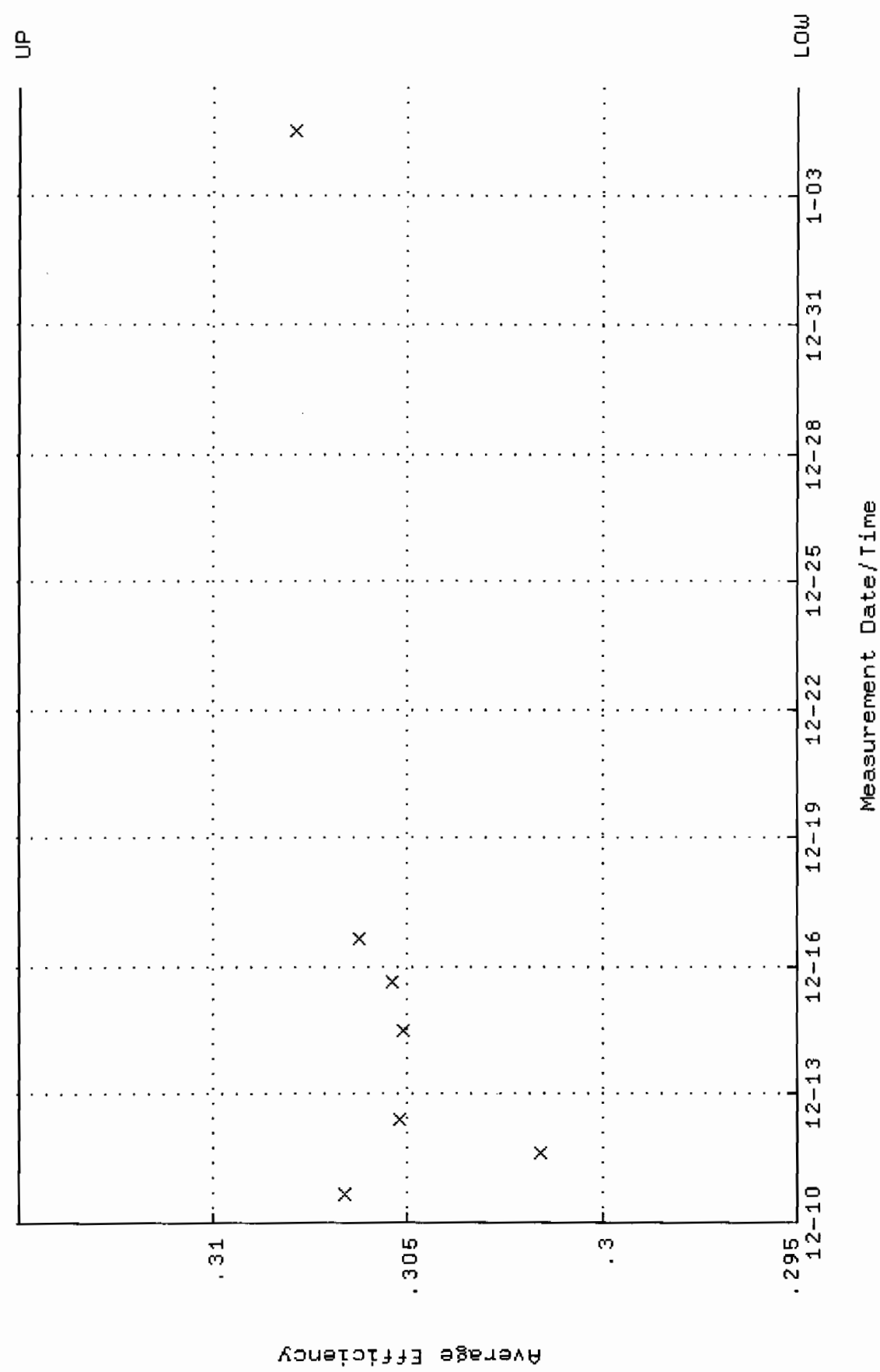
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 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
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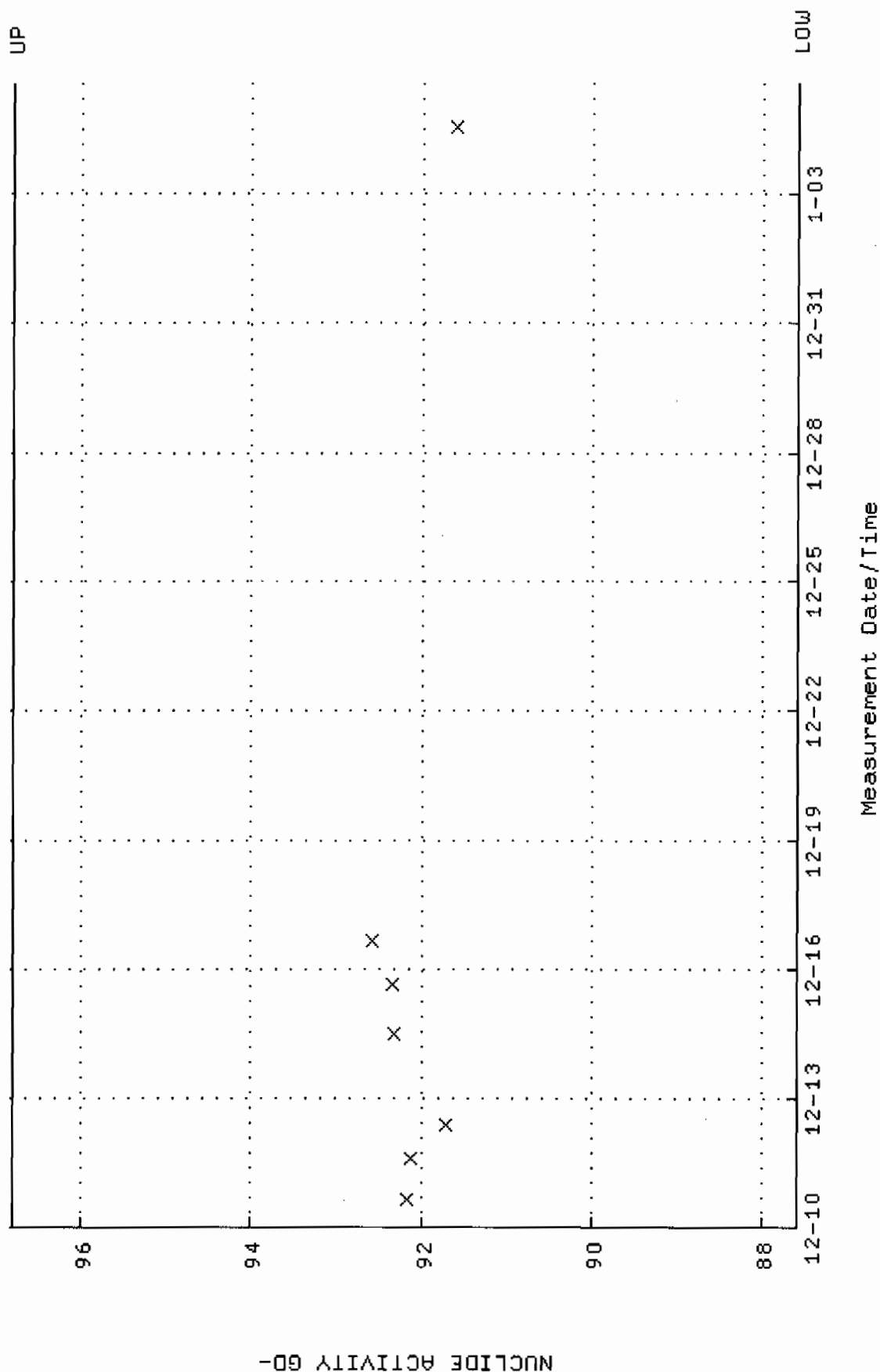
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 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



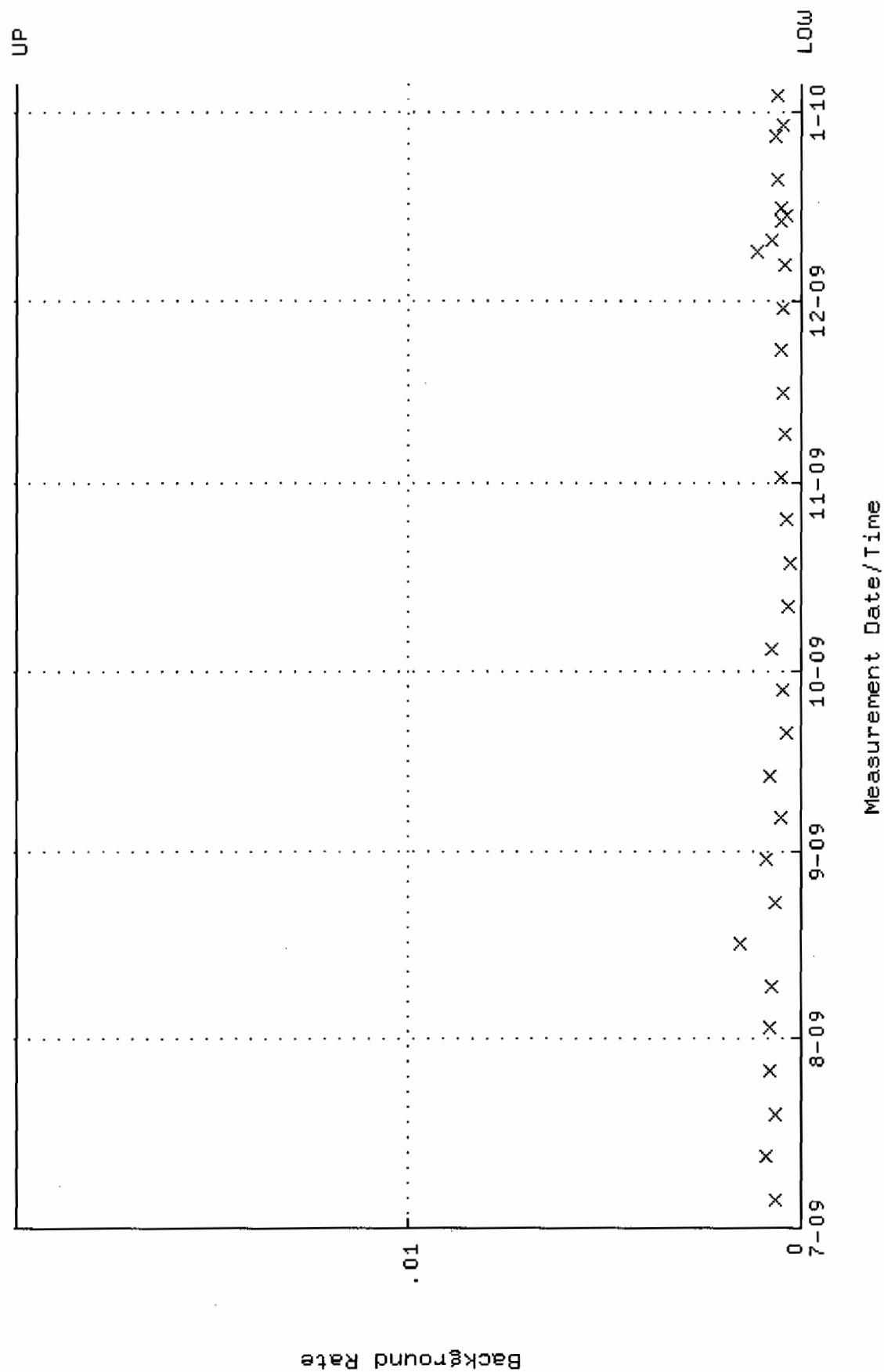
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 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 10-DEC-2009 15:29:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.294995 through 0.314995



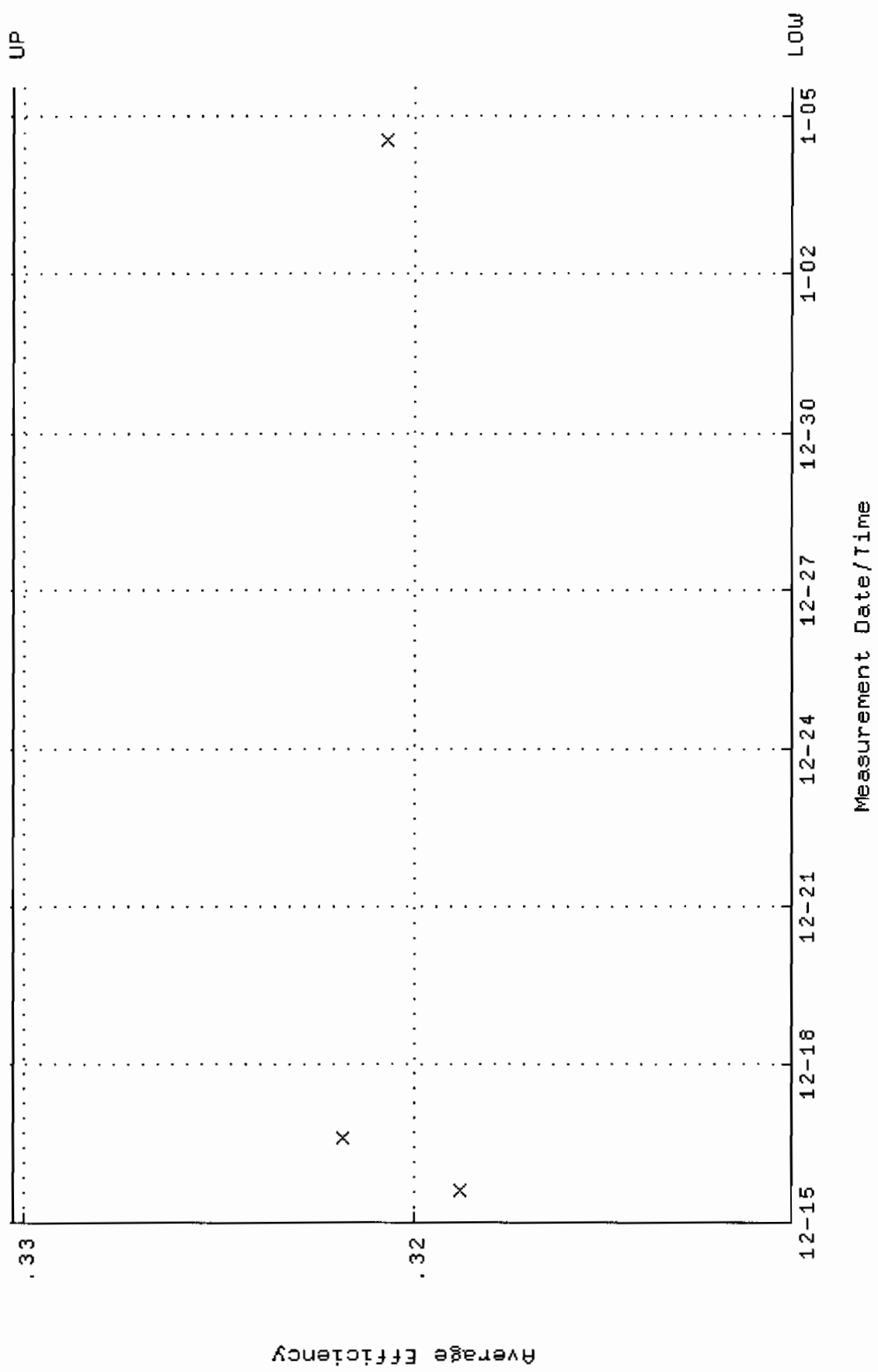
QA filename : DKA100:[ENV-ALPHA.QA.W]W004.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 10-DEC-2009 15:29:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.5863 through 96.8059



QA filename : DKA100:[ENV-ALPHA.QA.B]B004.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

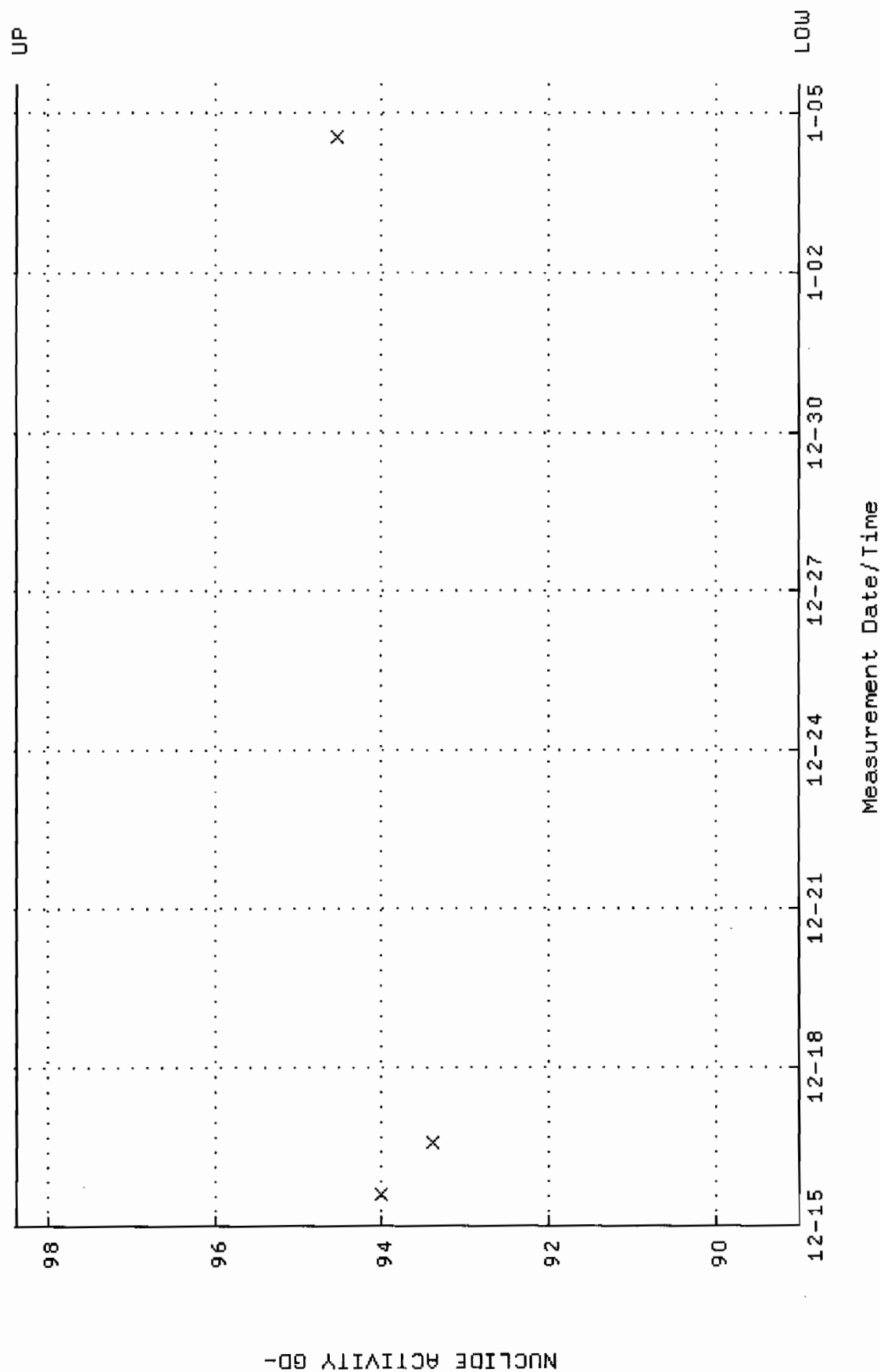


QA filename : DKA100:[ENV\_ALPHA.QA.W]W005.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.310305 through 0.330305

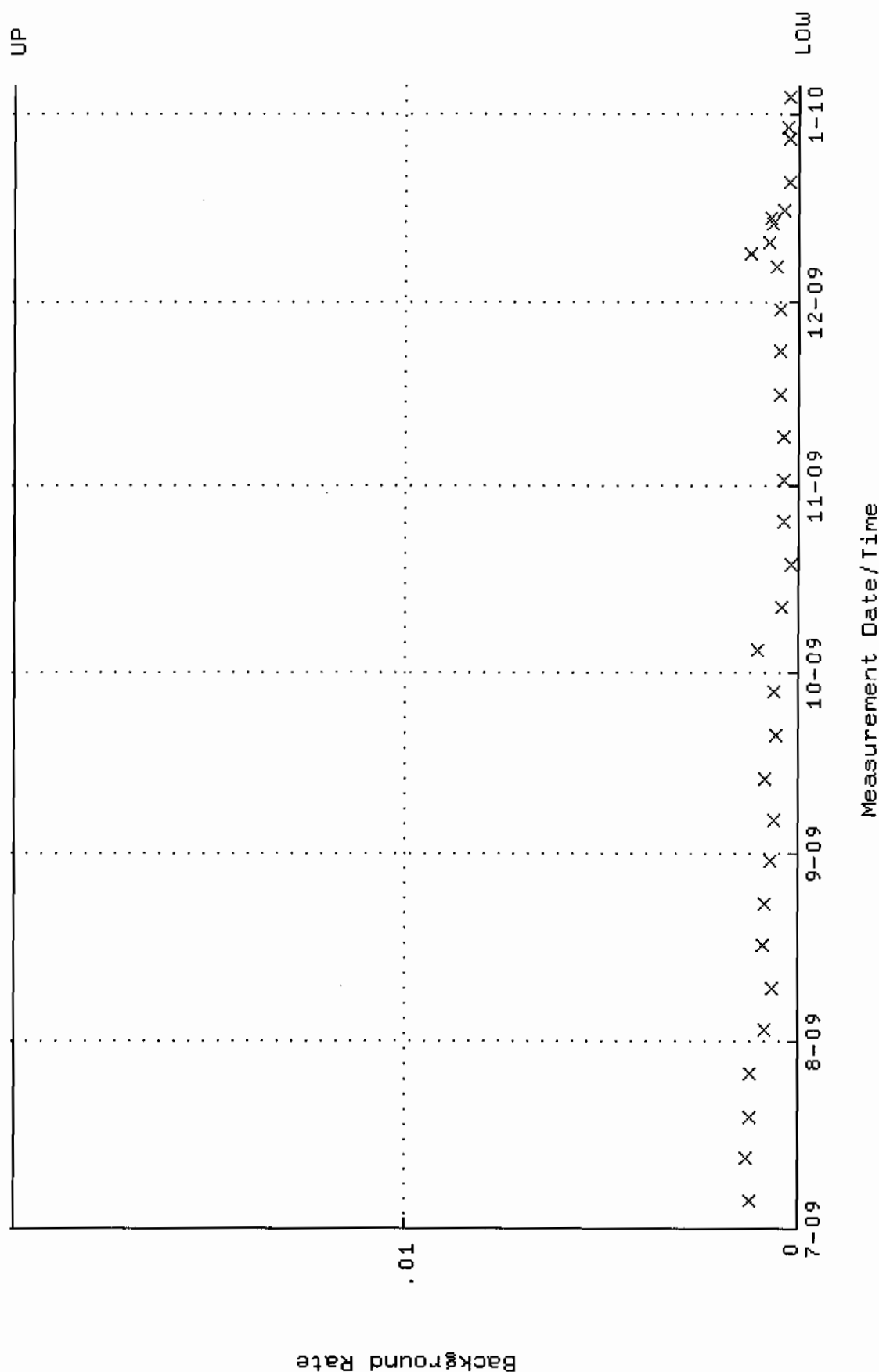




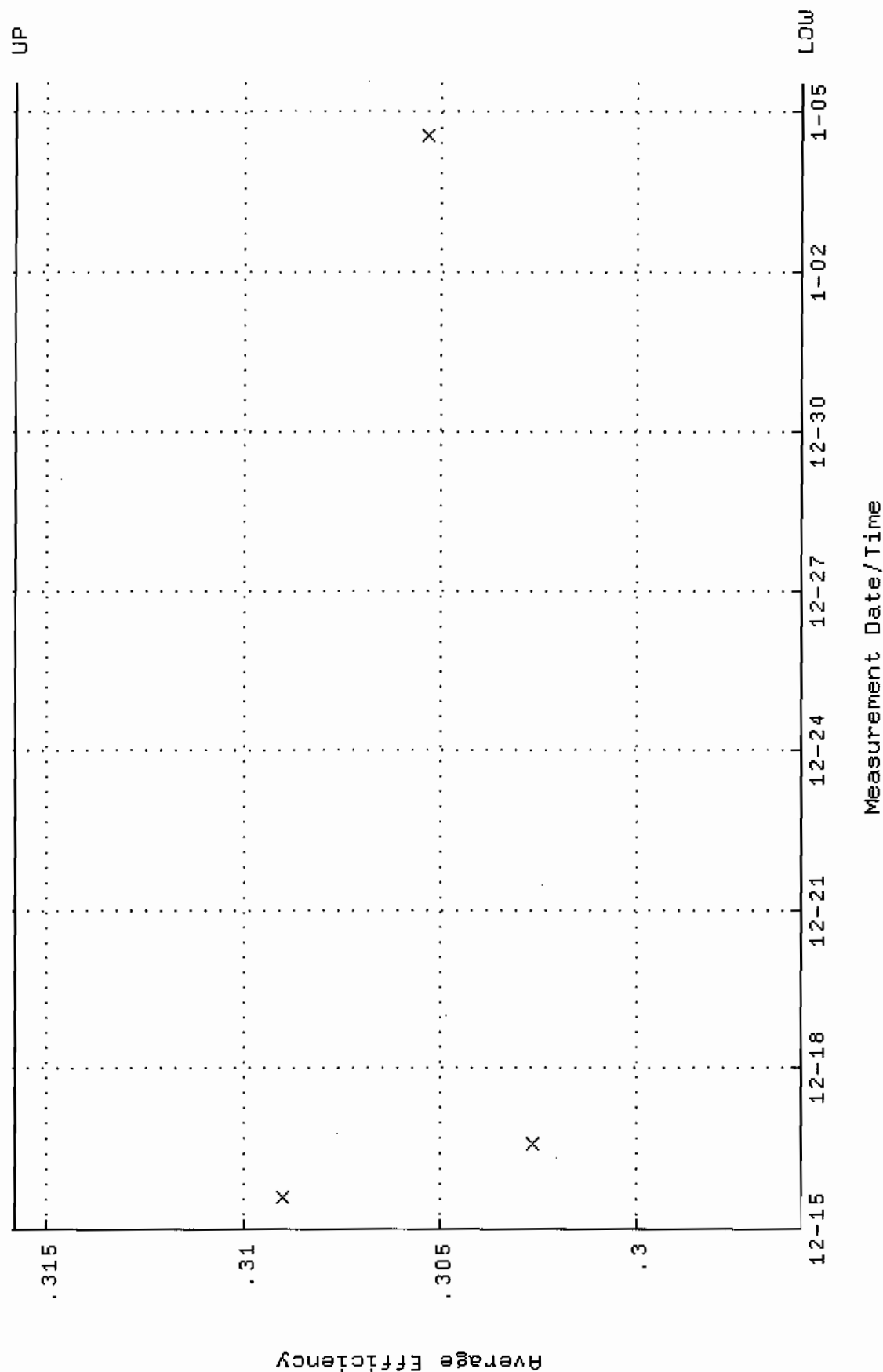
QA filename : DKA100:[ENV\_ALPHA.QA.W]w005.QAF;6  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 89.0042 through 98.3730



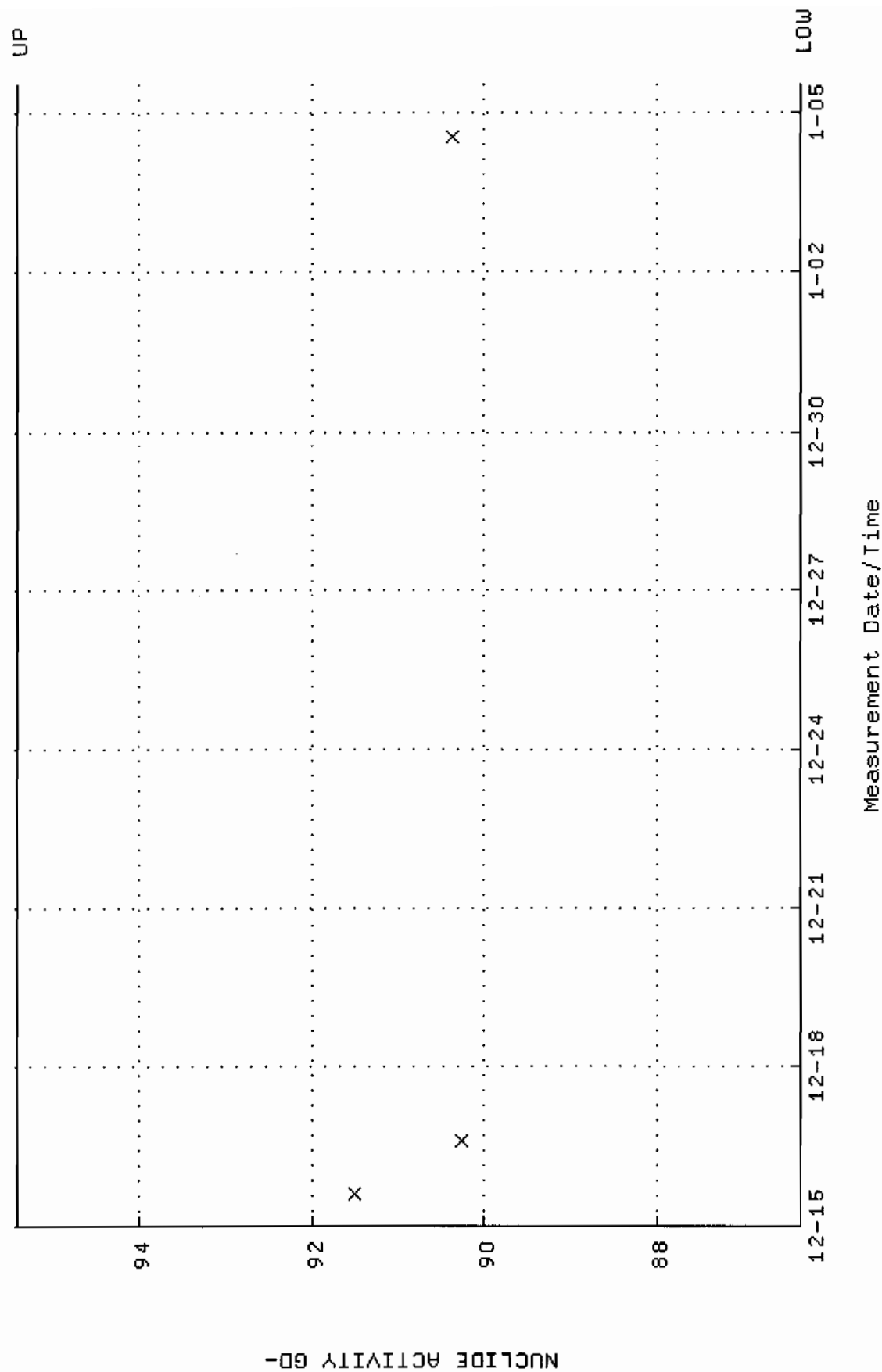
QA filename : DKA100:[ENV\_ALPHA.QA.B]B005.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



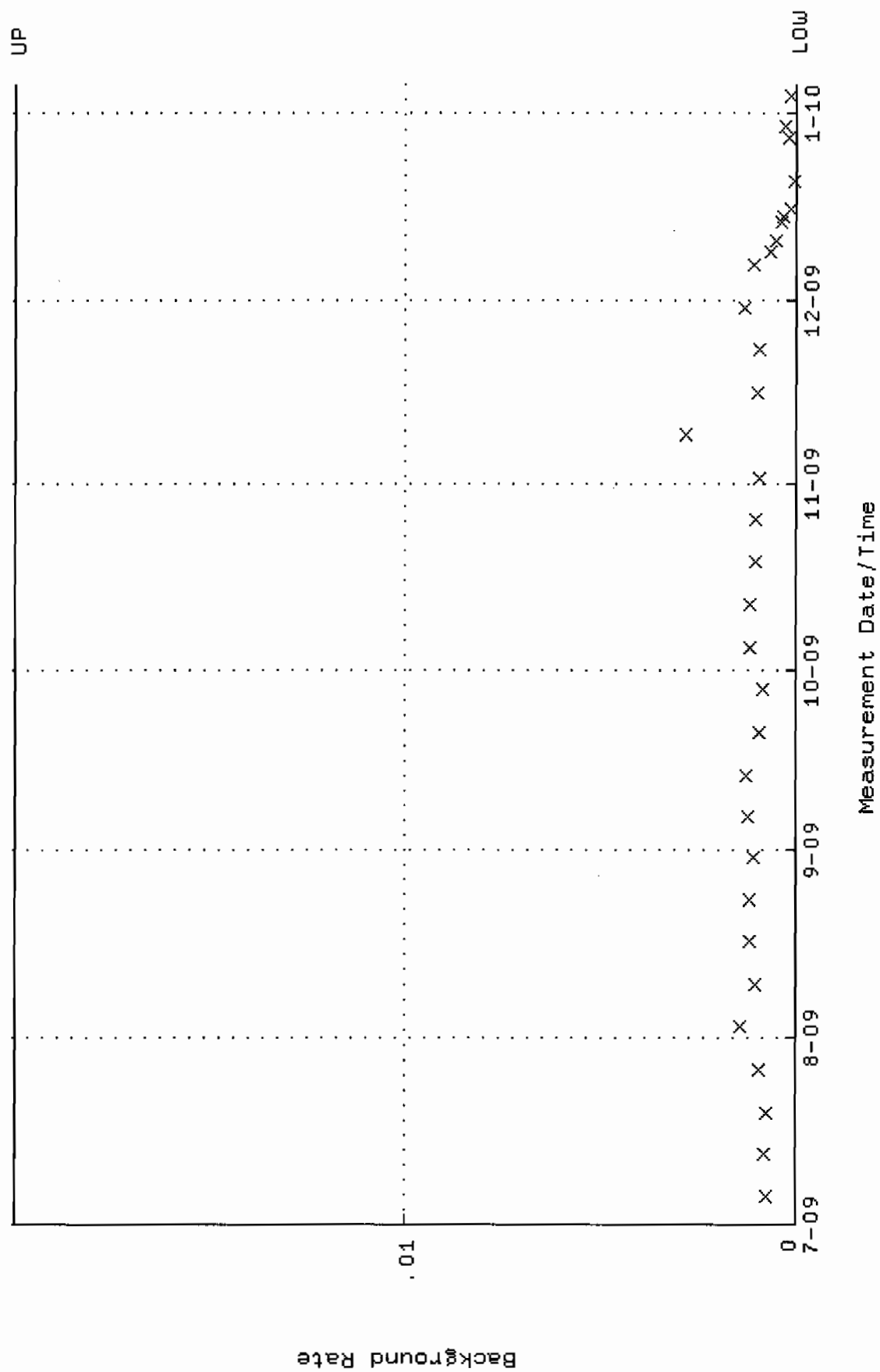
QA filename : DKA100:[ENV\_ALPHA.QA.W]W006.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.295821 through 0.315821



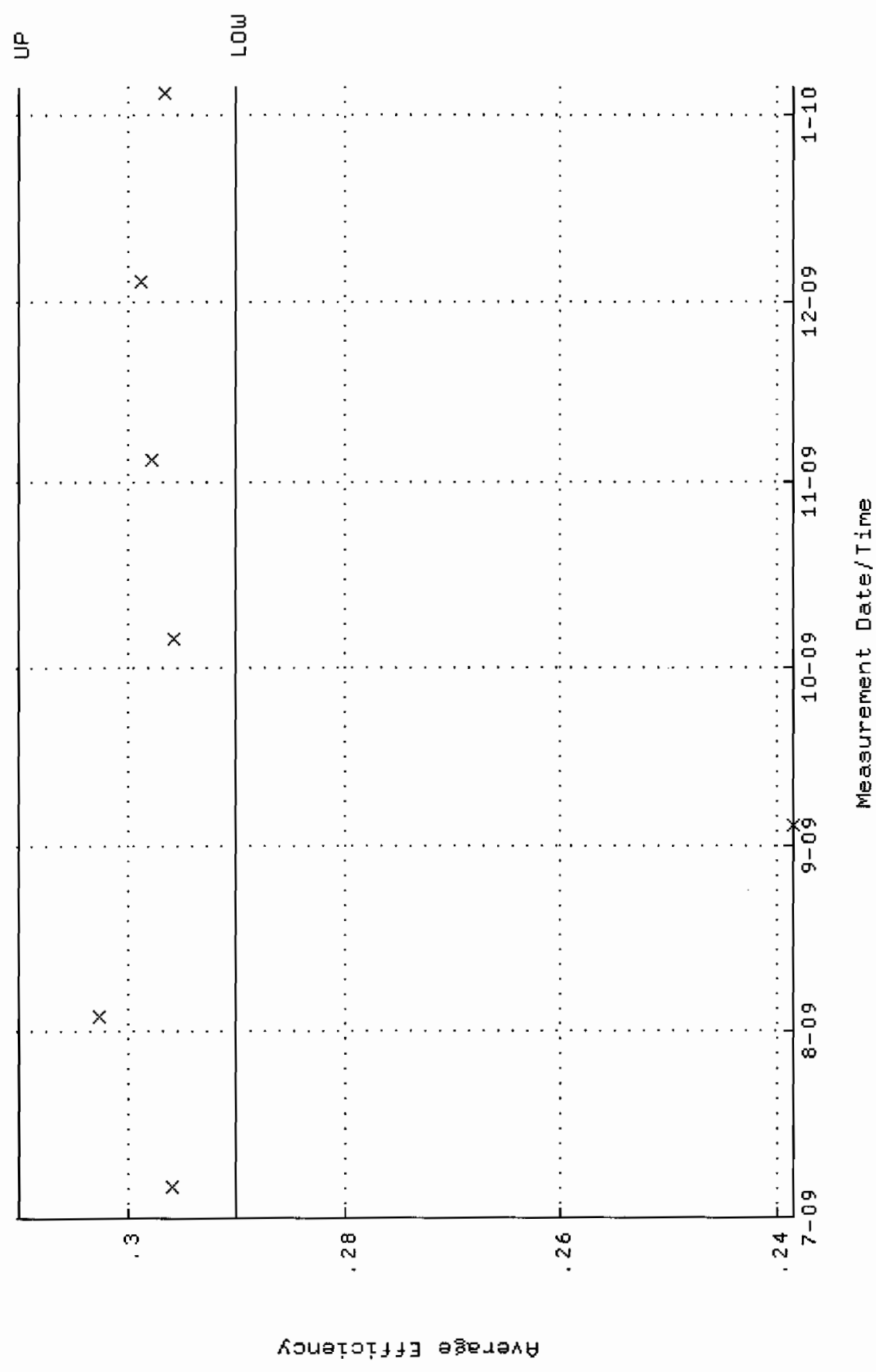
QA filename : DKA100:[ENV\_ALPHA.QA.W]W006.QAF;6  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 14:48:34 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.3237 through 95.4105



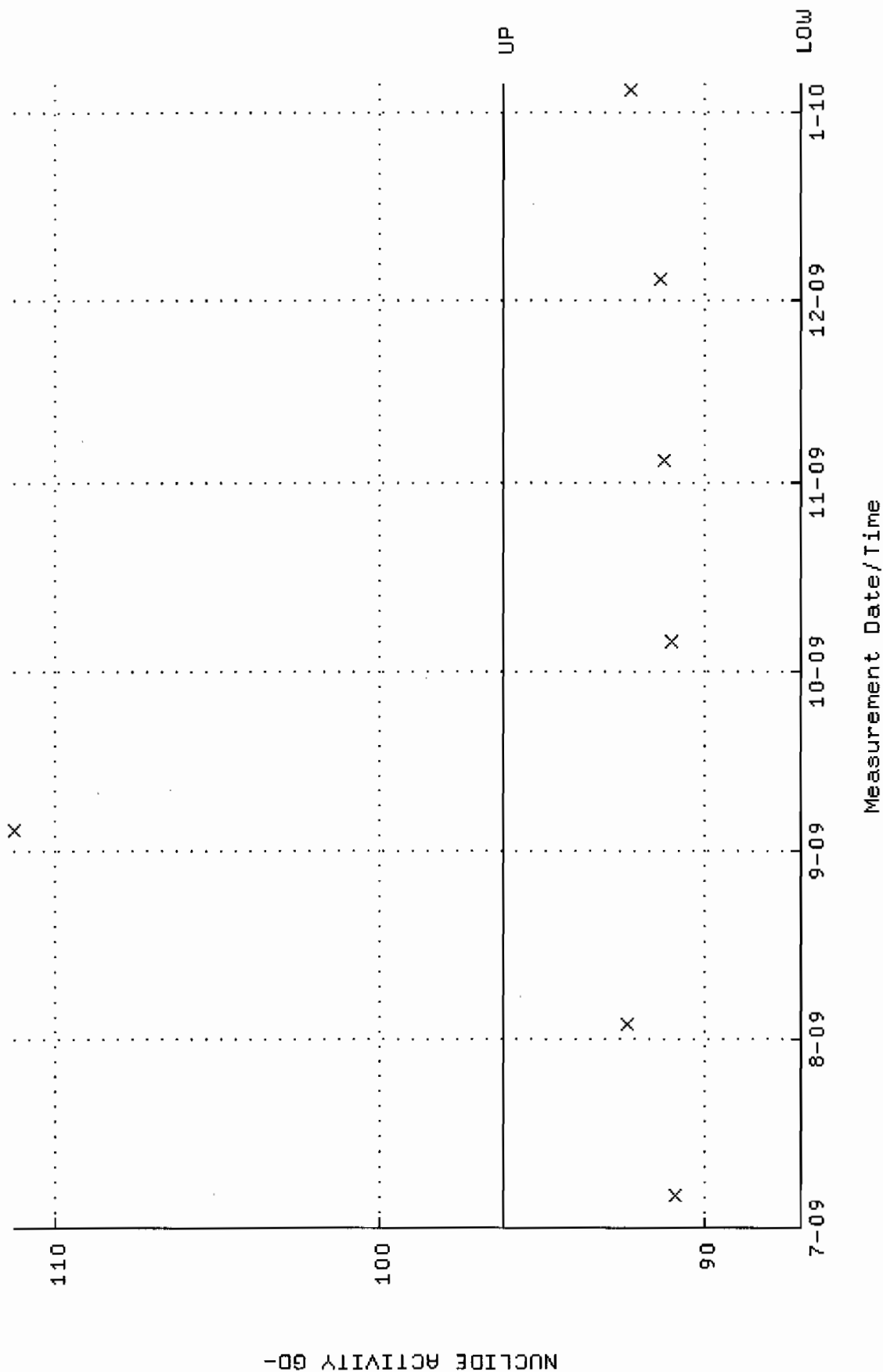
QA filename : DKA100:[ENV\_ALPHA.QA.B]B006.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:54 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



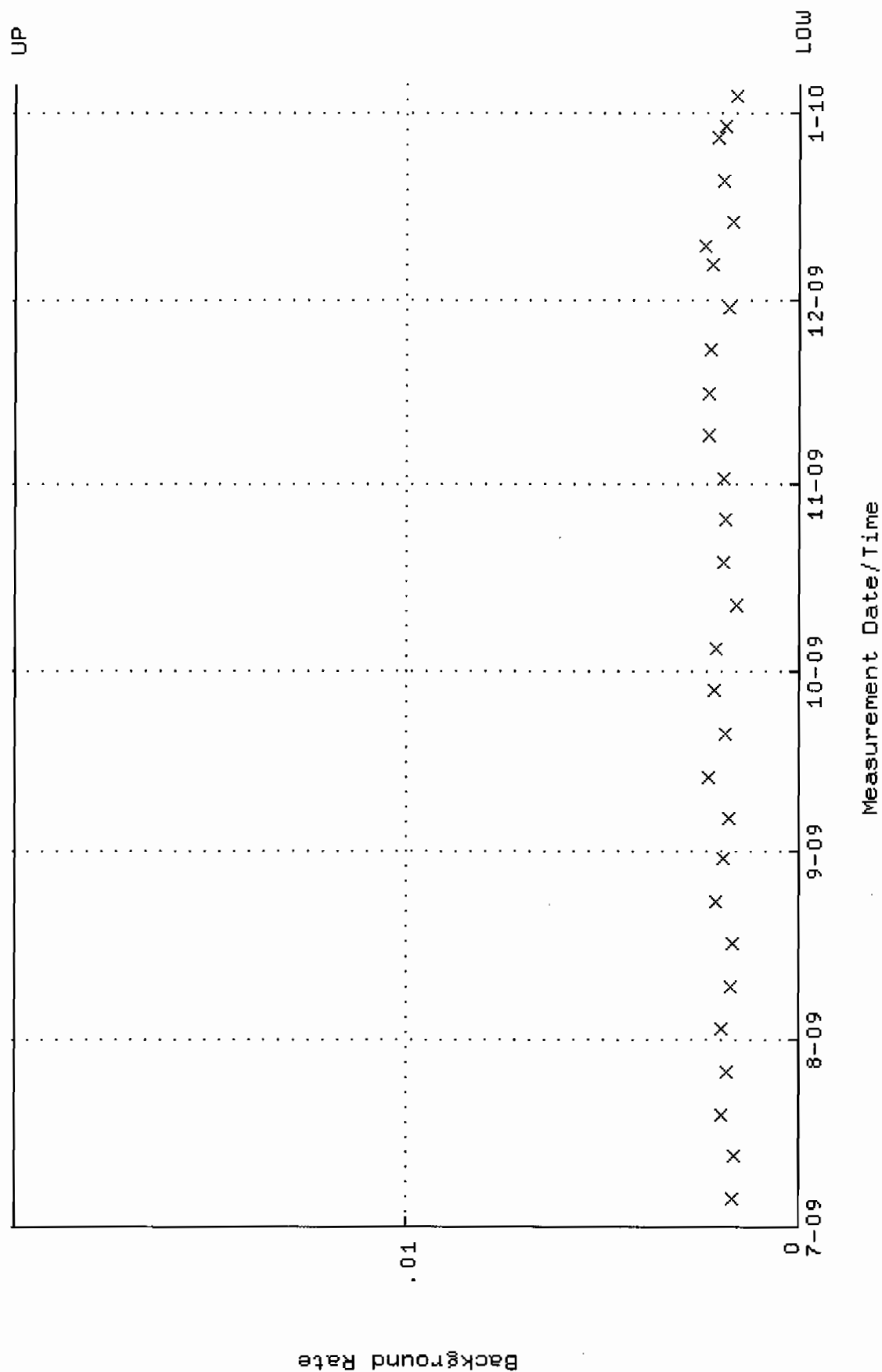
QA filename : DKA100:[ENV\_ALPHA.QA.W]W007.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.290108 through 0.310108



QA filename : DKA100:[ENV\_ALPHA.QA.W]W007.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.0687 through 96.2339

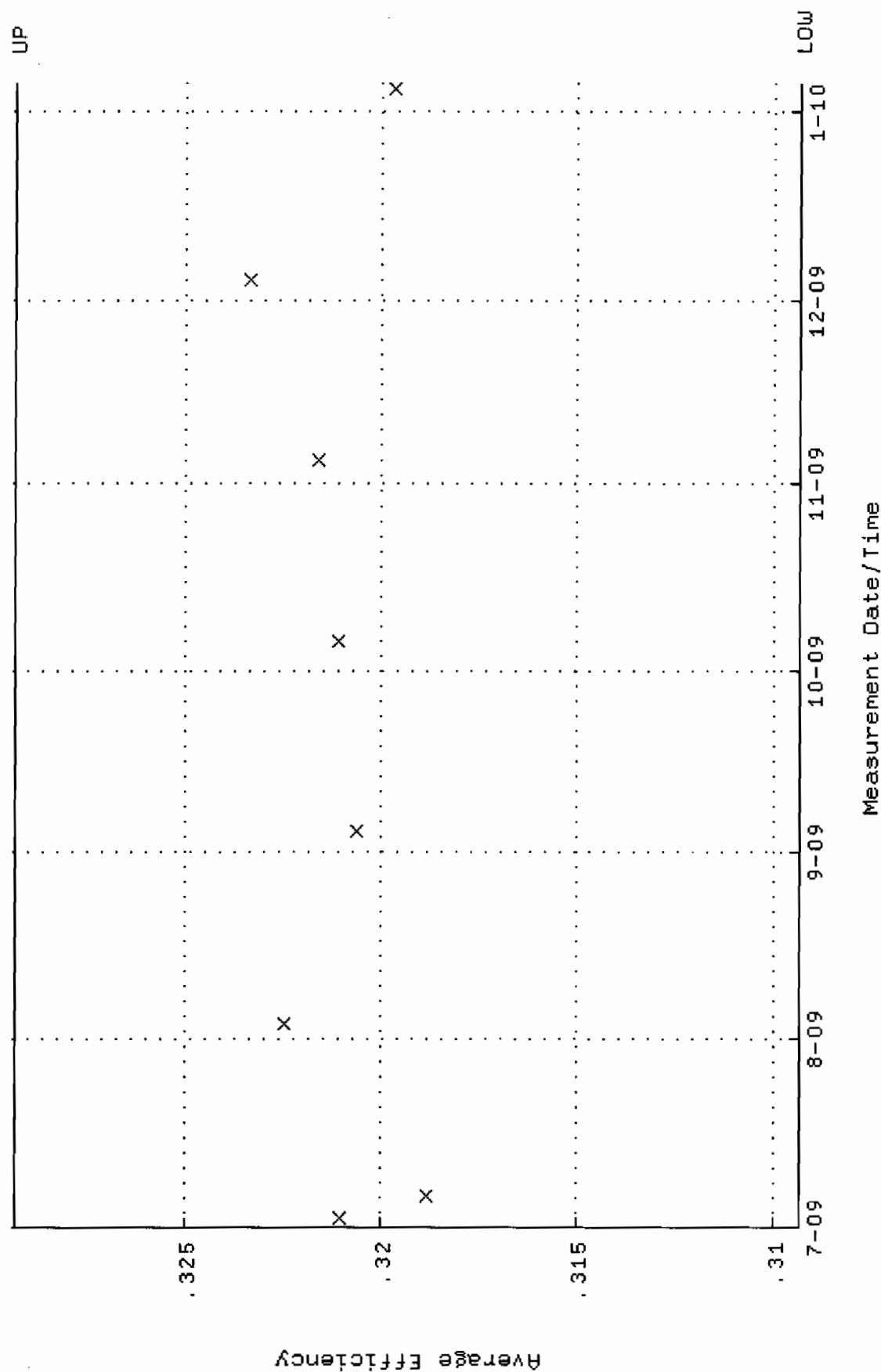


QA filename : DKA100:[ENV\_ALPHA.QA.B]B007.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:55 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

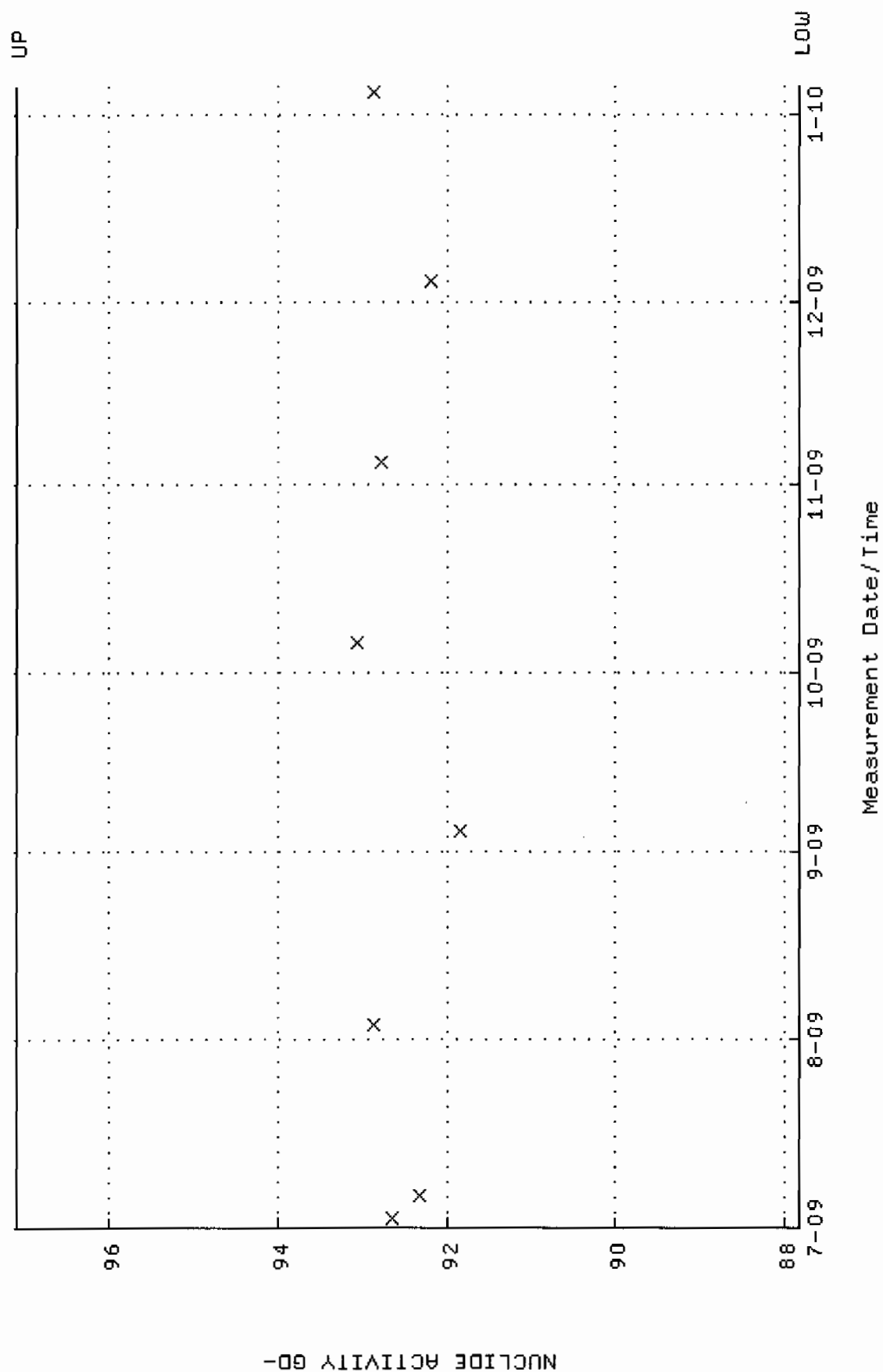




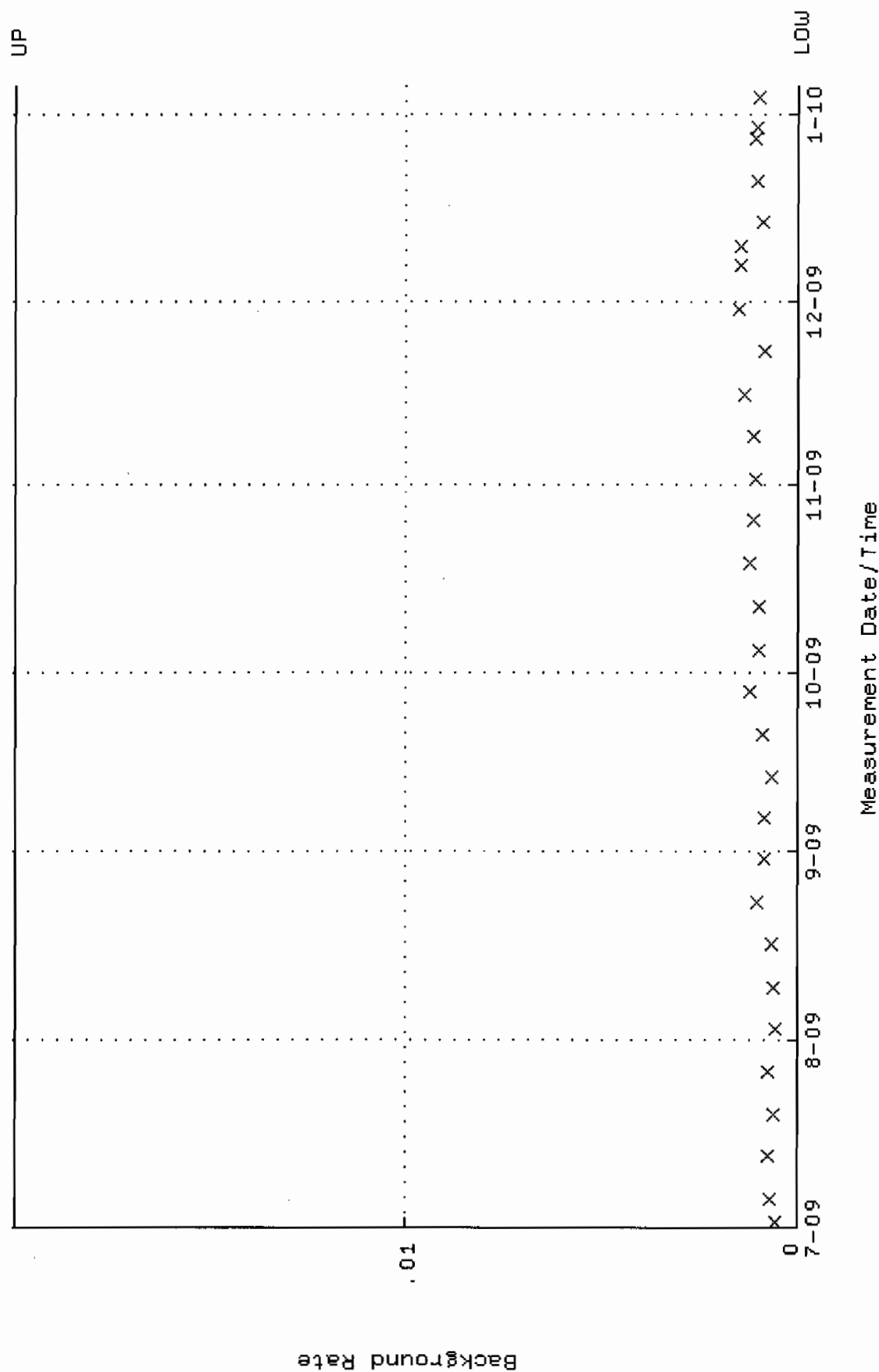
QA filename : DKA100:[ENV\_ALPHA.QA.W]W008.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUL-2009 15:04:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.309318 through 0.329318



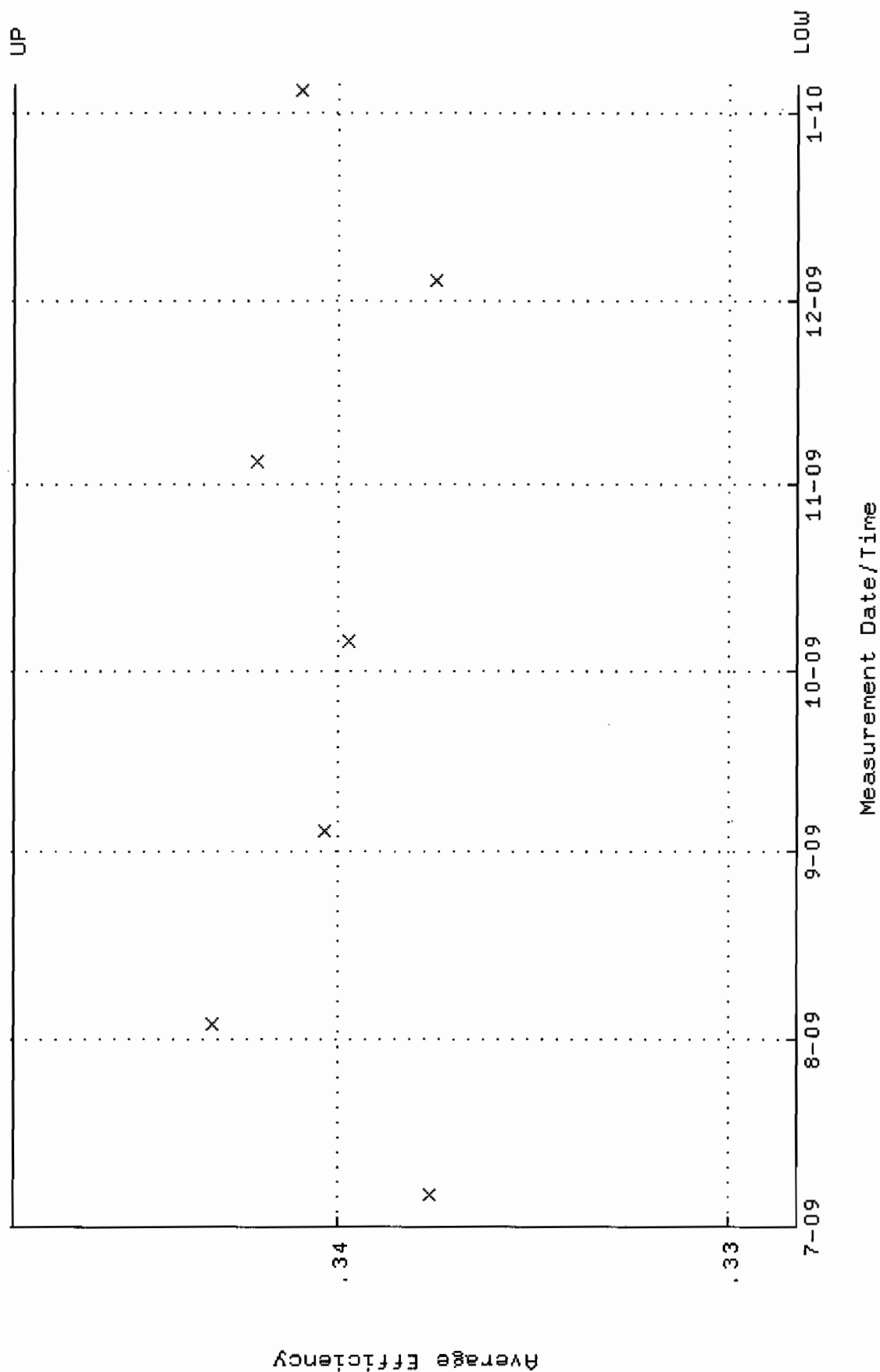
QA filename : DKA100:[ENV\_ALPHA.QA.W]W008.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUL-2009 15:04:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.8346 through 97.0804



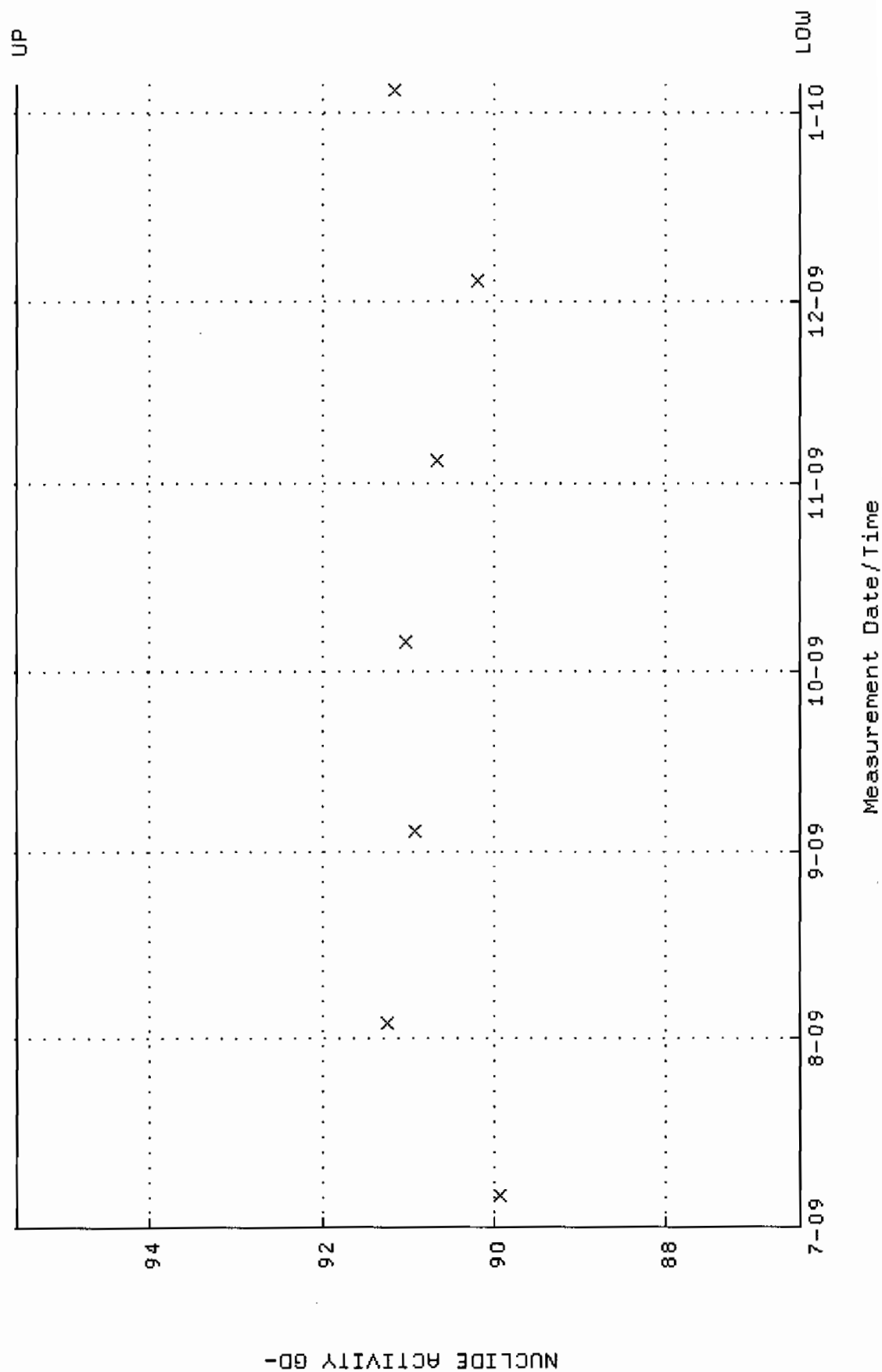
QA filename : DKA100:[ENV\_ALPHA.QA.B]B008.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUL-2009 21:39:55 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



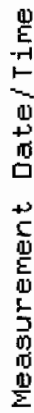
QA filename : DKA100:[ENV\_ALPHA.QA.W]W009.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.328261 through 0.348261



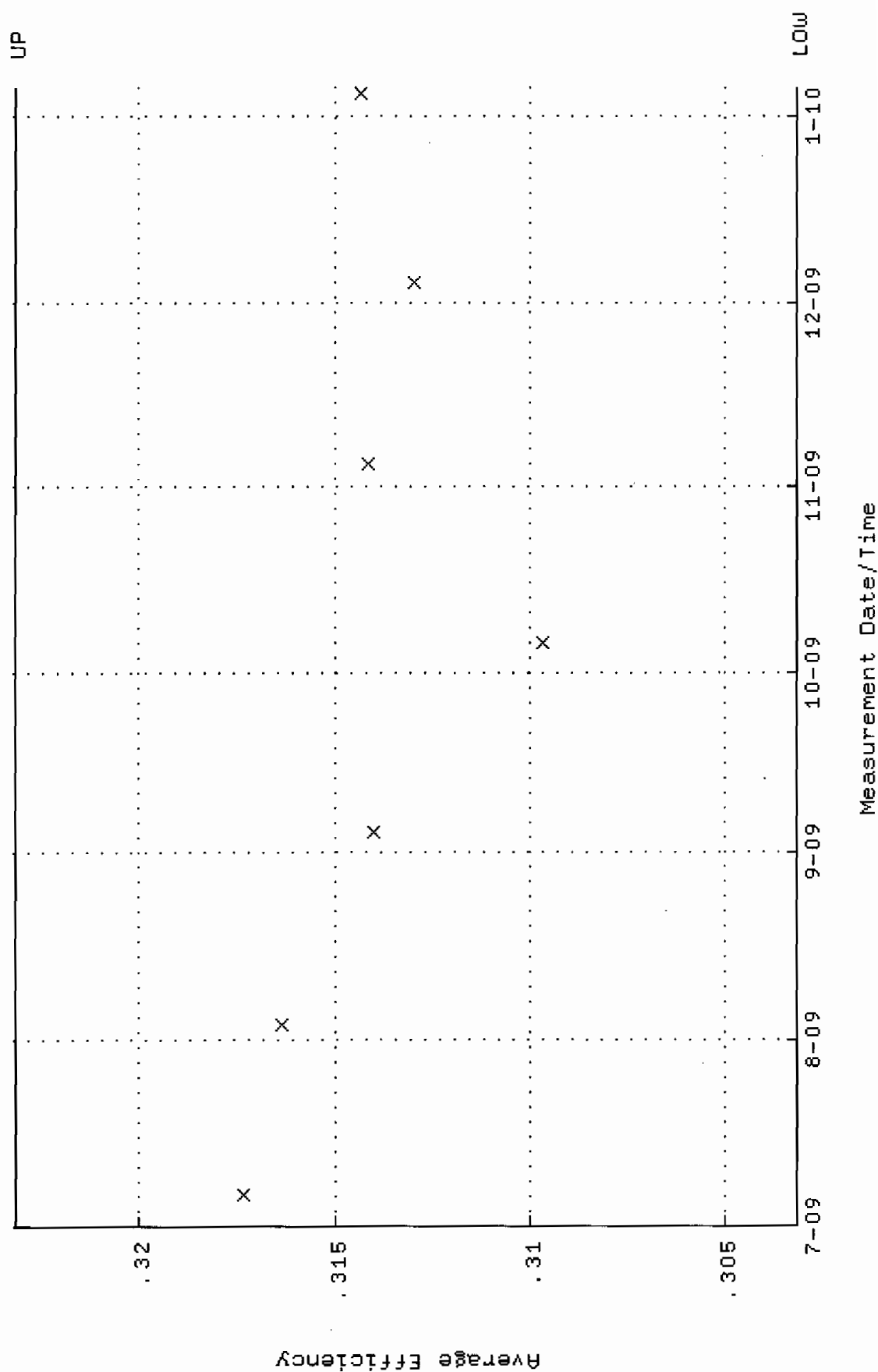
QA filename : DKA100:[ENV\_ALPHA.QA.W]W009.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.4475 through 95.5473



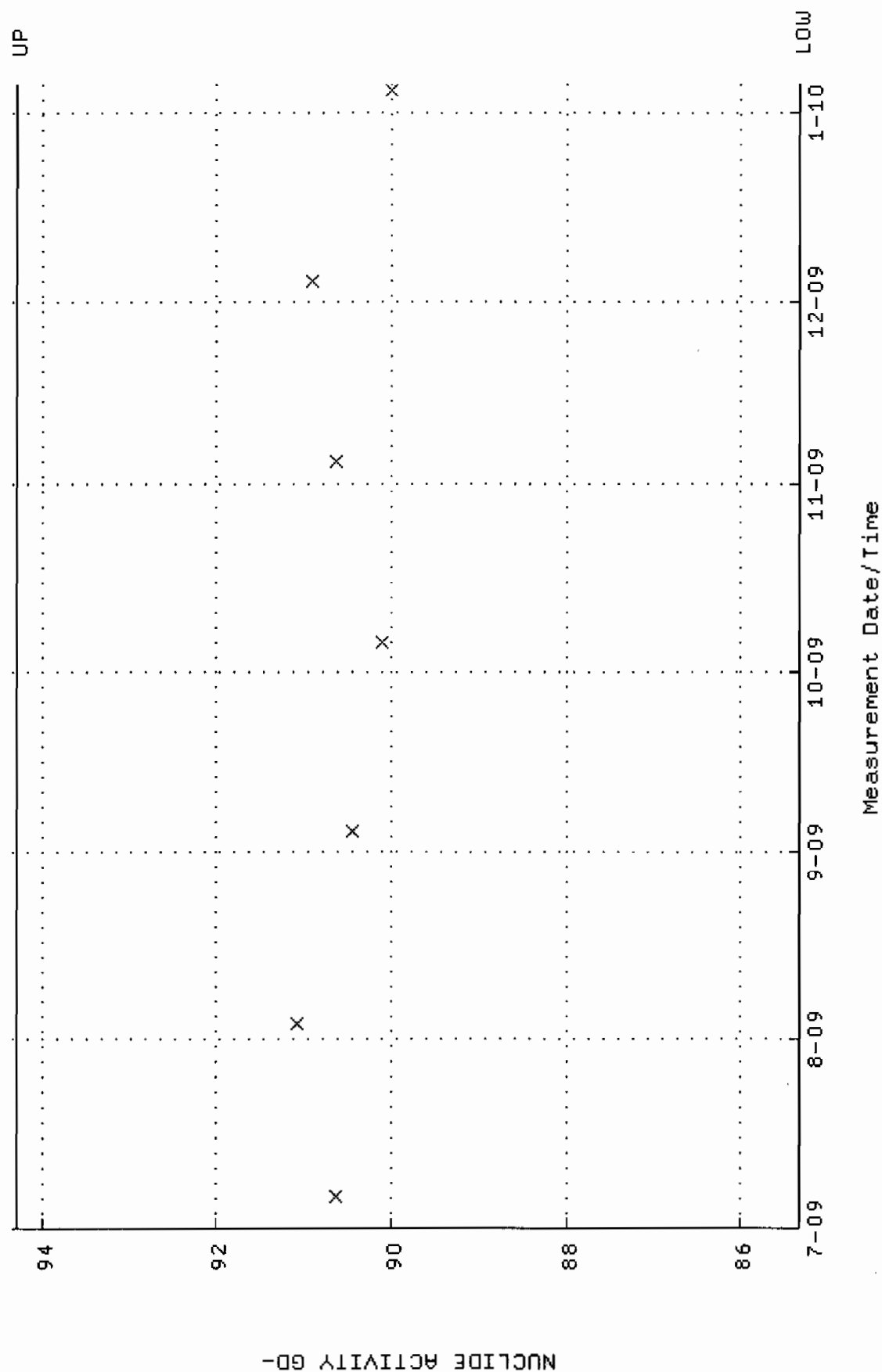
Lower / Upper limits: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV-ALPHA.QA.W]W010.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.303169 through 0.323169



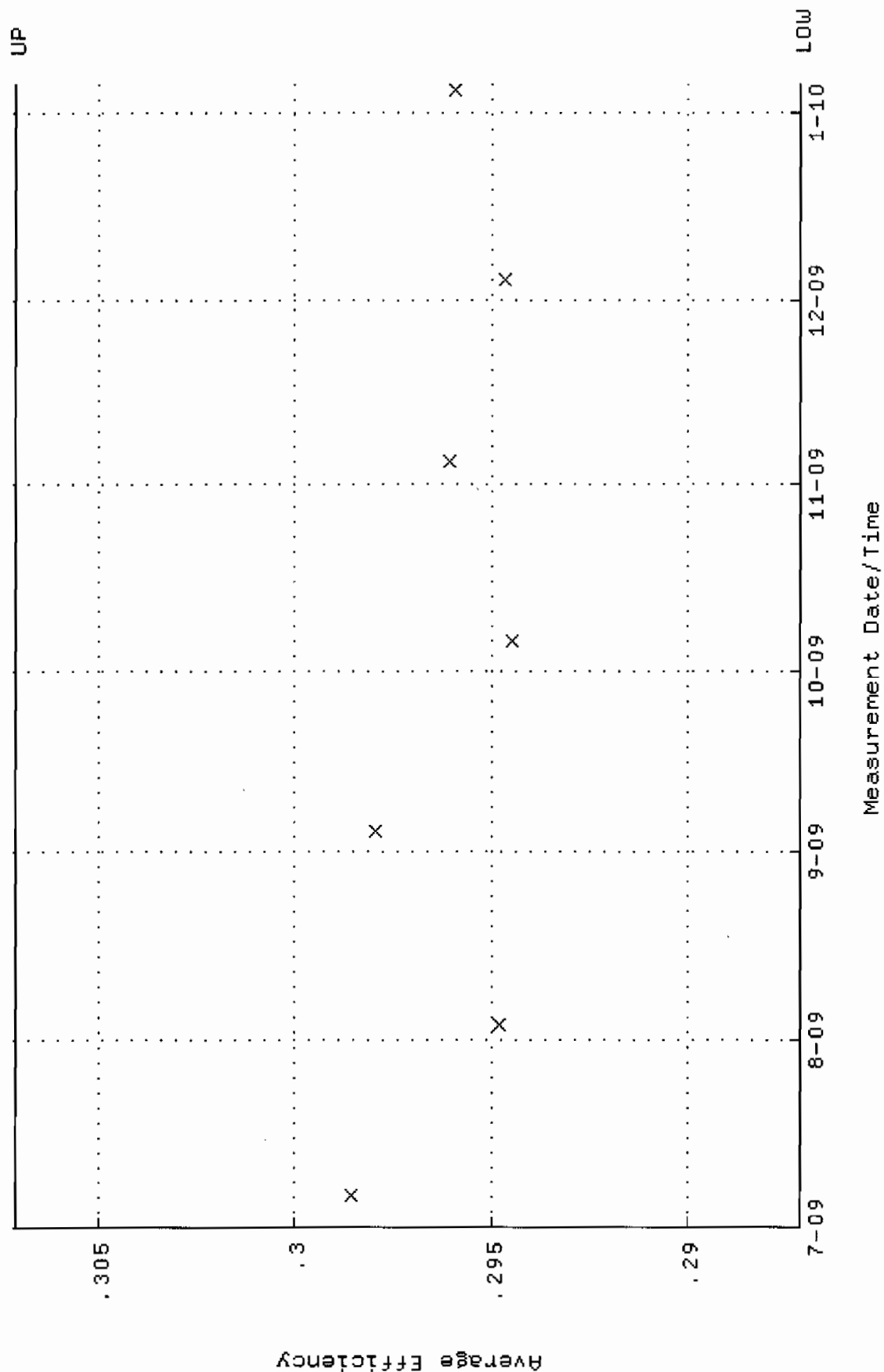
QA filename : DKA100:[ENV\_ALPHA.QA.W]W010.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.3273 through 94.3091



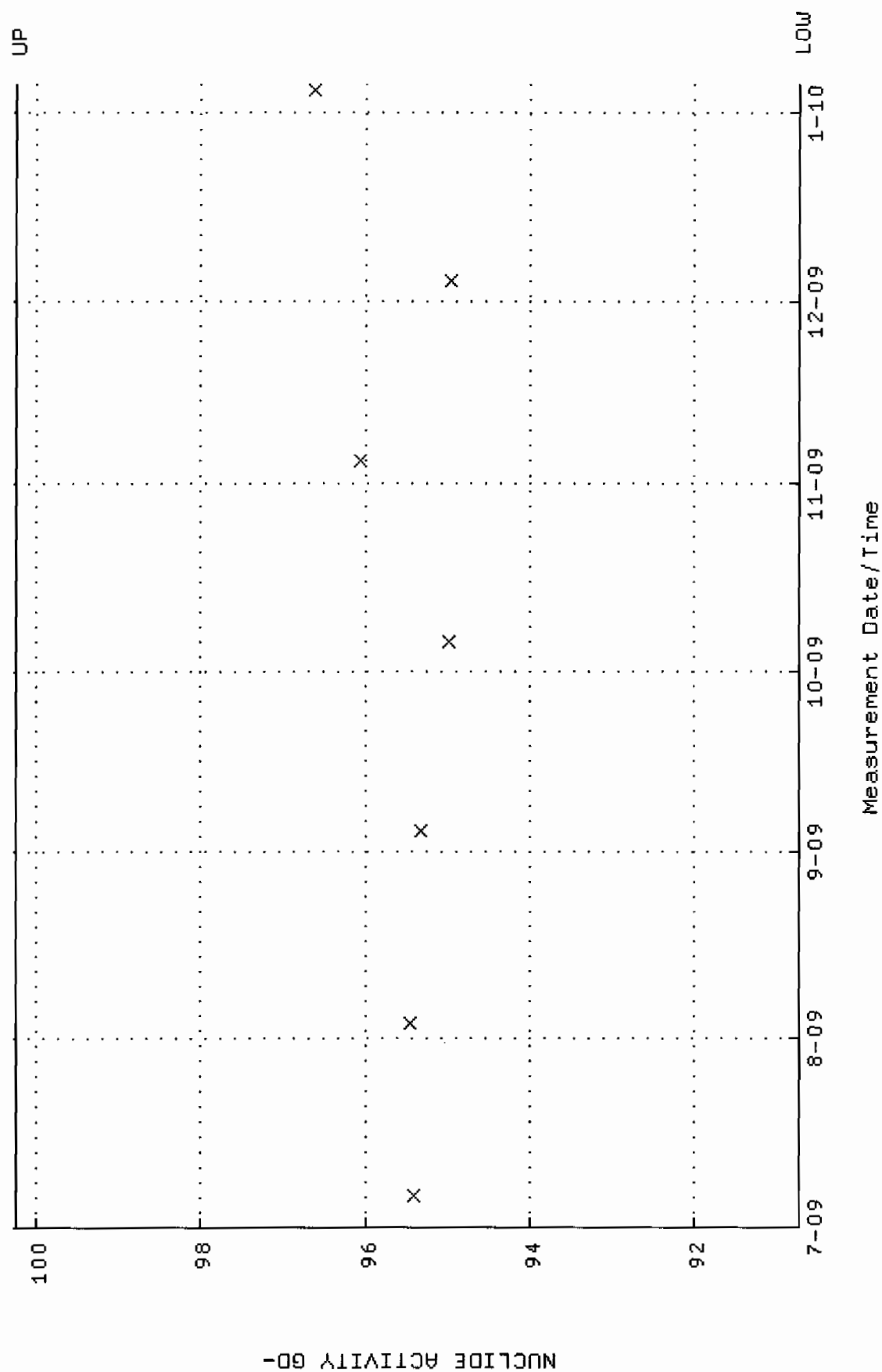




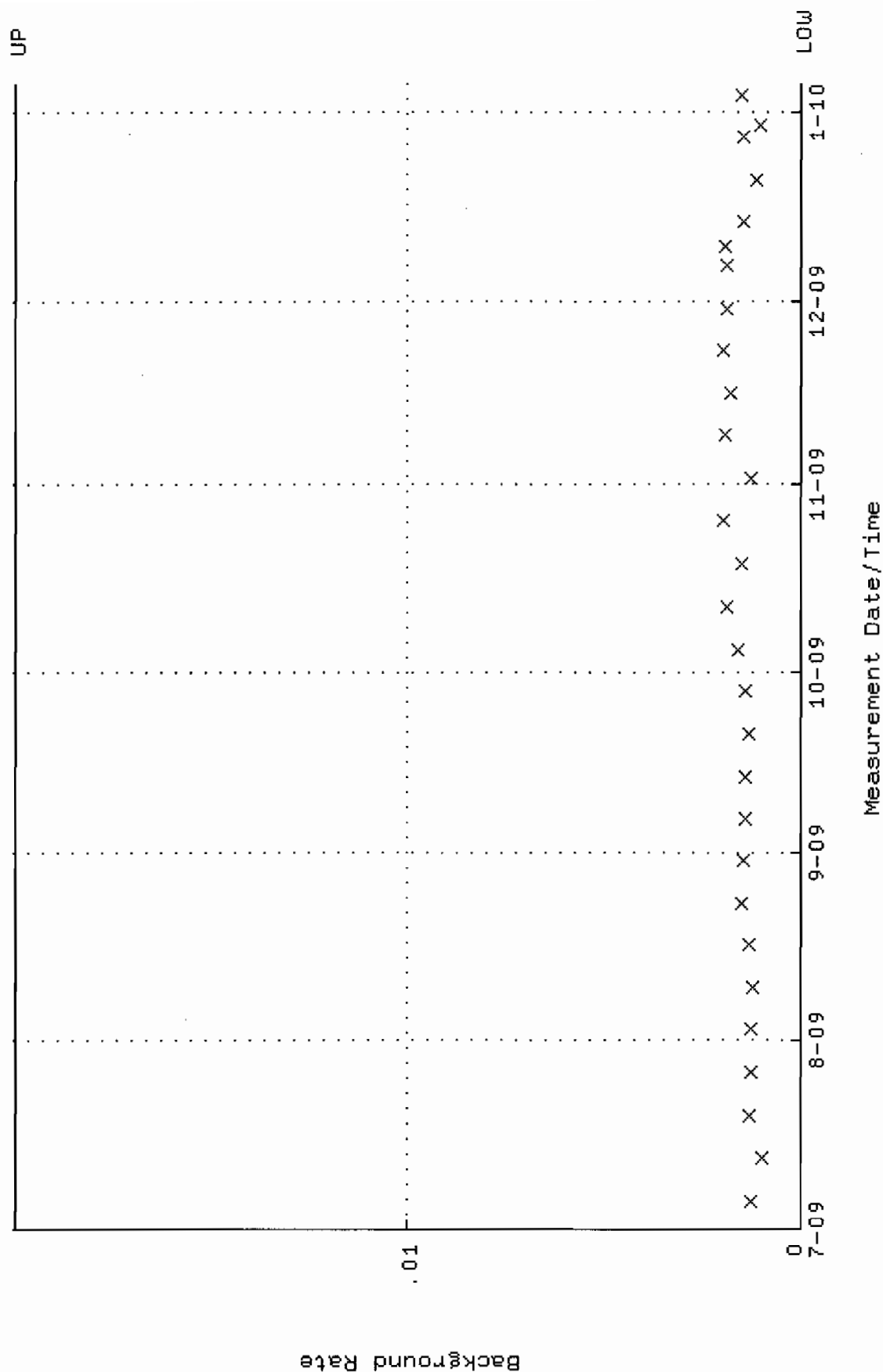
QA filename : DKA100:[ENV\_ALPHA.QA.W]W011.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.287129 through 0.307129



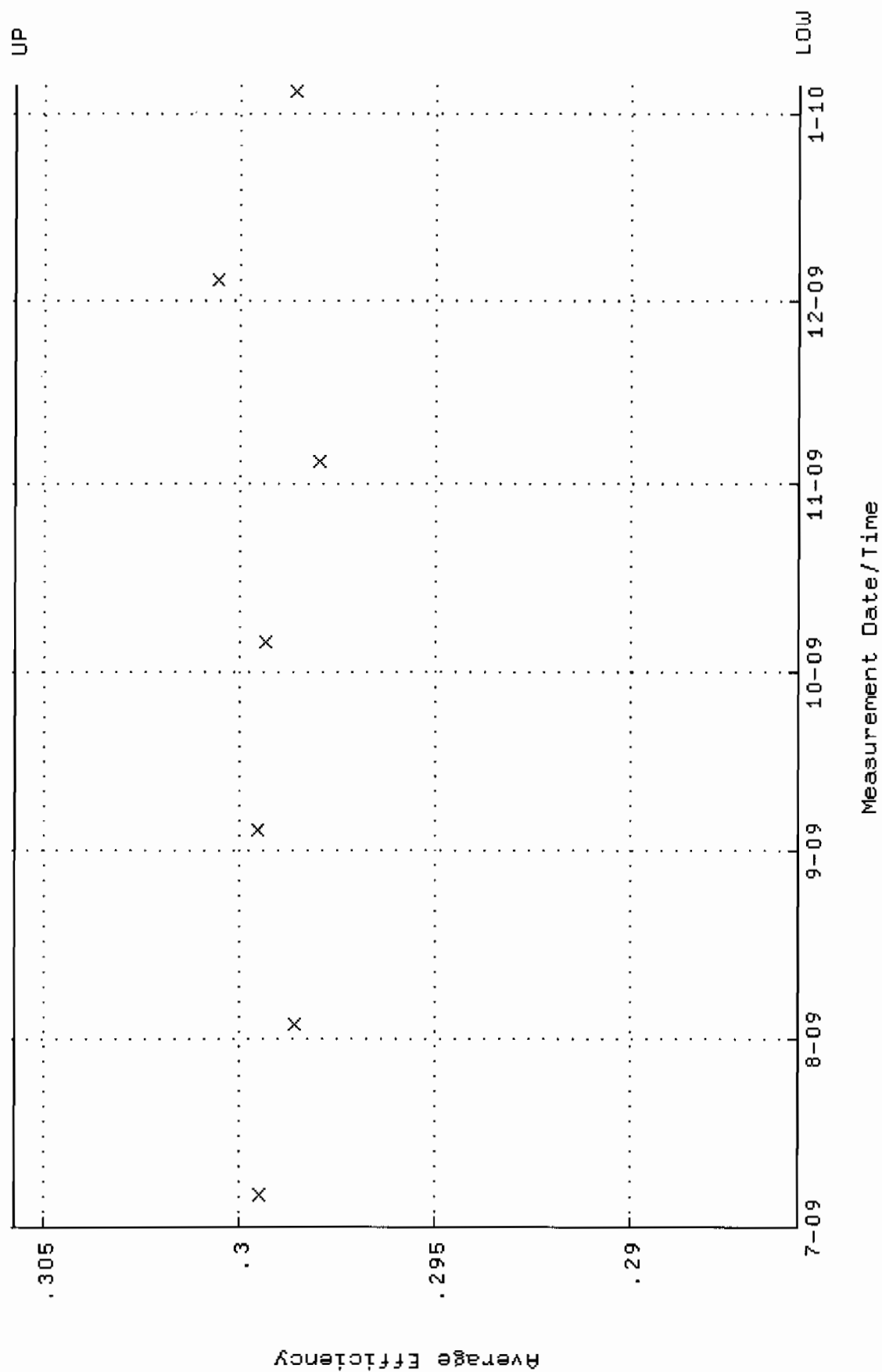
QA filename : DKA100:[ENV\_ALPHA.QA.W]W011.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.7092 through 100.258



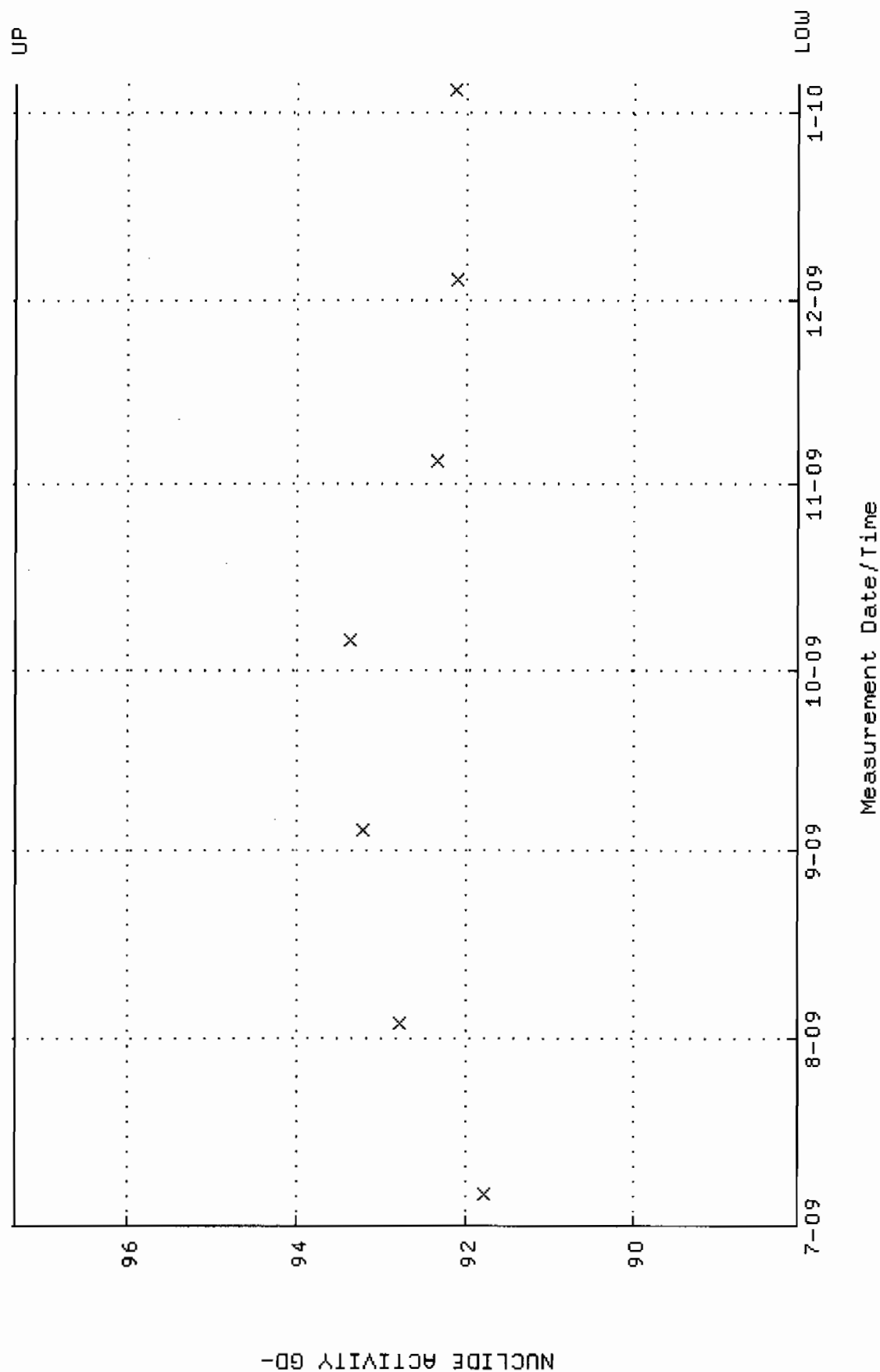
QA filename : DKA100:[ENV\_ALPHA.QA.B]B011.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:55 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



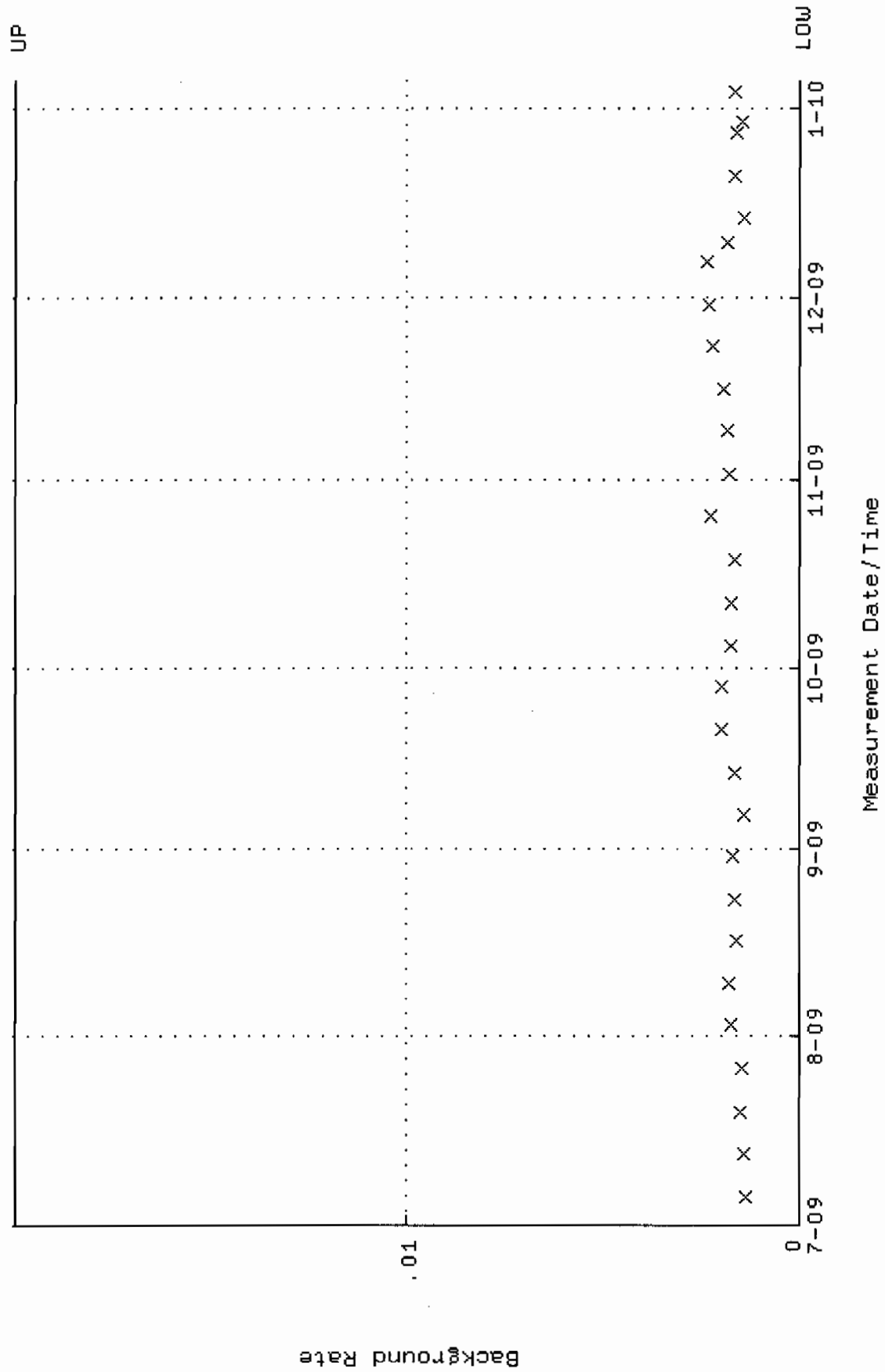
QA filename : DKA100:[ENV\_ALPHA.QA.W]W012.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.285730 through 0.305730



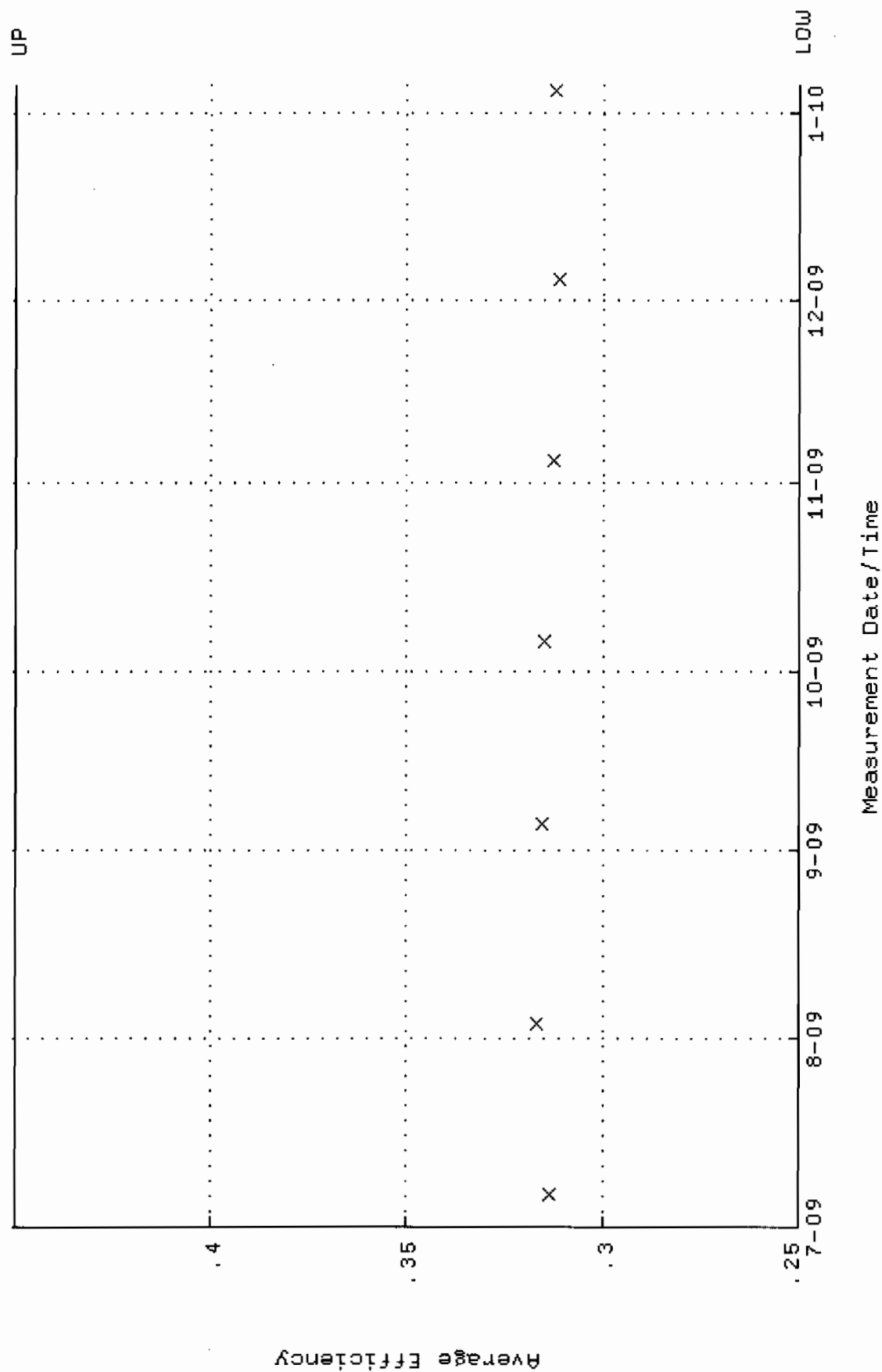
QA filename : DKA100:[ENV\_ALPHA.QA.W]w012.QAF;4  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:11 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 88.0678 through 97.3382



QA filename : DKA100:[ENV\_ALPHA.QA.B]B012.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:55 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

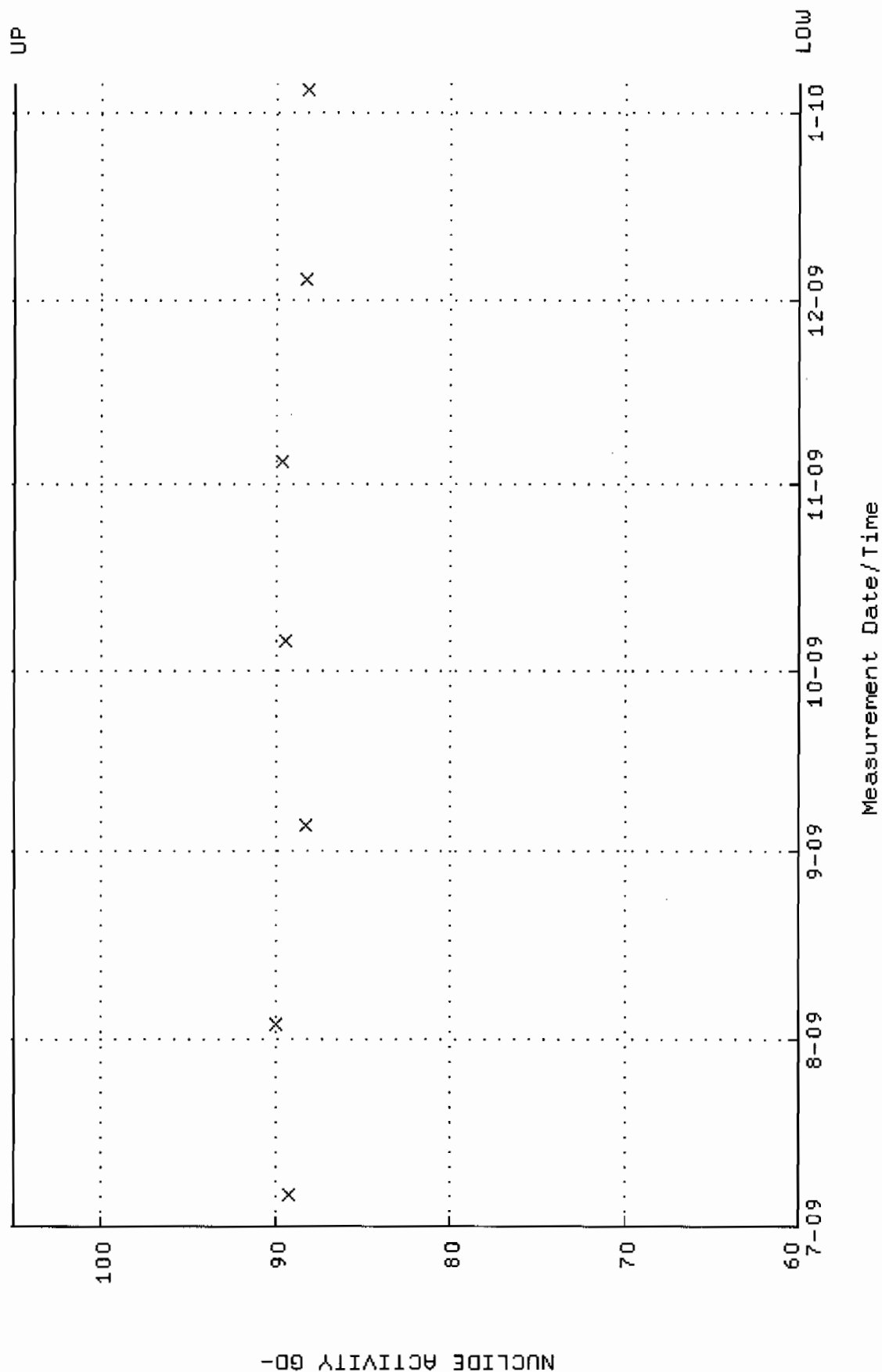


QA filename : DKA100:[ENV\_ALPHA.QA.W]W029.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000





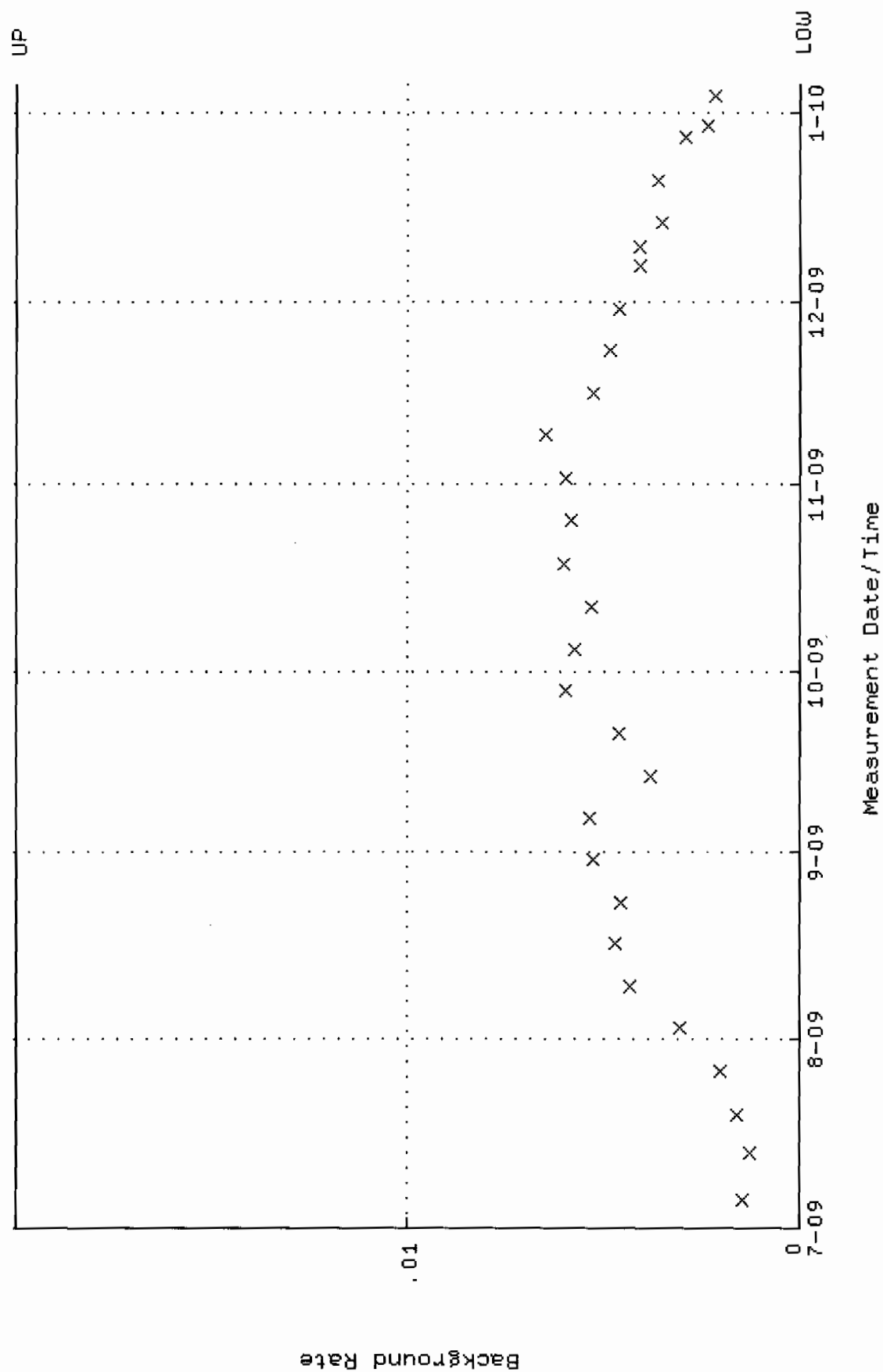
QA filename : DKA100:[ENV-ALPHA.QA.W]W029.QAF;6  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



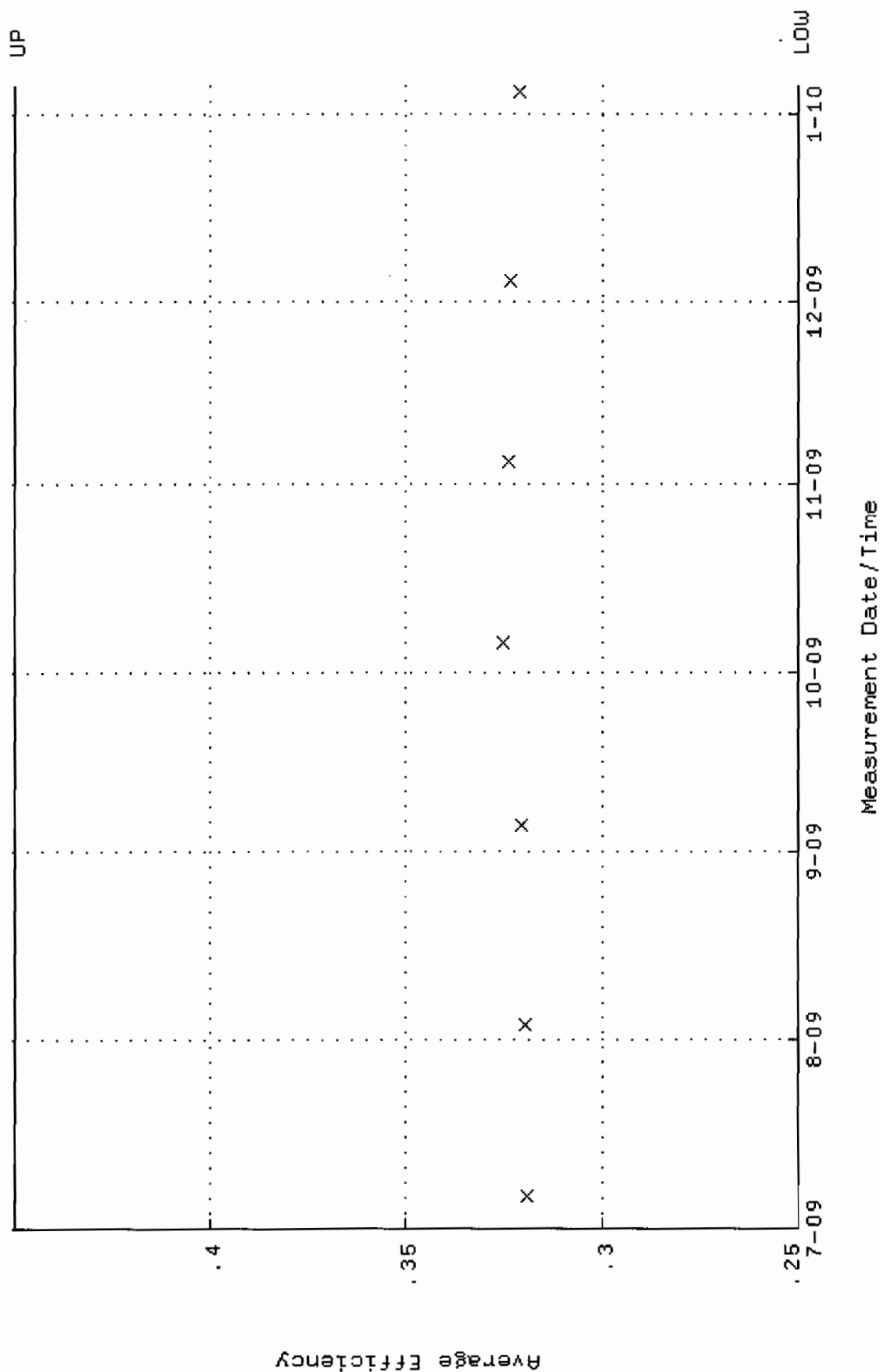
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: DKA100:[ENV_ALPHA.QA.B]B029.QAF;1
: BACKRATE (Background Rate)
: 5-JUL-2009 15:11:58 through 5-JAN-
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

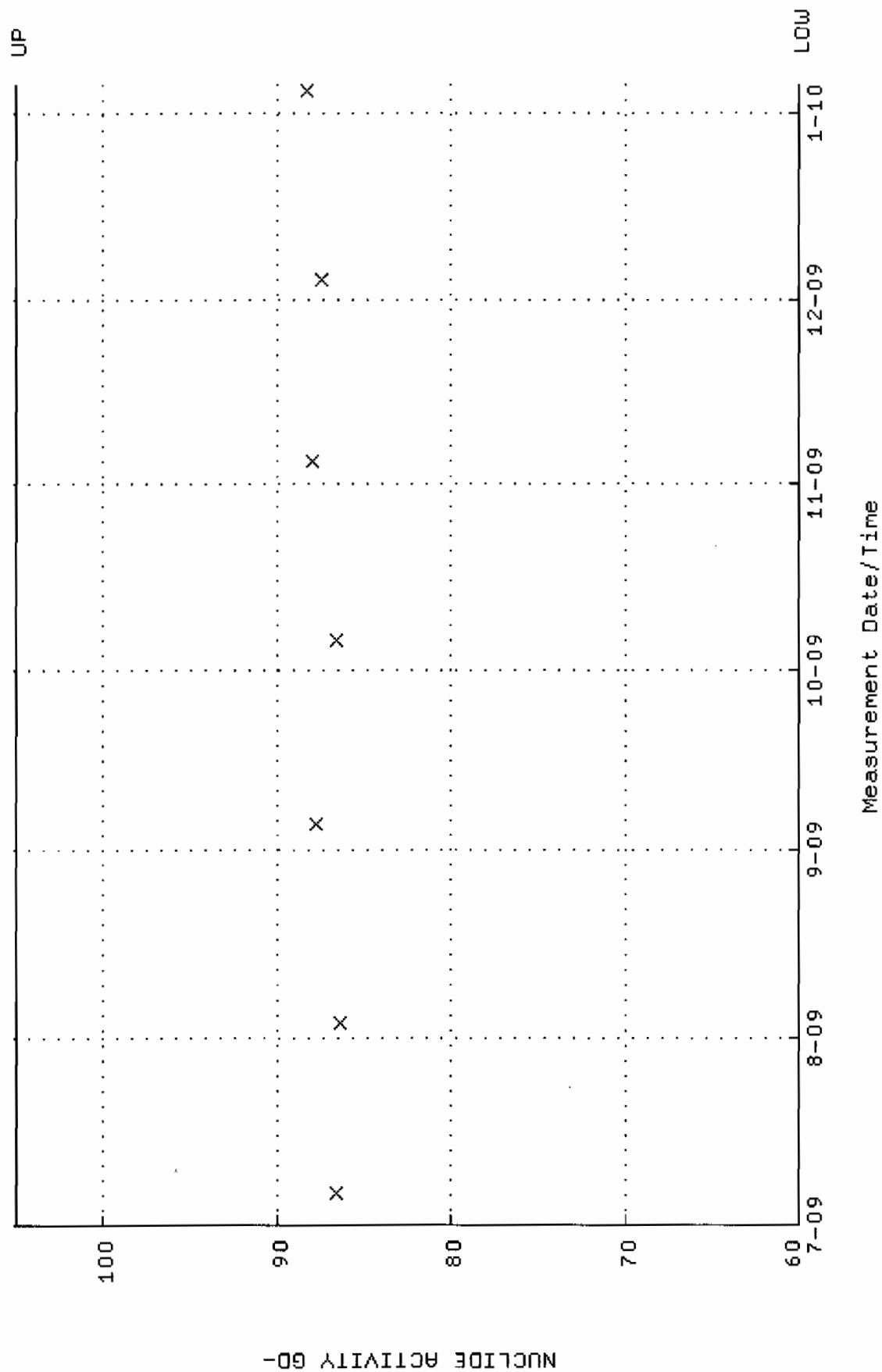
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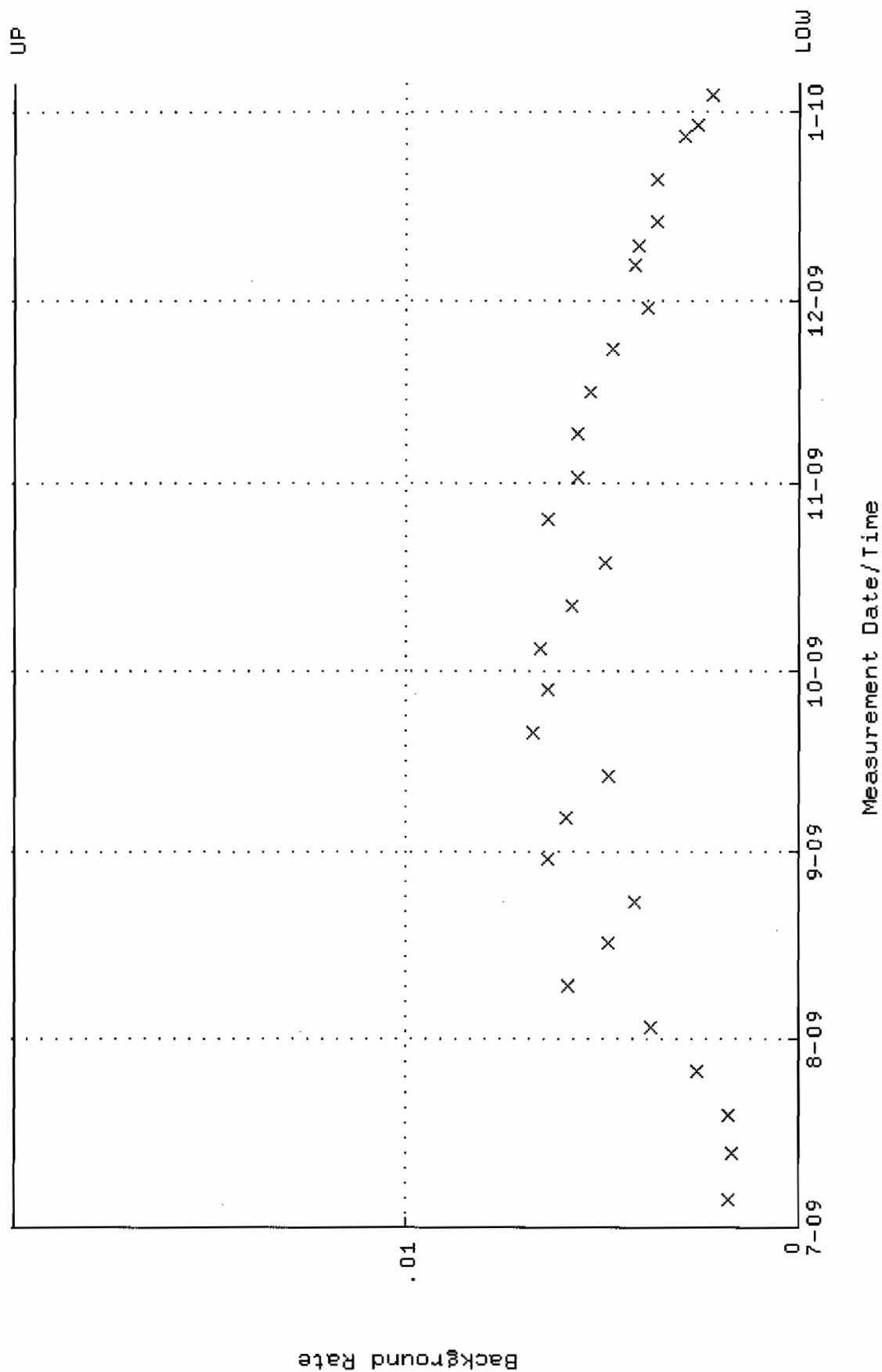
QA filename : DKA100:[ENV-ALPHA.QA.W]W030.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



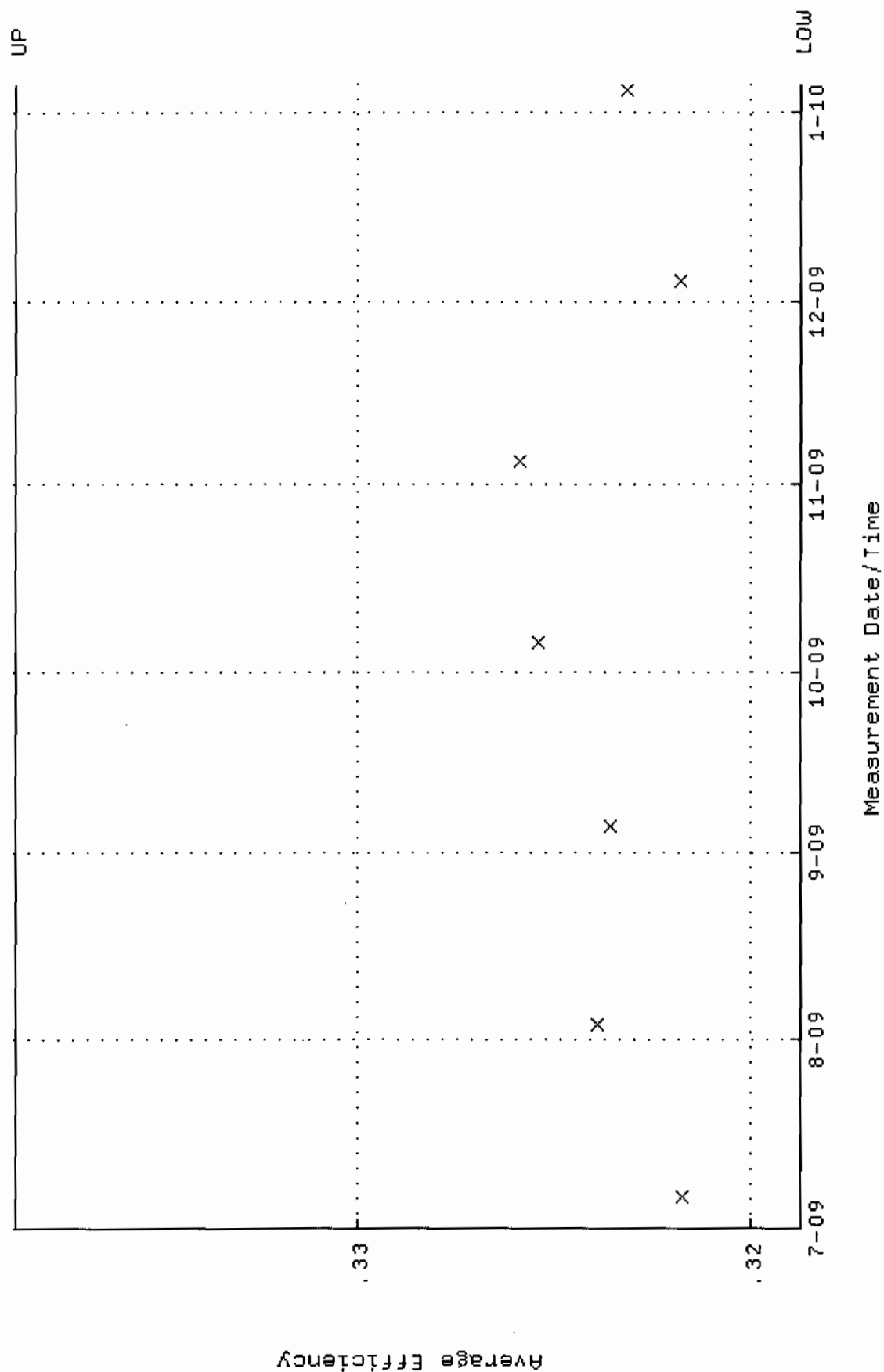
QA filename : DKA100:[ENV\_ALPHA.QA.W]W030.QAF;3  
 Parameter Name : NLAIVITY-G0148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



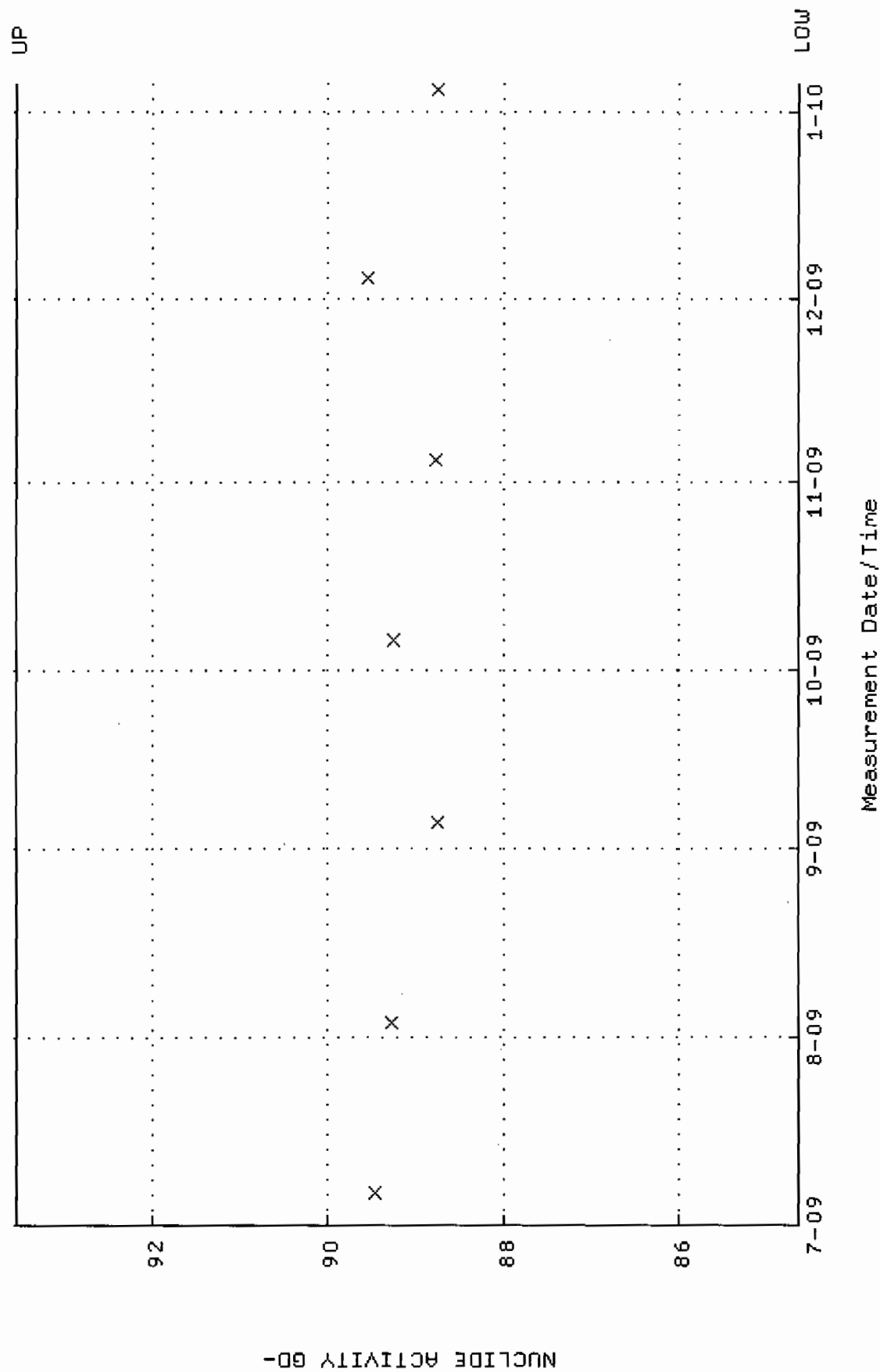
QA filename : DKA100:[ENV-ALPHA.QA.B]B030.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



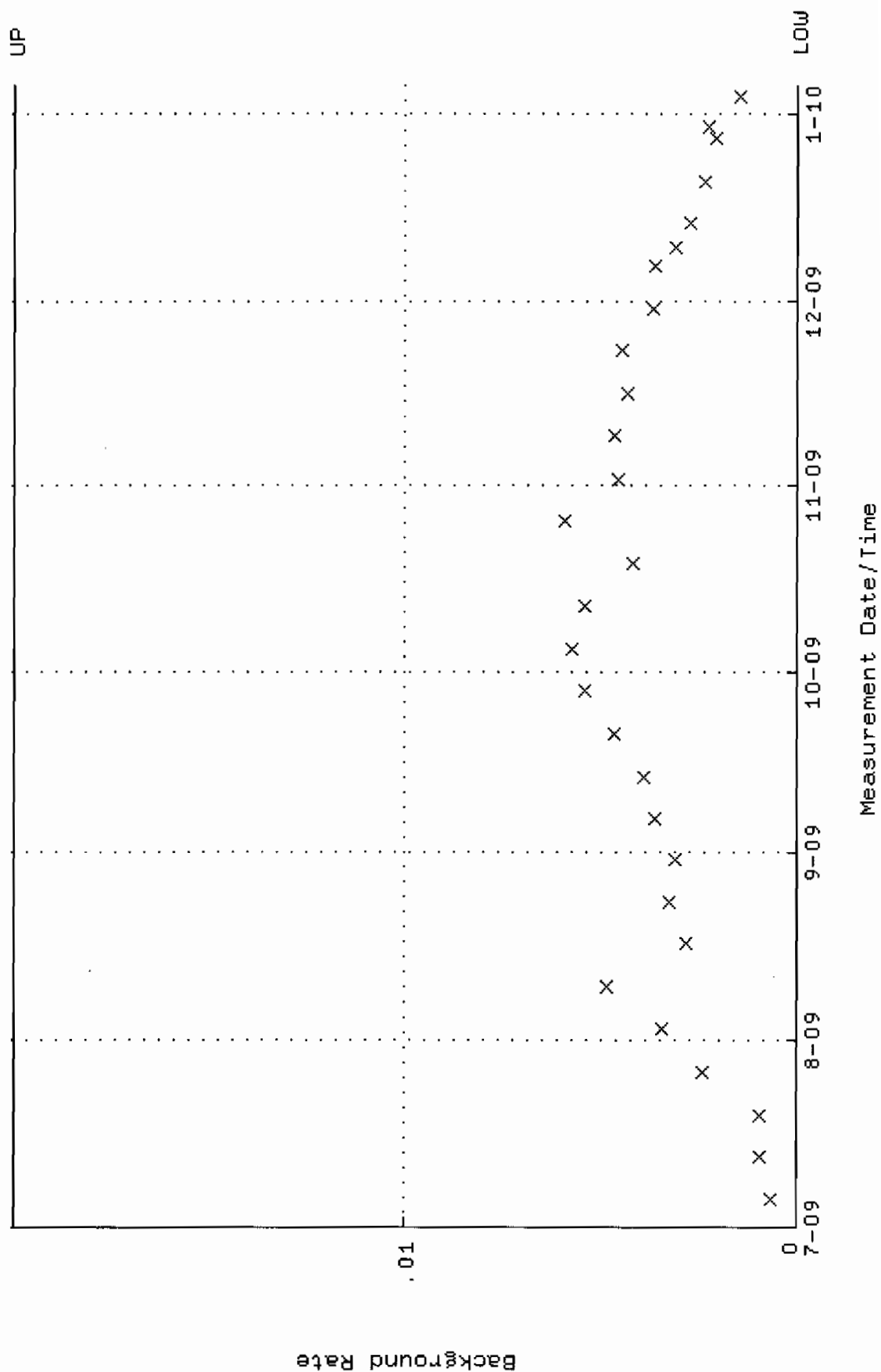
QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:15 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.318717 through 0.338717



QA filename : DKA100:[ENV\_ALPHA.QA.W]W036.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:15 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 84.6422 through 93.5518

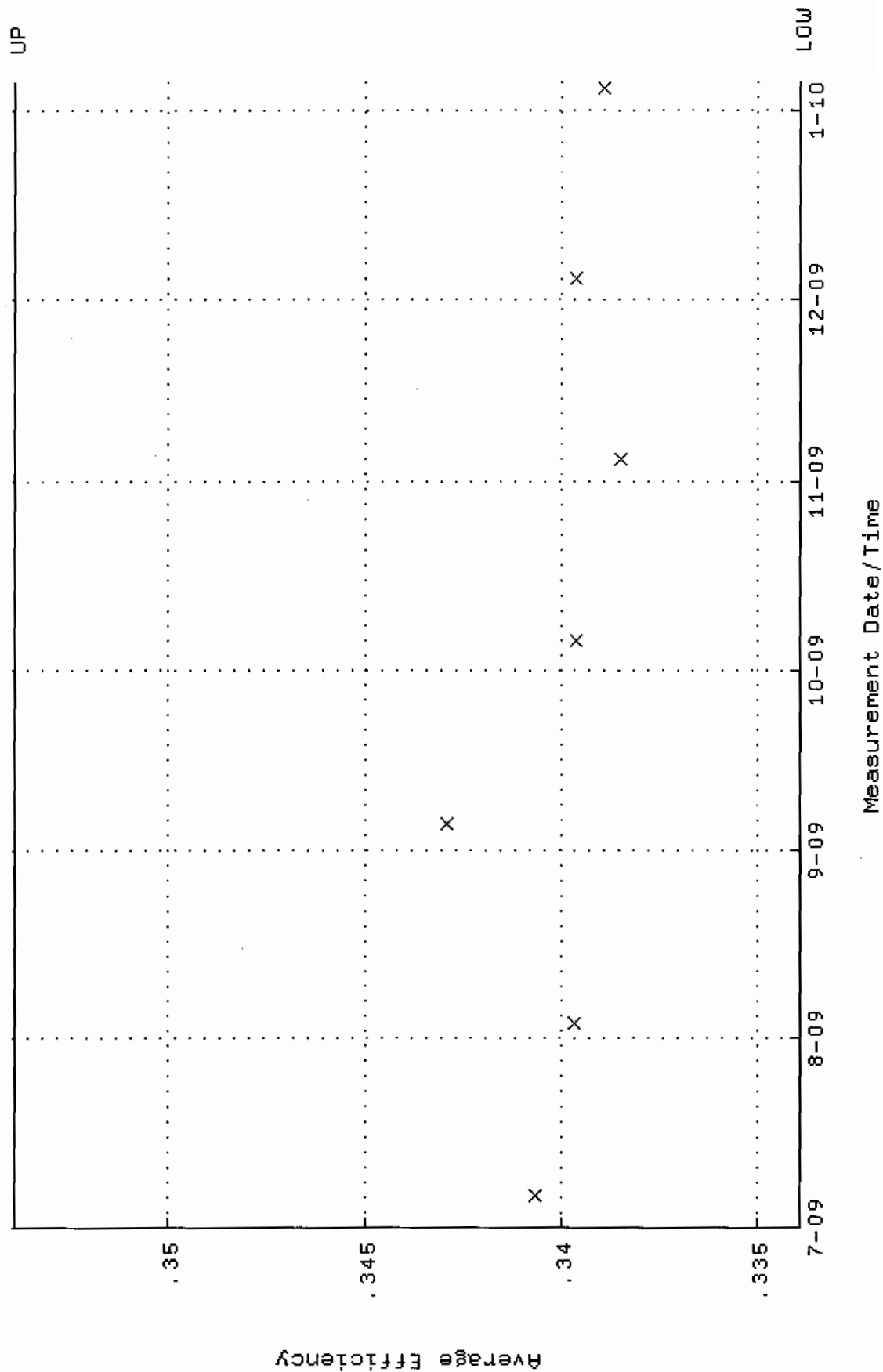


QA filename : DKA100:[ENV\_ALPHA.QA.B]B036.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

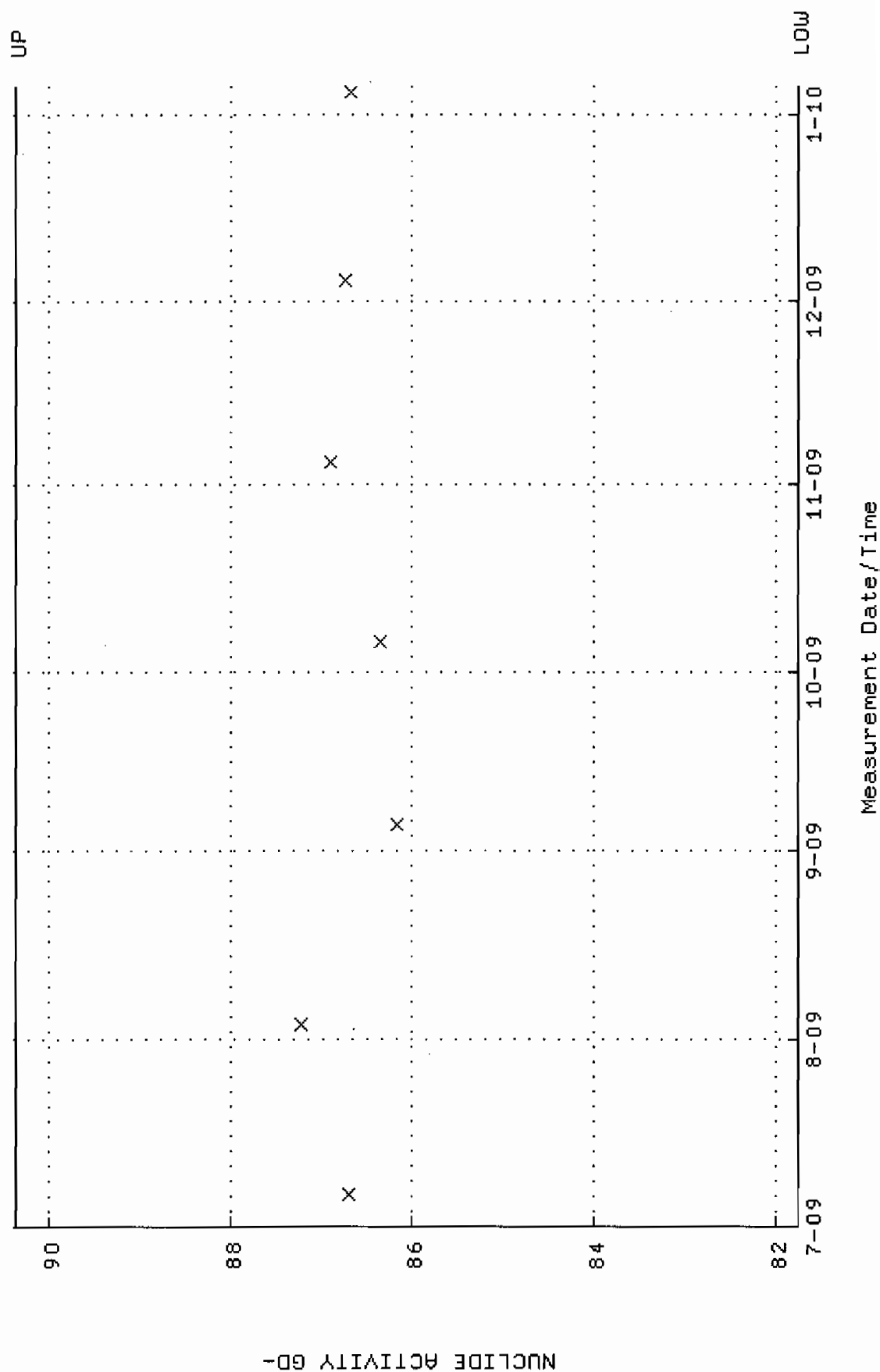




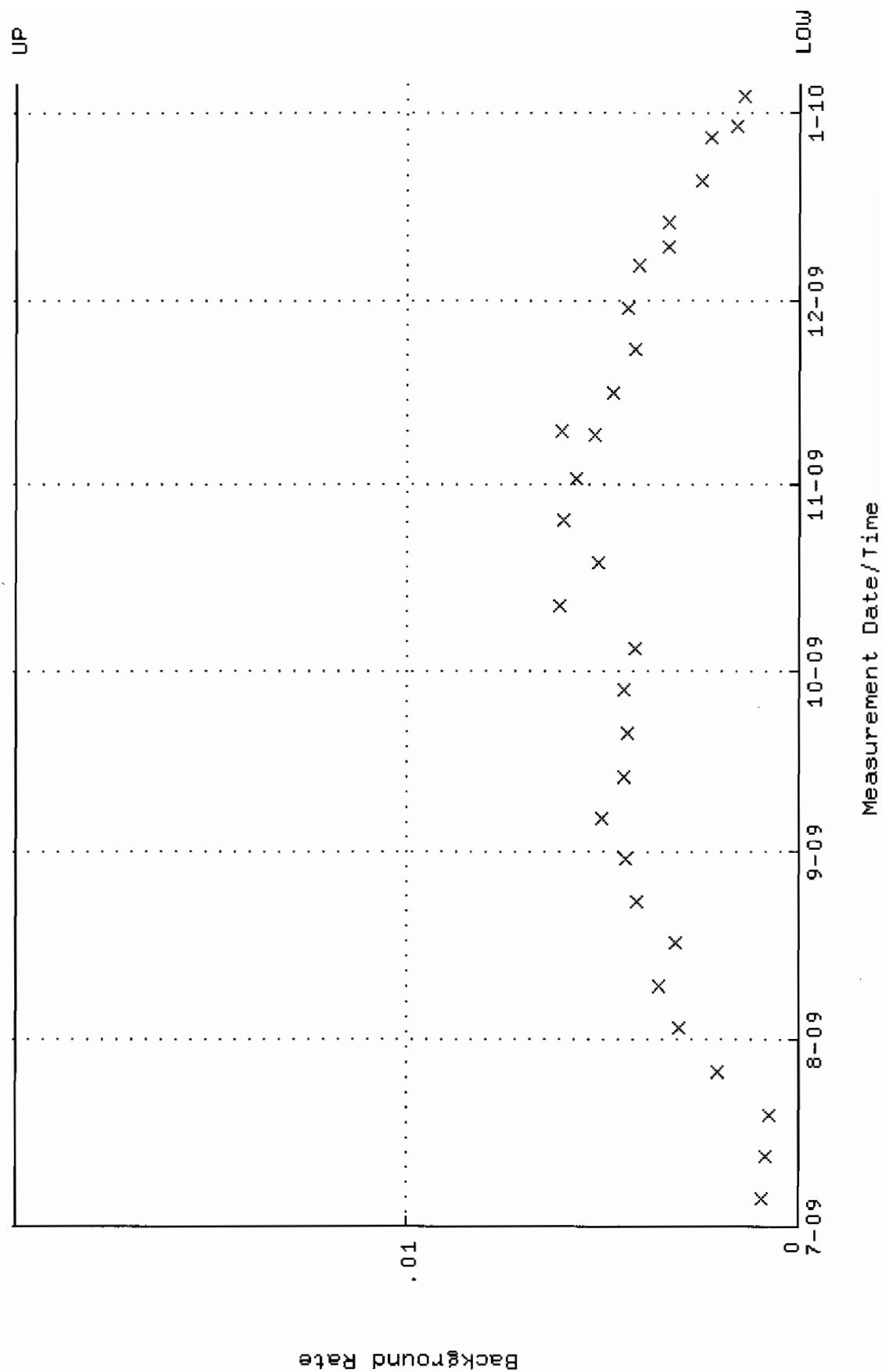
QA filename : DKA100:[ENV\_ALPHA.QA.W]W046.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.333927 through 0.353927



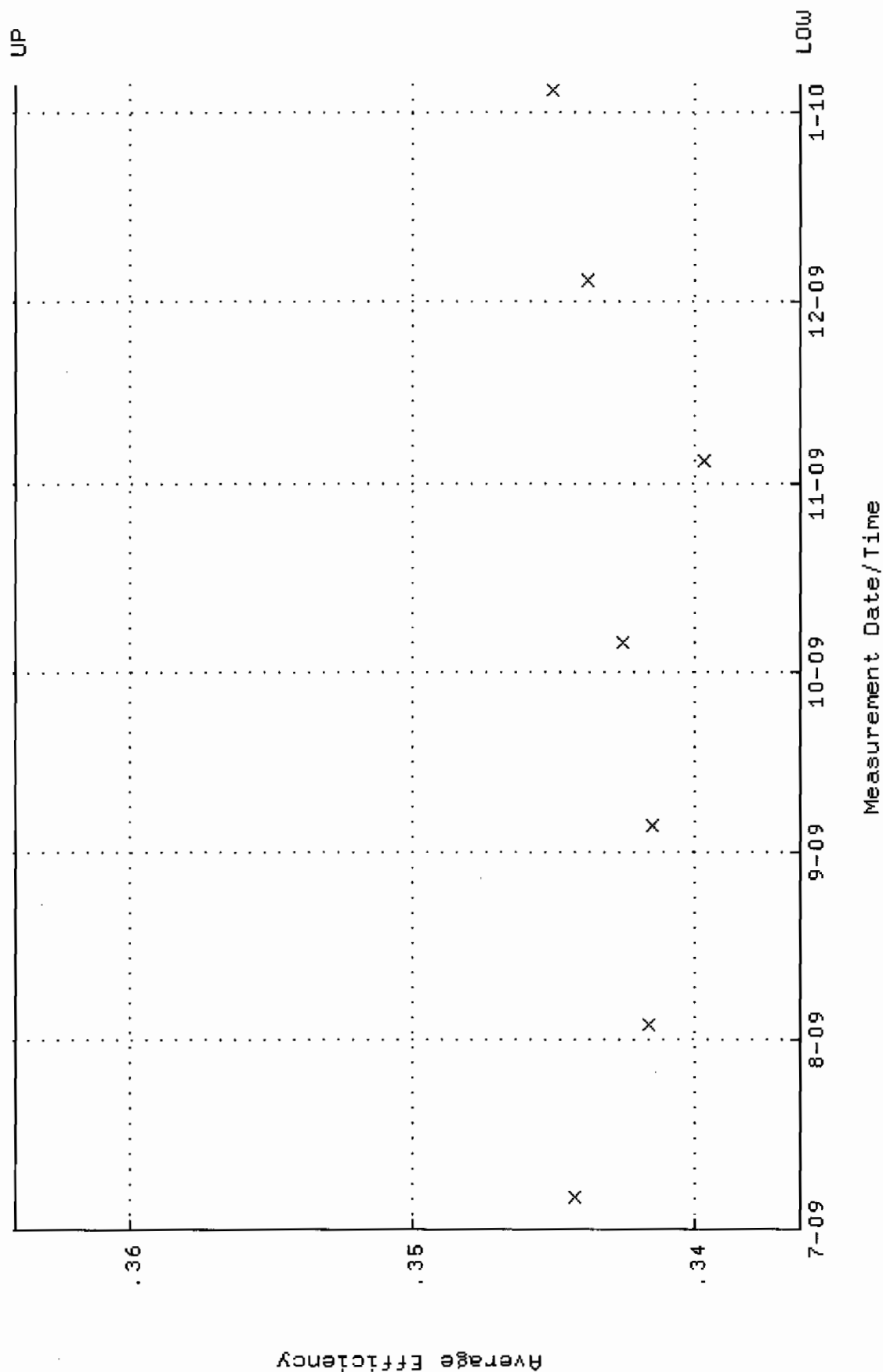
QA filename : DKA100:[ENV\_ALPHA.QA.W]W046.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 81.7568 through 90.3628



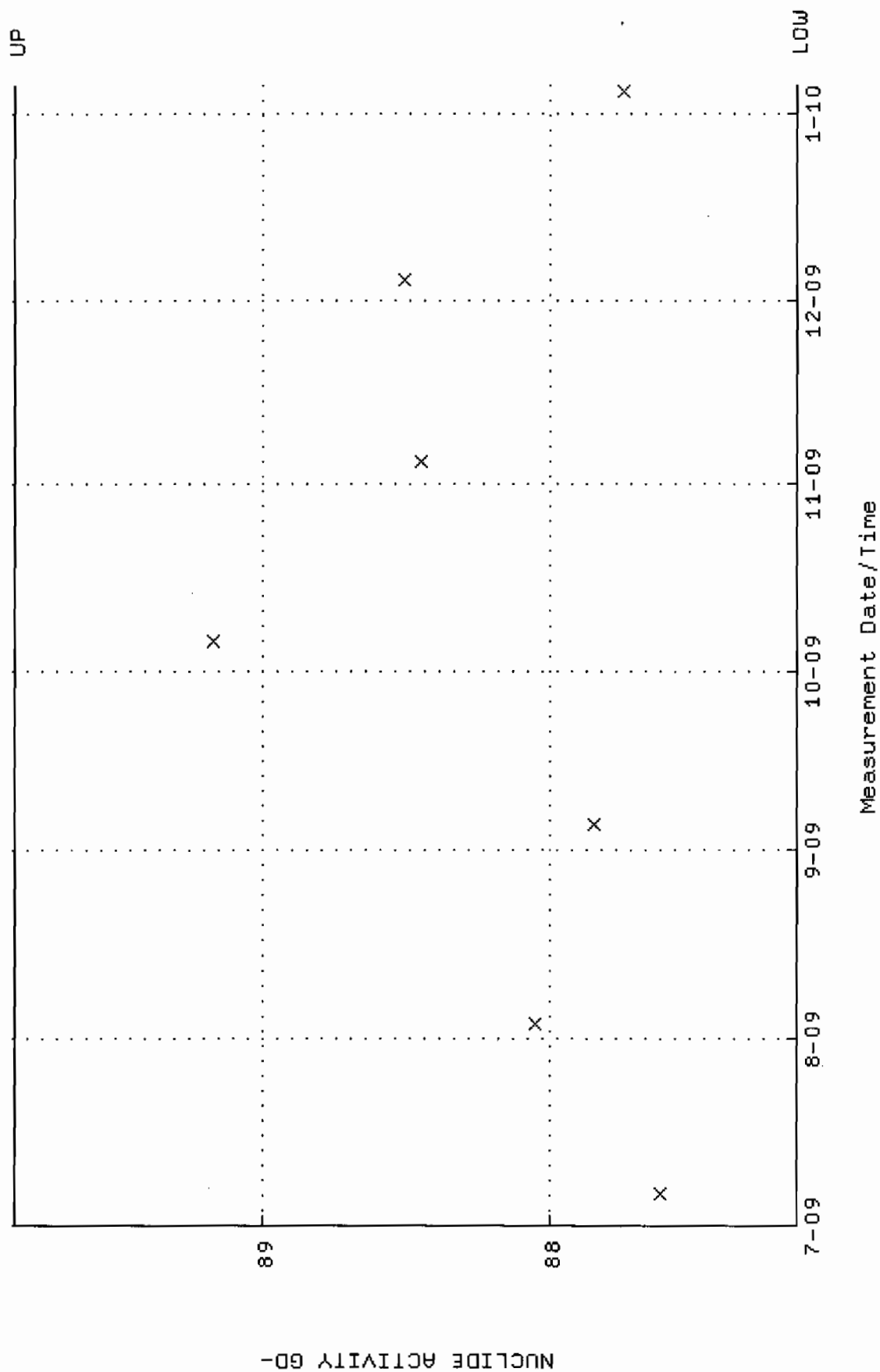
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Parameter Name	: BACKRATE (Background Rate)
Start/End Dates	: 5-JUL-2009 15:12:00 through 5-JAN-2010 15:12:00
Lower/Upper Lmts	: 0.000000E+00 through 2.000000E-02



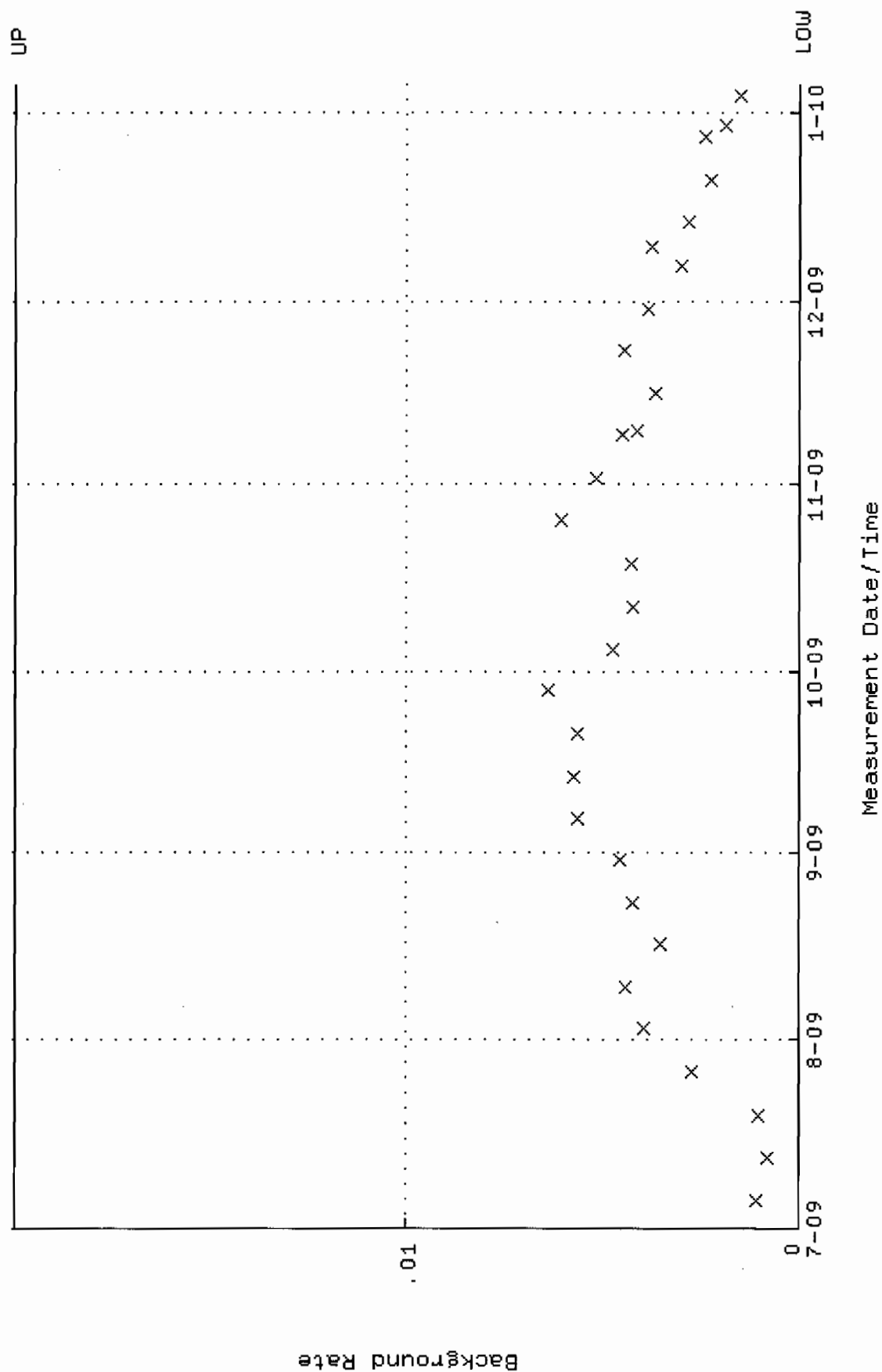
QA filename : DKA100:[ENV\_ALPHA.QA.W]W047.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.336276 through 0.364038



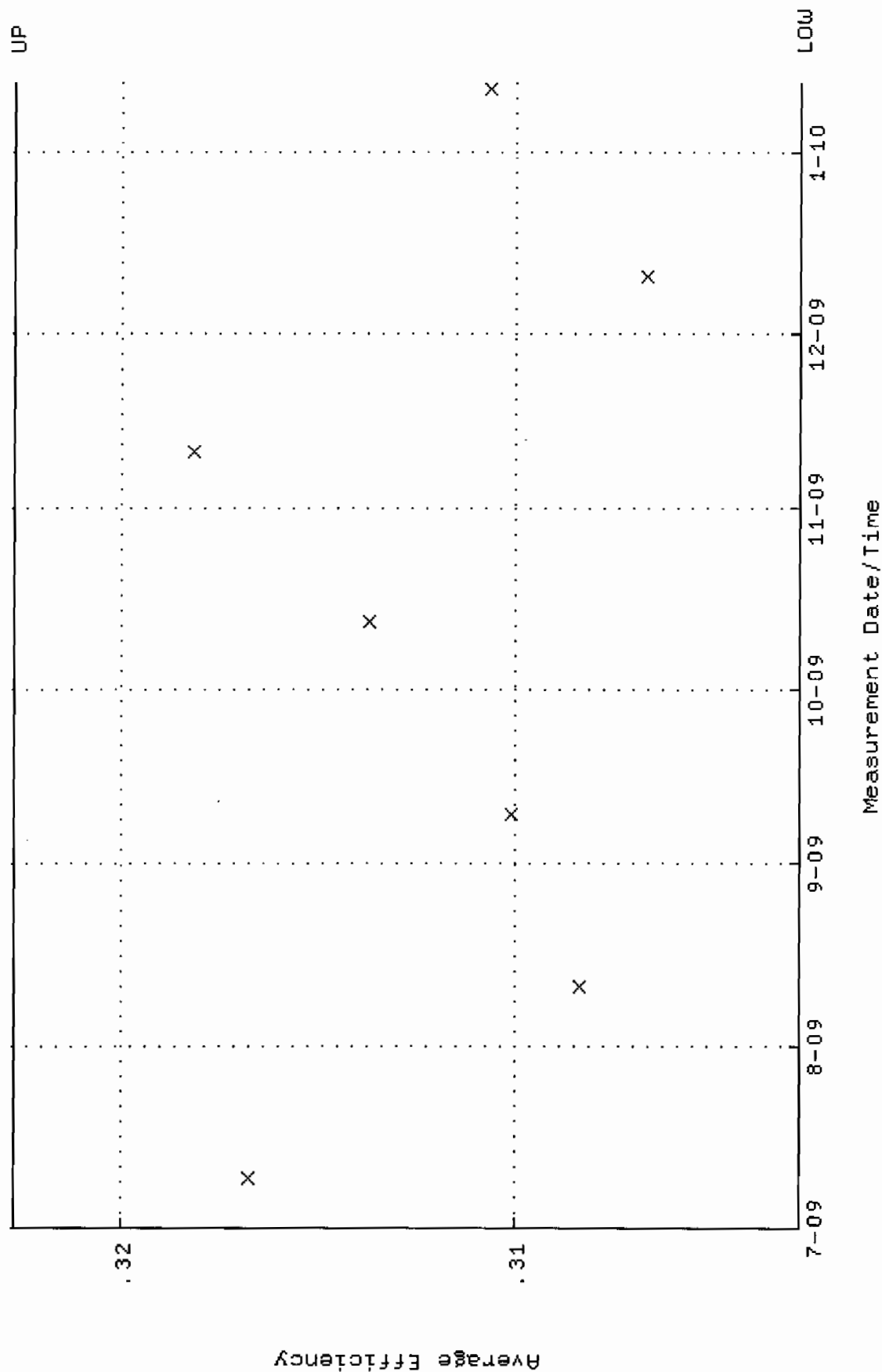
QA filename : DKA100:[ENV\_ALPHA.QA.W]W047.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:17 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.1403 through 89.8631



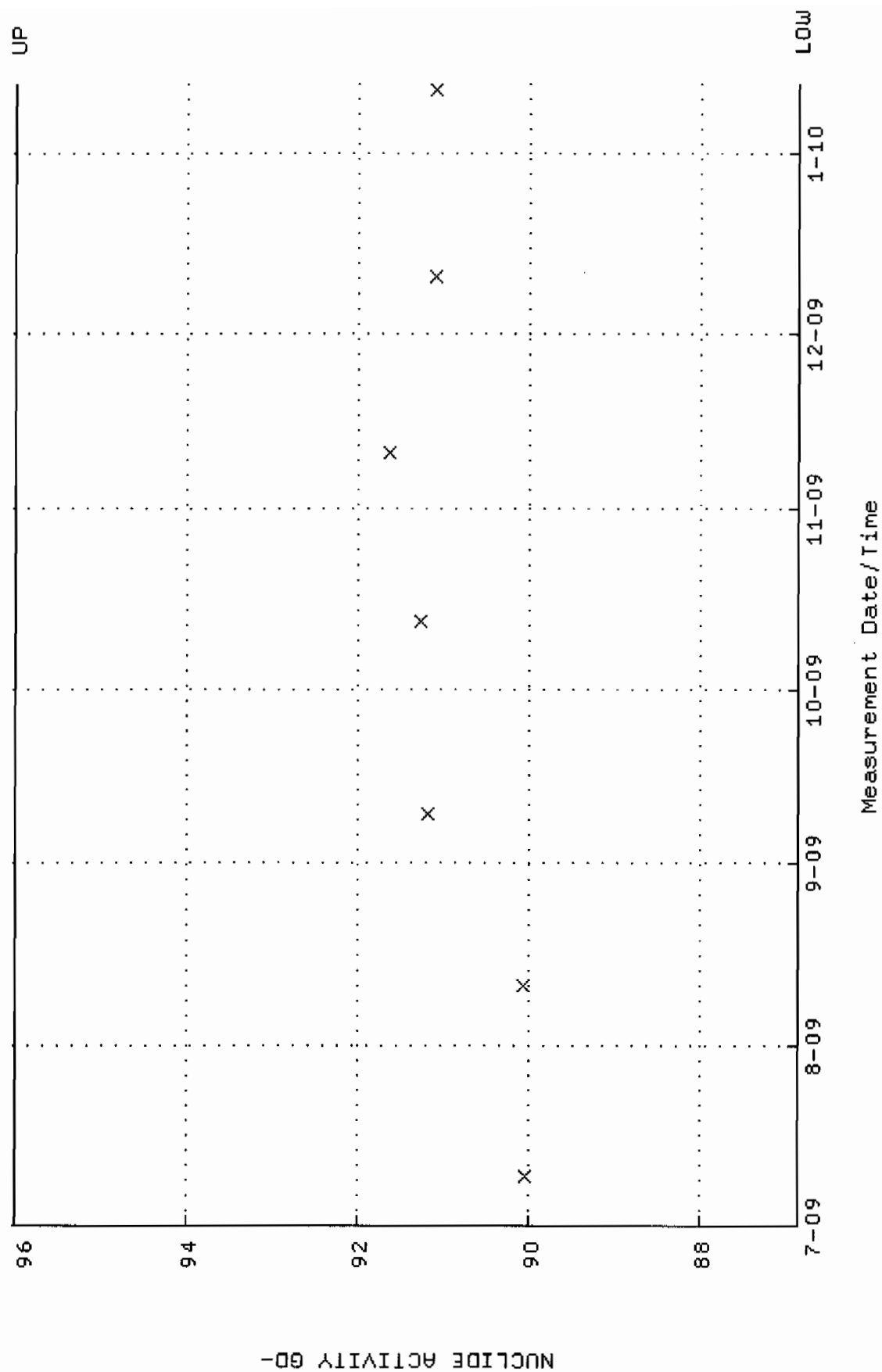
QA filename : DKA100:[ENV\_ALPHA.QA.B]B047.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W065.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.302750 through 0.322750

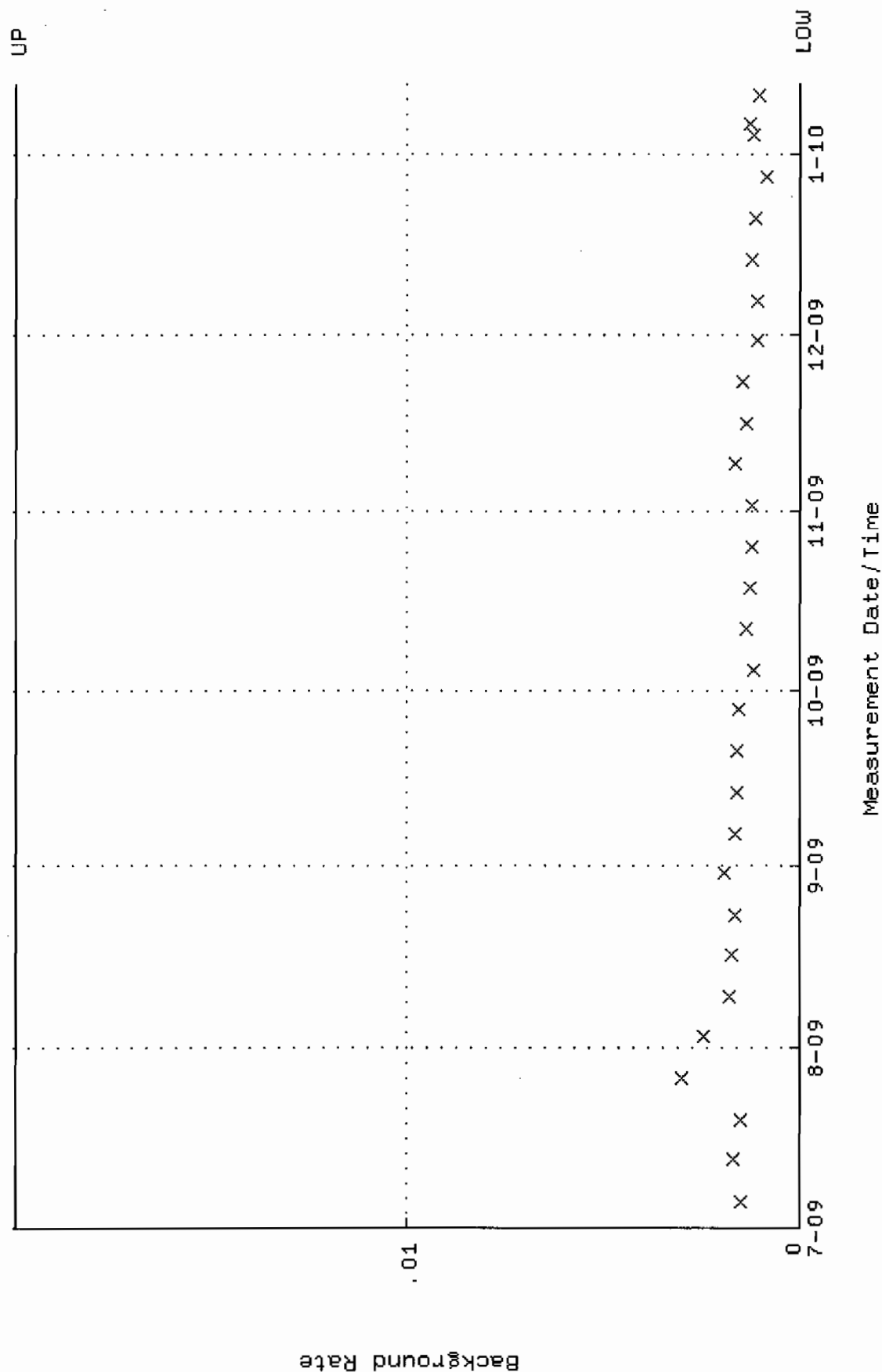


QA filename : DKA100:[ENV\_ALPHA.QA.W]W065.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.8638 through 96.0074

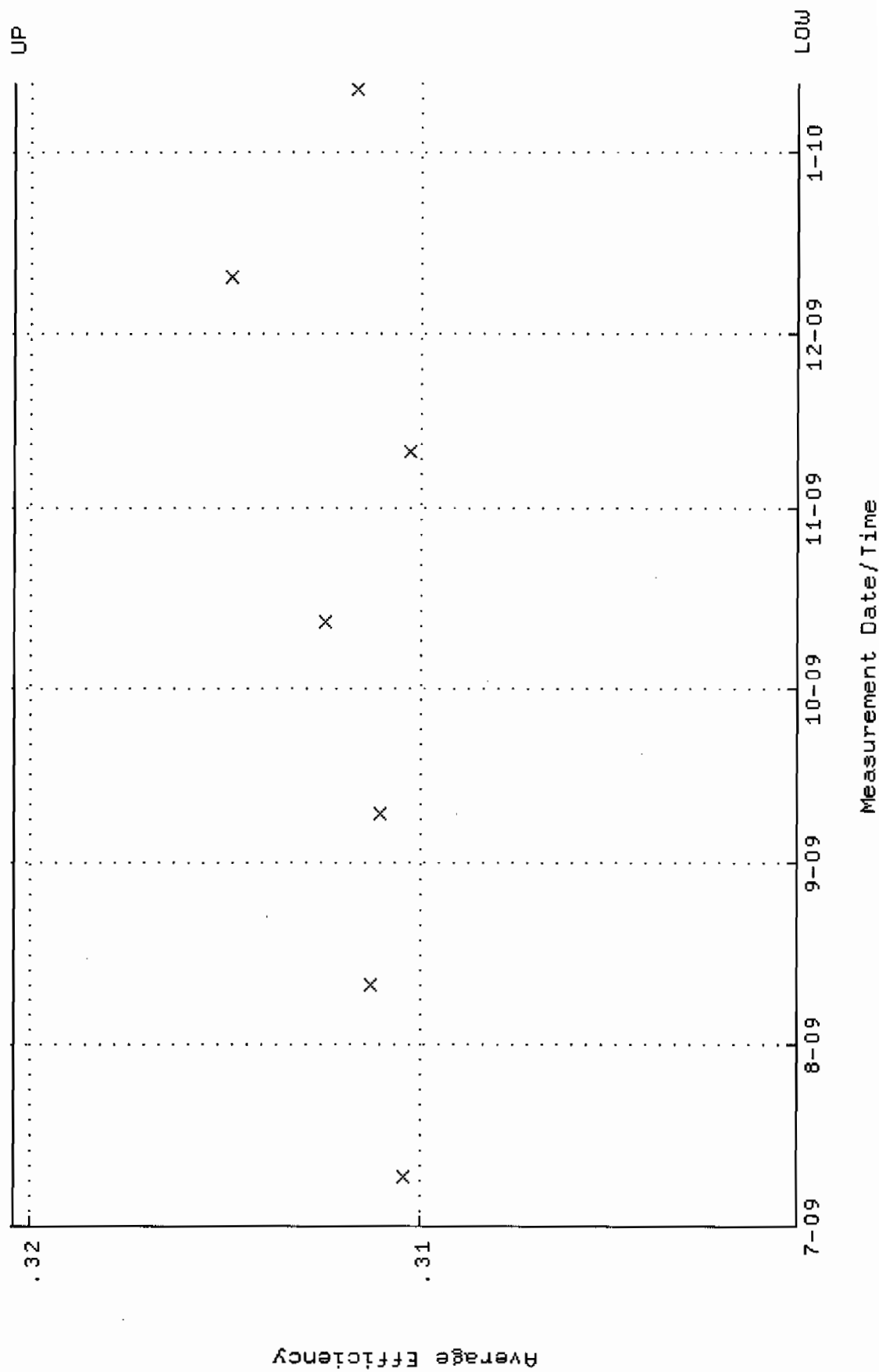




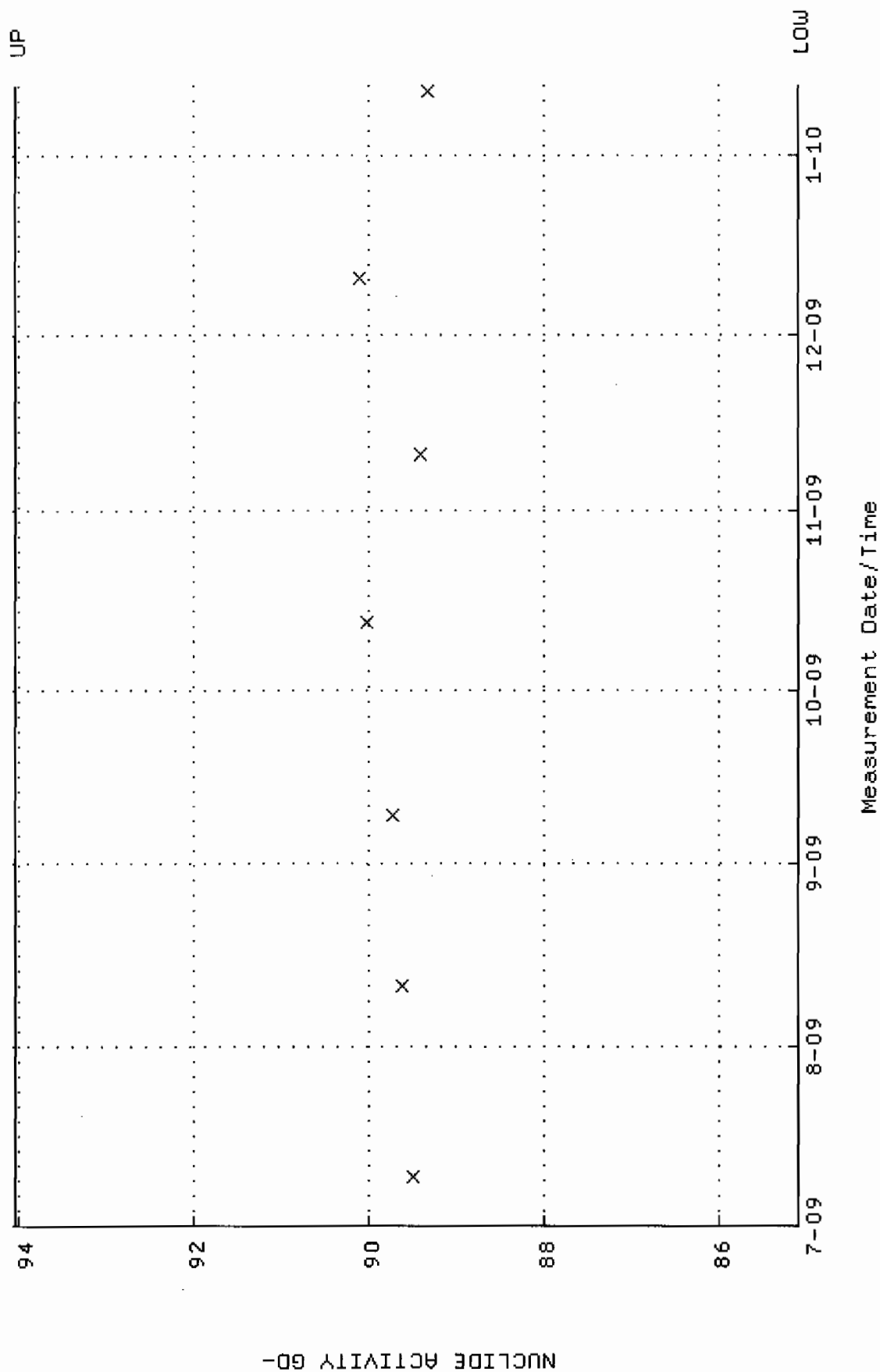
QA filename : DKA100:[ENV\_ALPHA.QA.B]B065.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



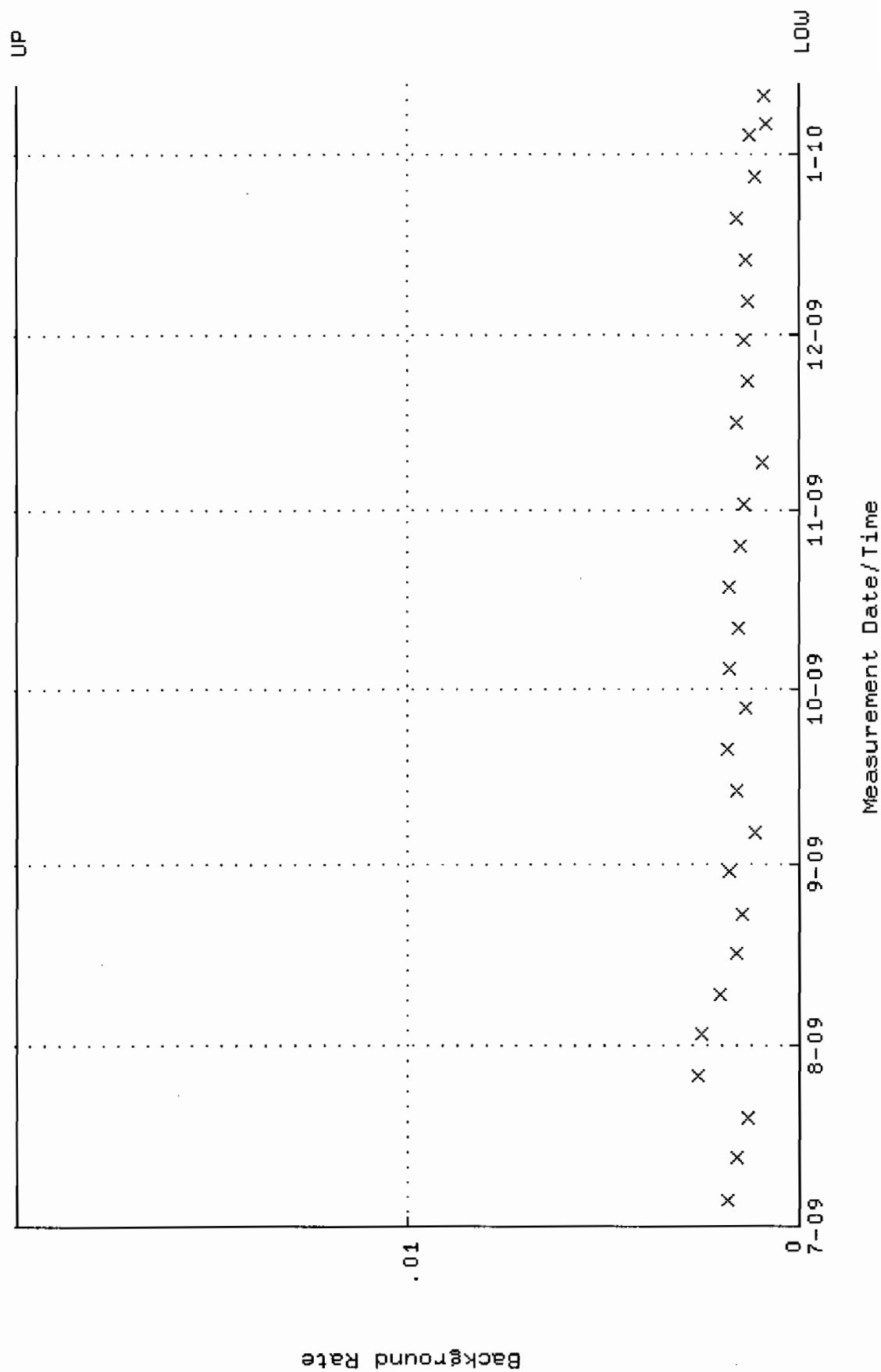
QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.300416 through 0.320416



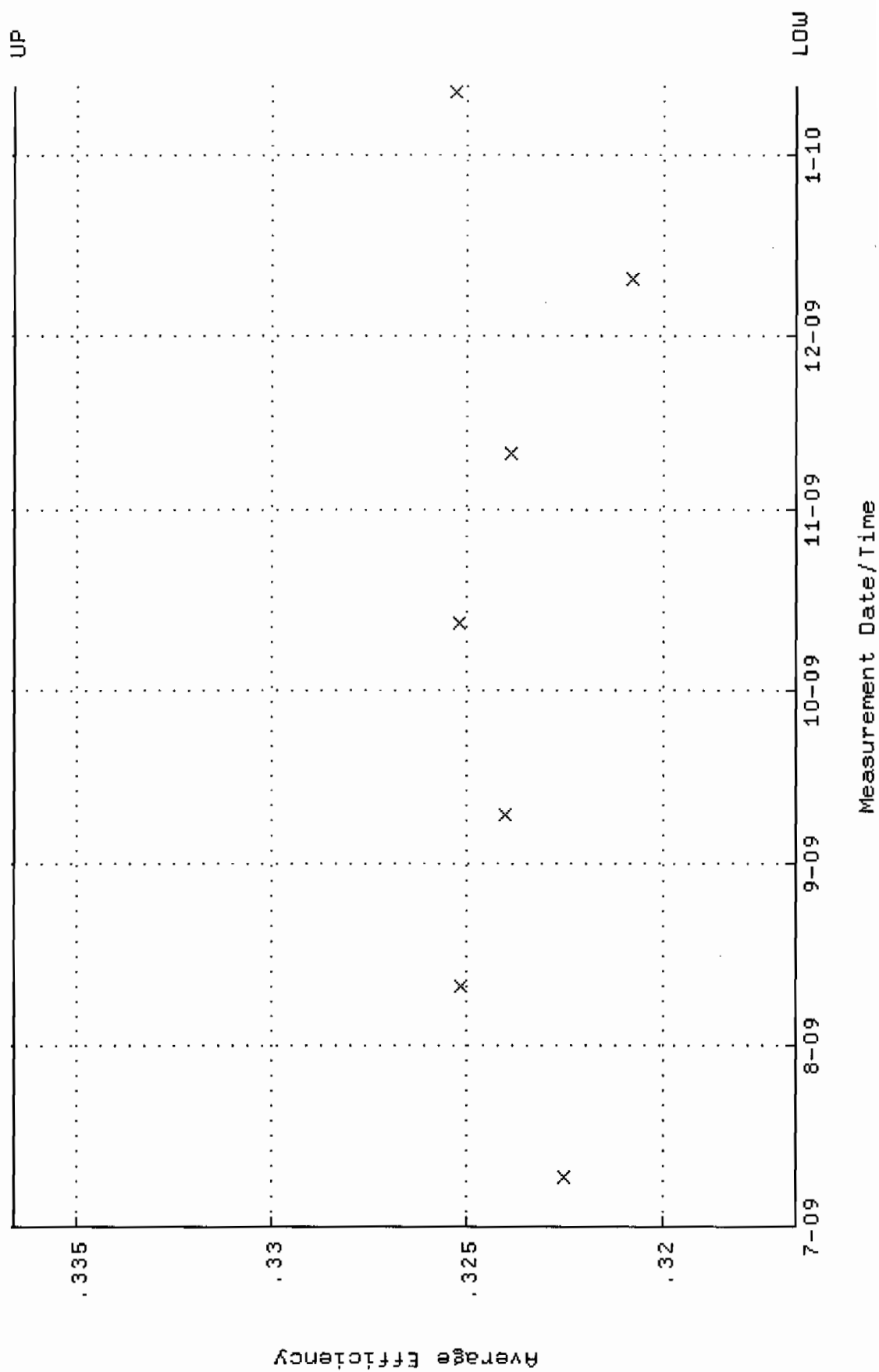
QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
 Parameter Name : NLACTIVITY-G0148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.0864 through 94.0428



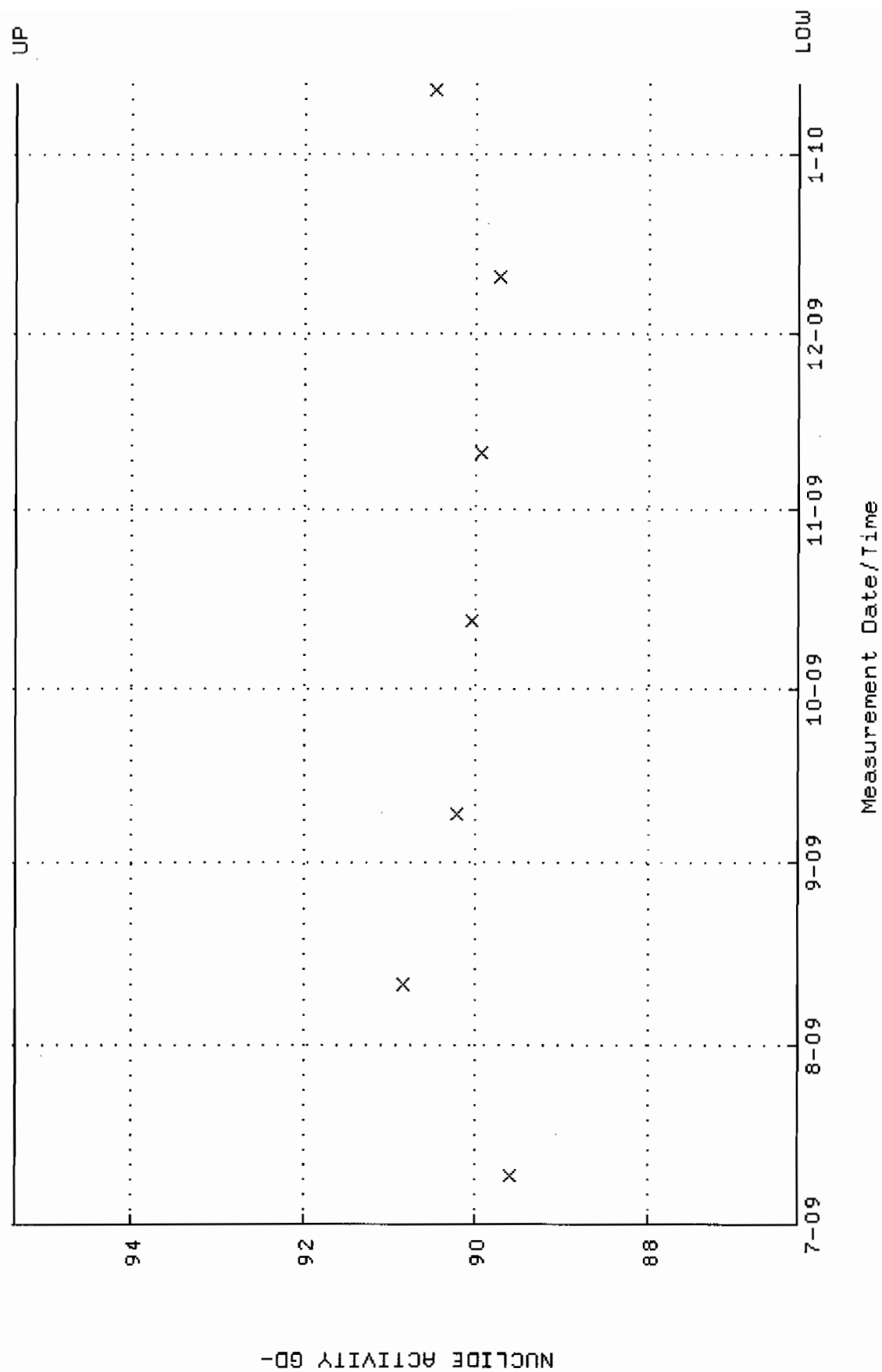
QA filename : DKA100:[ENV\_ALPHA.QA.B]B066.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



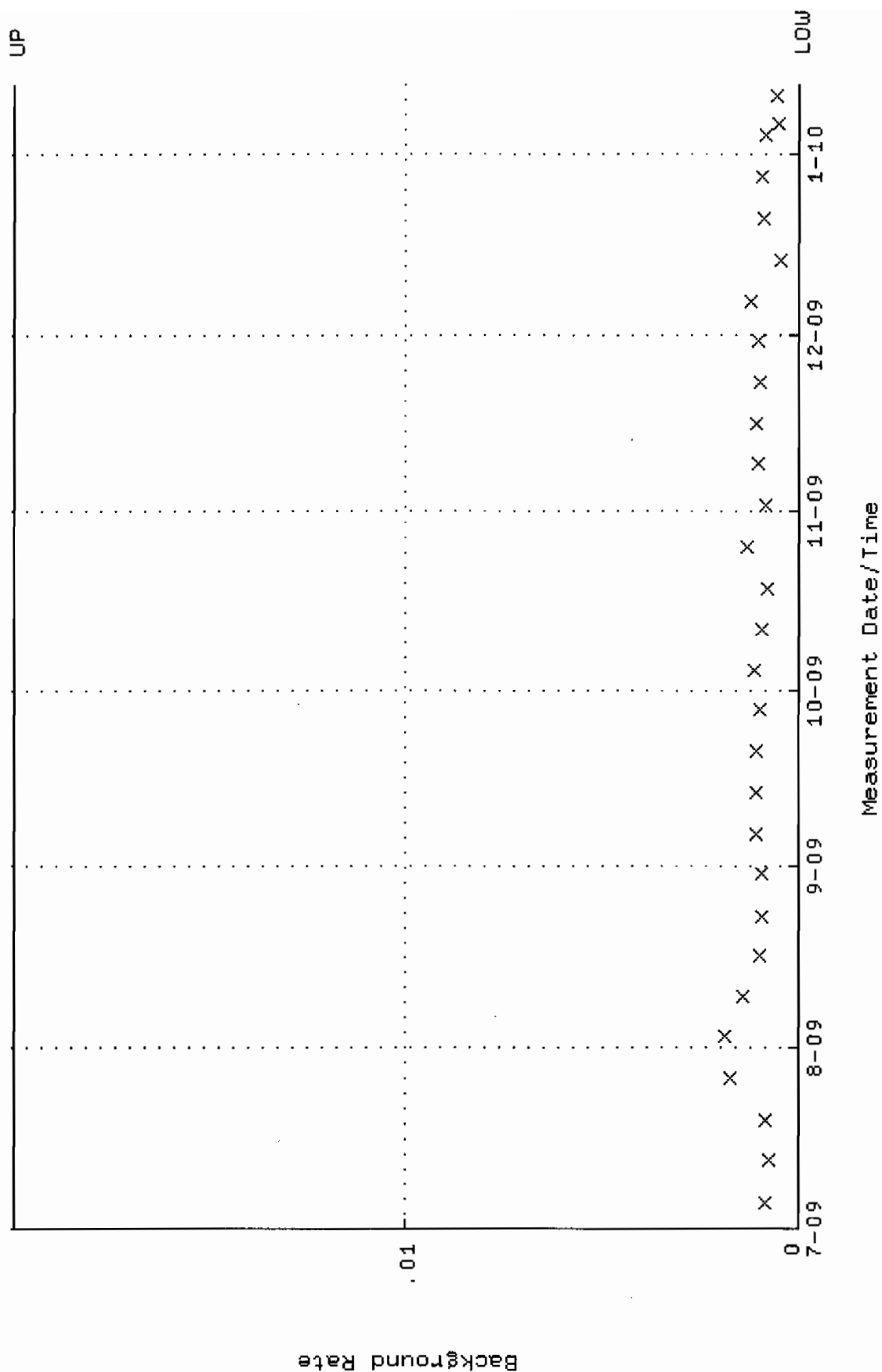
QA filename : DKA100:[ENV\_ALPHA.QA.W]W067.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.316597 through 0.336597



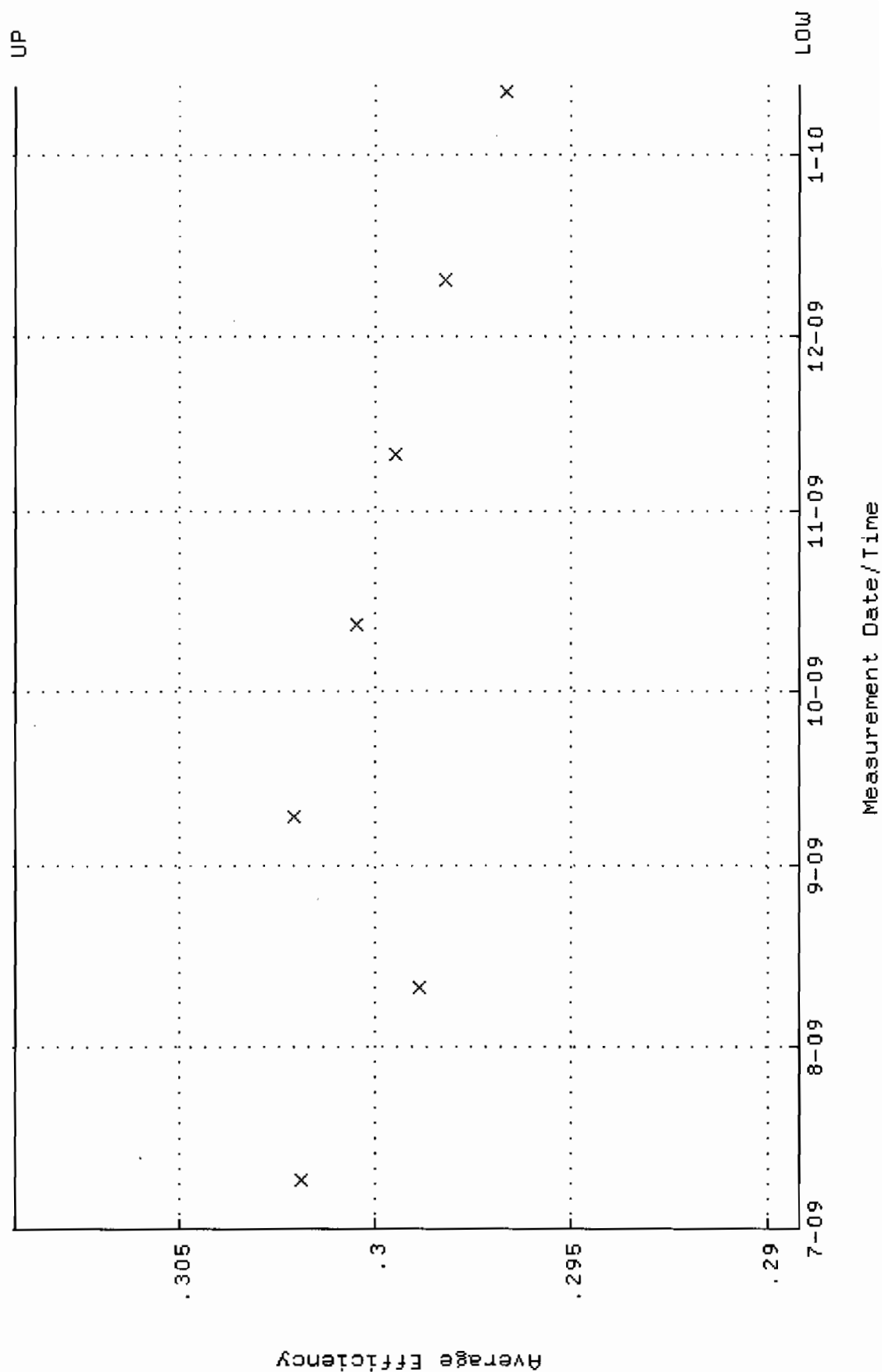
QA filename : DKA100:[ENV\_ALPHA.QA.W]W067.QAF;2  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.2683 through 95.3491



QA filename : DKA100:[ENVY\_ALPHA.QA.B]B067.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

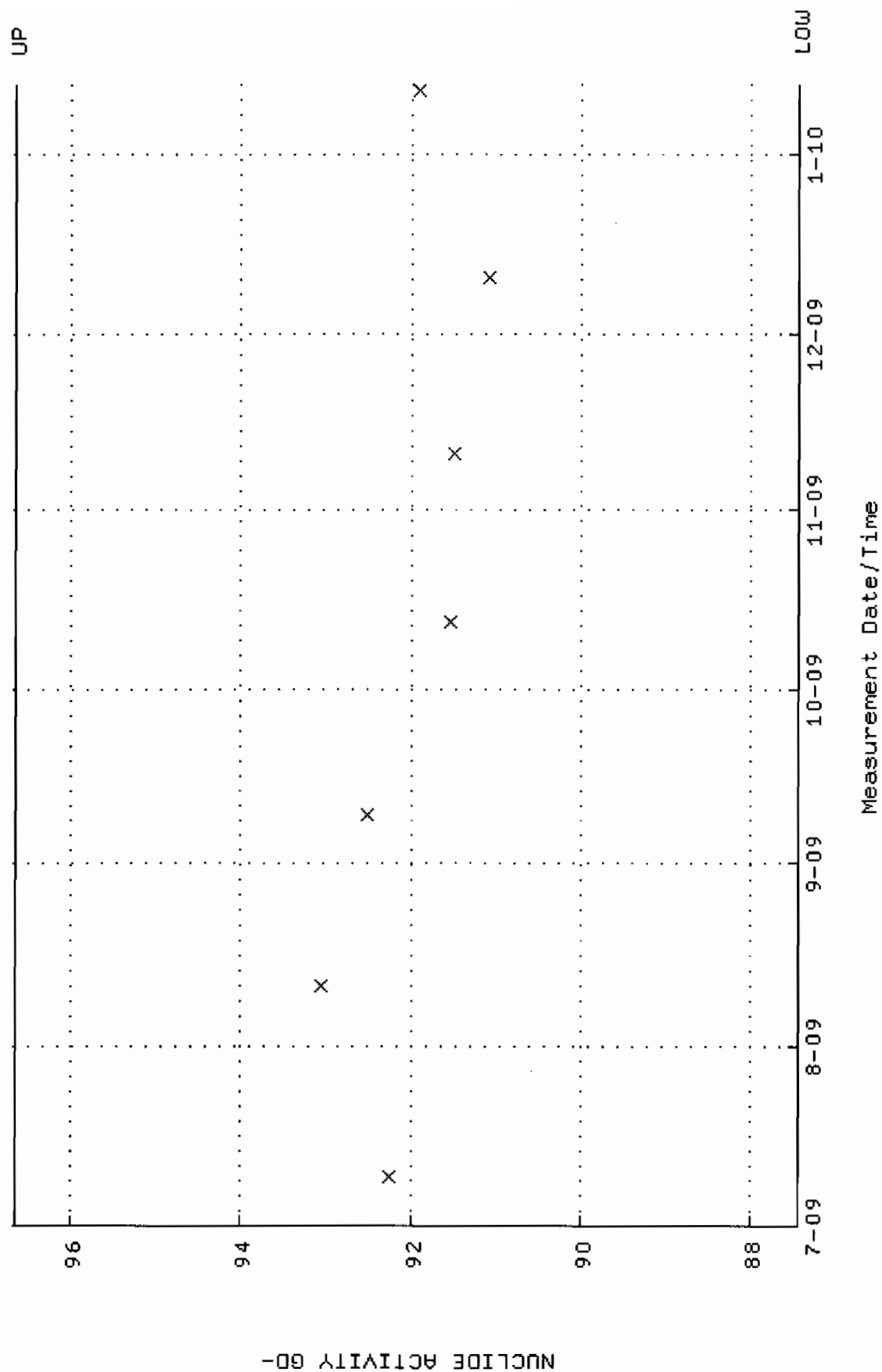


QA filename : DKA100:[ENV\_ALPHA.QA.W]W068.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.289178 through 0.309178

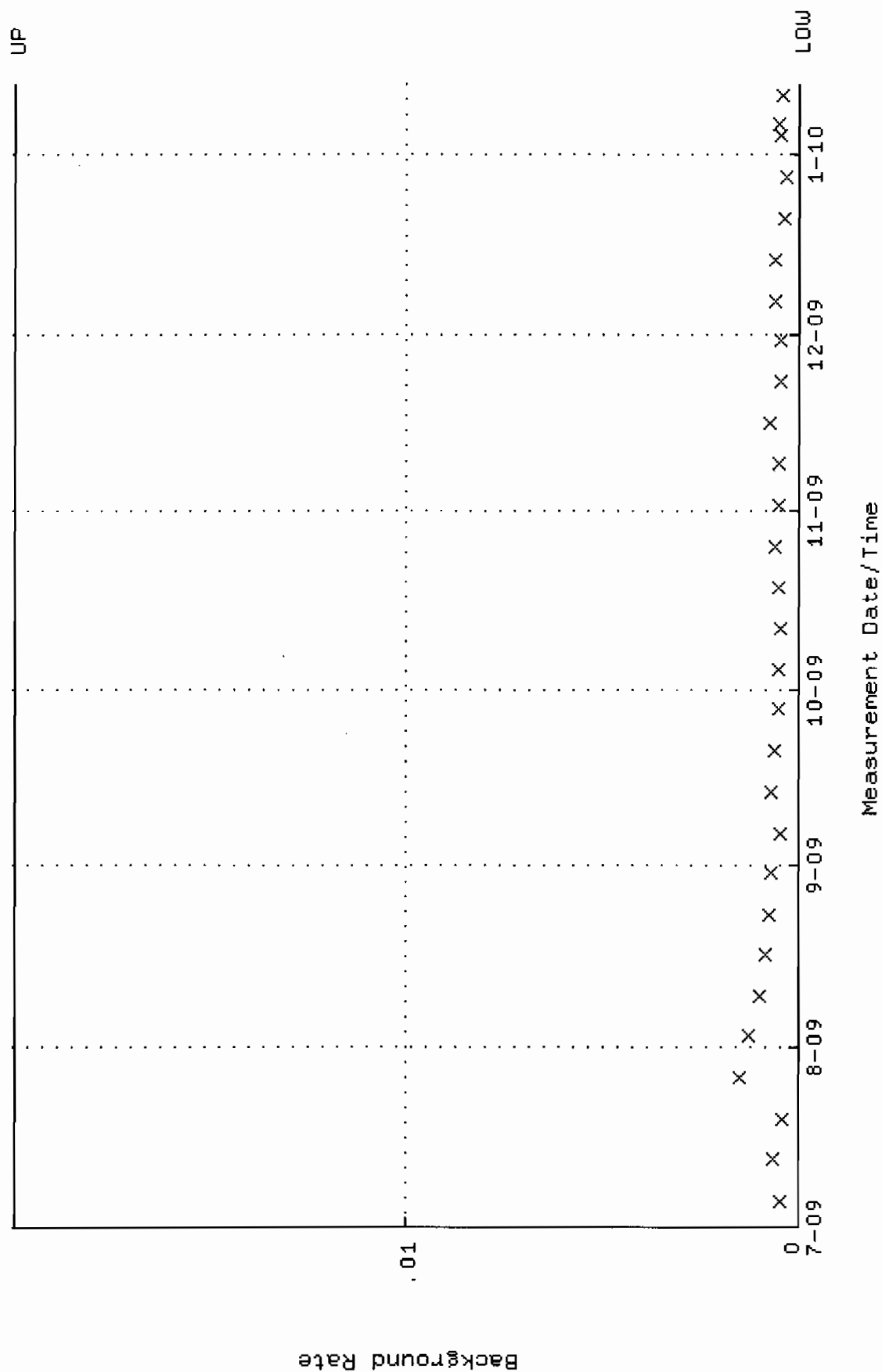




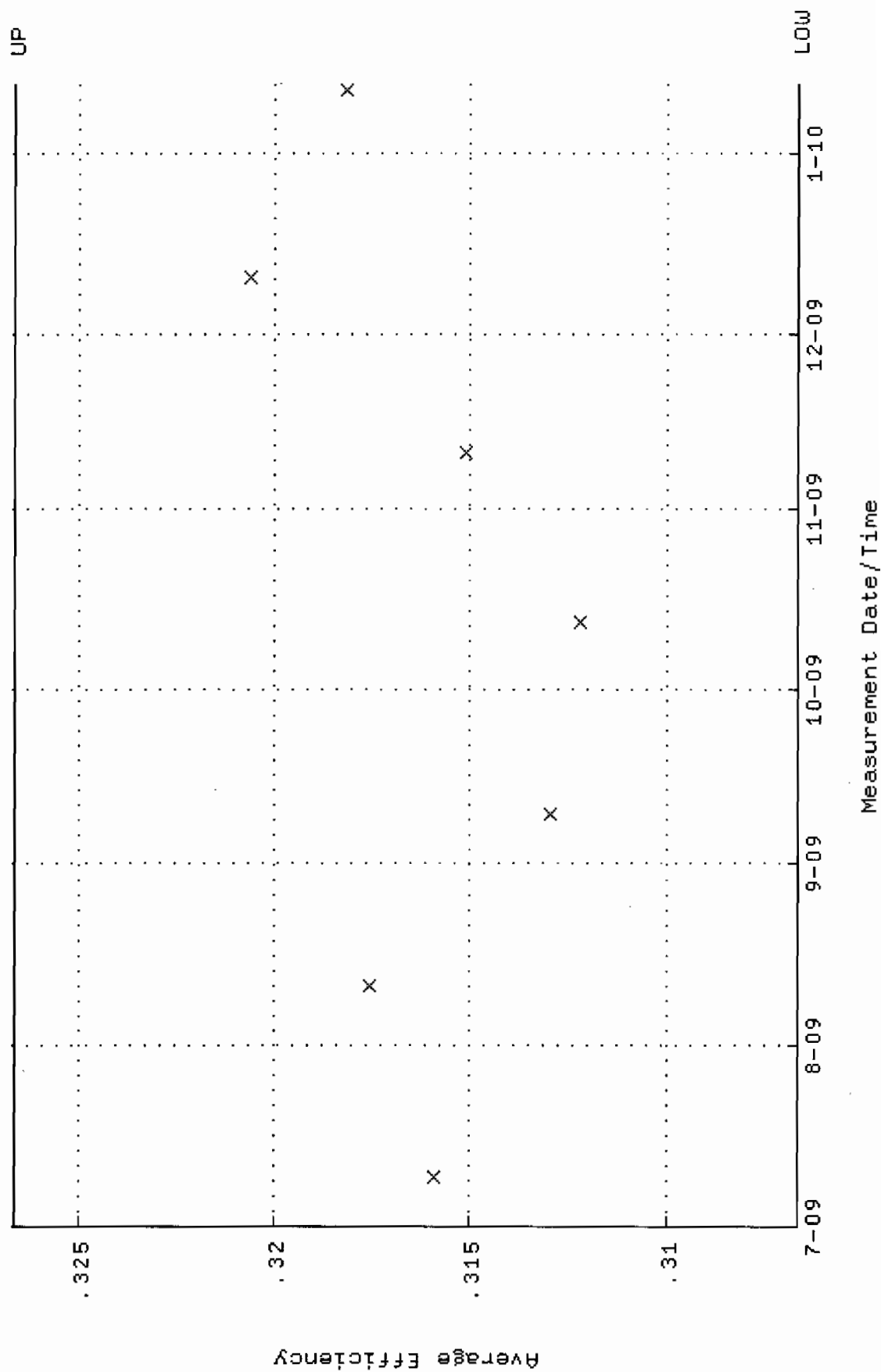
QA filename : DKA100:[ENV\_ALPHA.QA.W]W068.QAF;2  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
Lower/Upper Lmts: 87.4419 through 96.6463



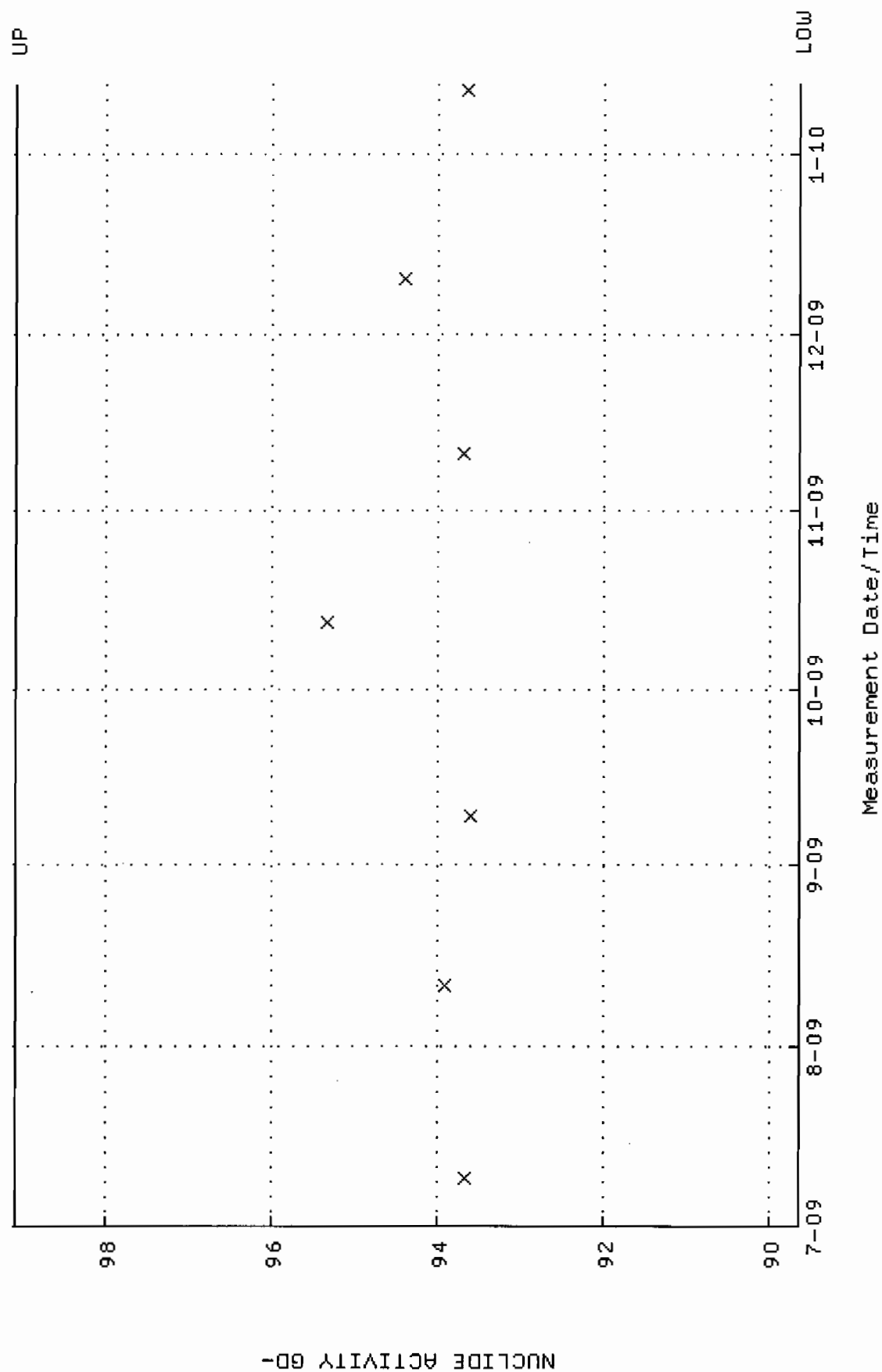
QA filename : DKA100:[ENV\_ALPHA.QA.B]B068.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W069.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.306636 through 0.326636



QA filename : DKA100:[ENV\_ALPHA.QA.W]W069.QAF;3  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 89.6479 through 99.0845

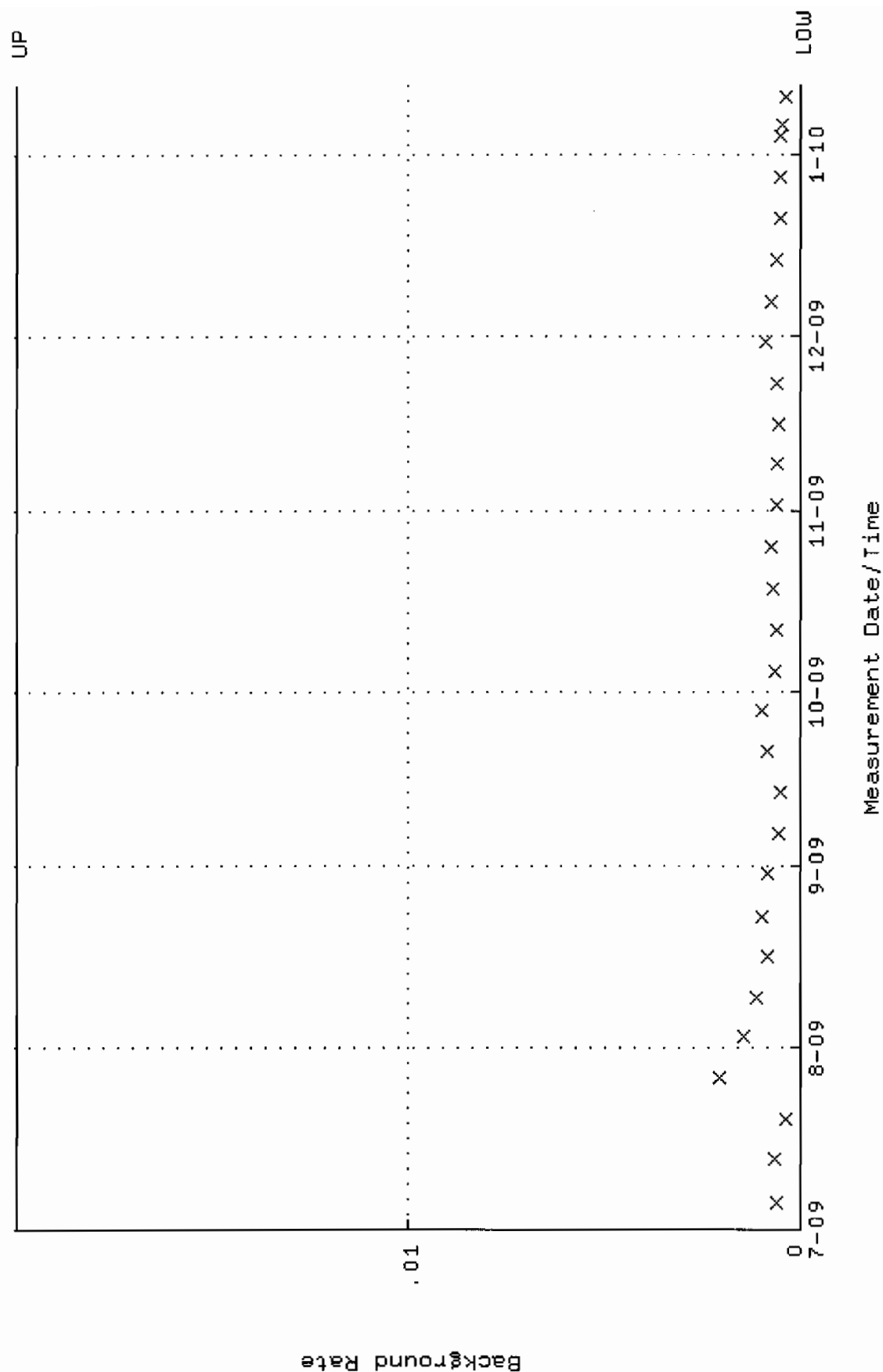


QA filename : DKA100:[ENV\_ALPHA.QA.B]B069.QAF;2

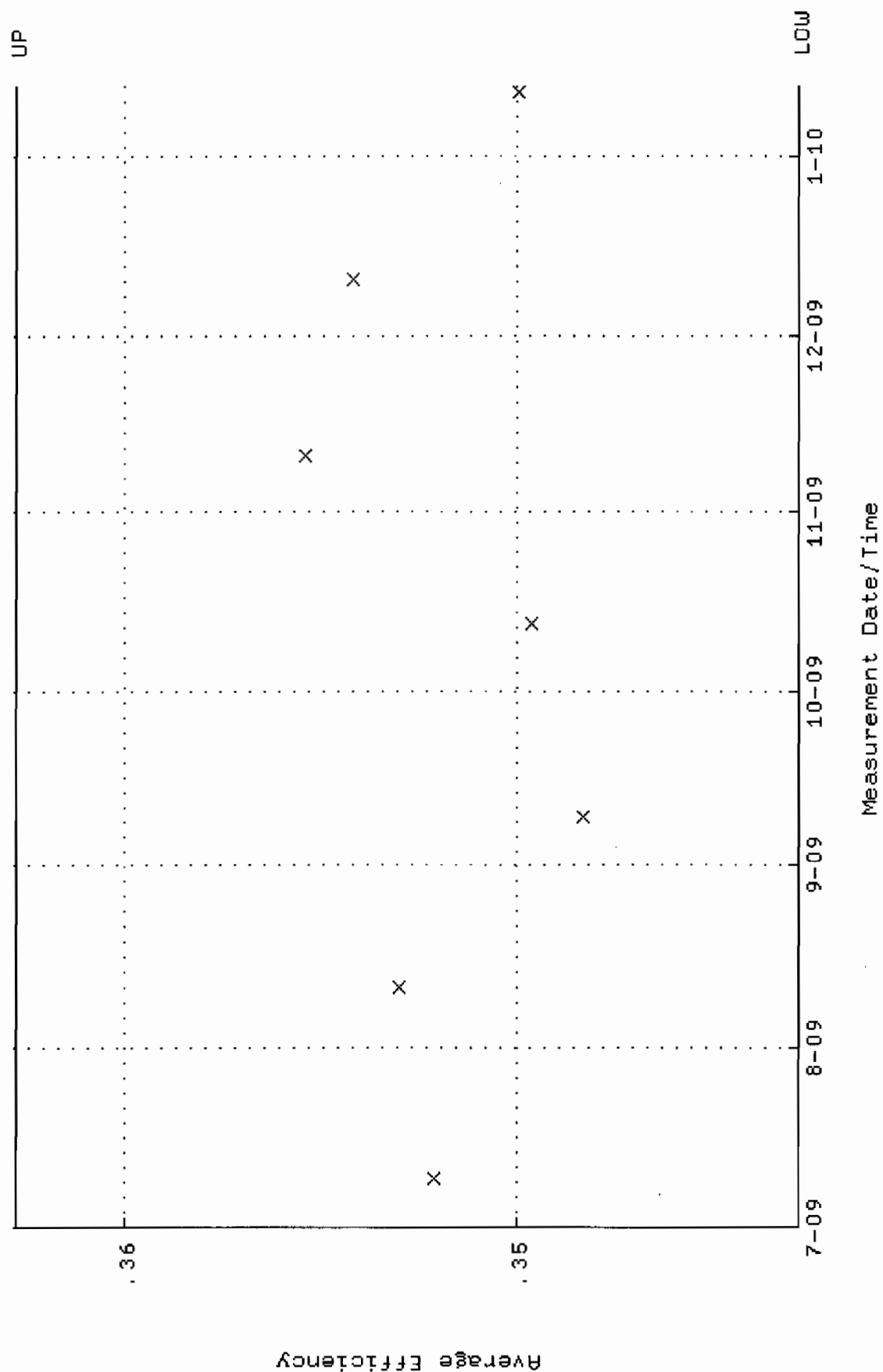
Parameter Name : BACKRATE (Background Rate)

Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00

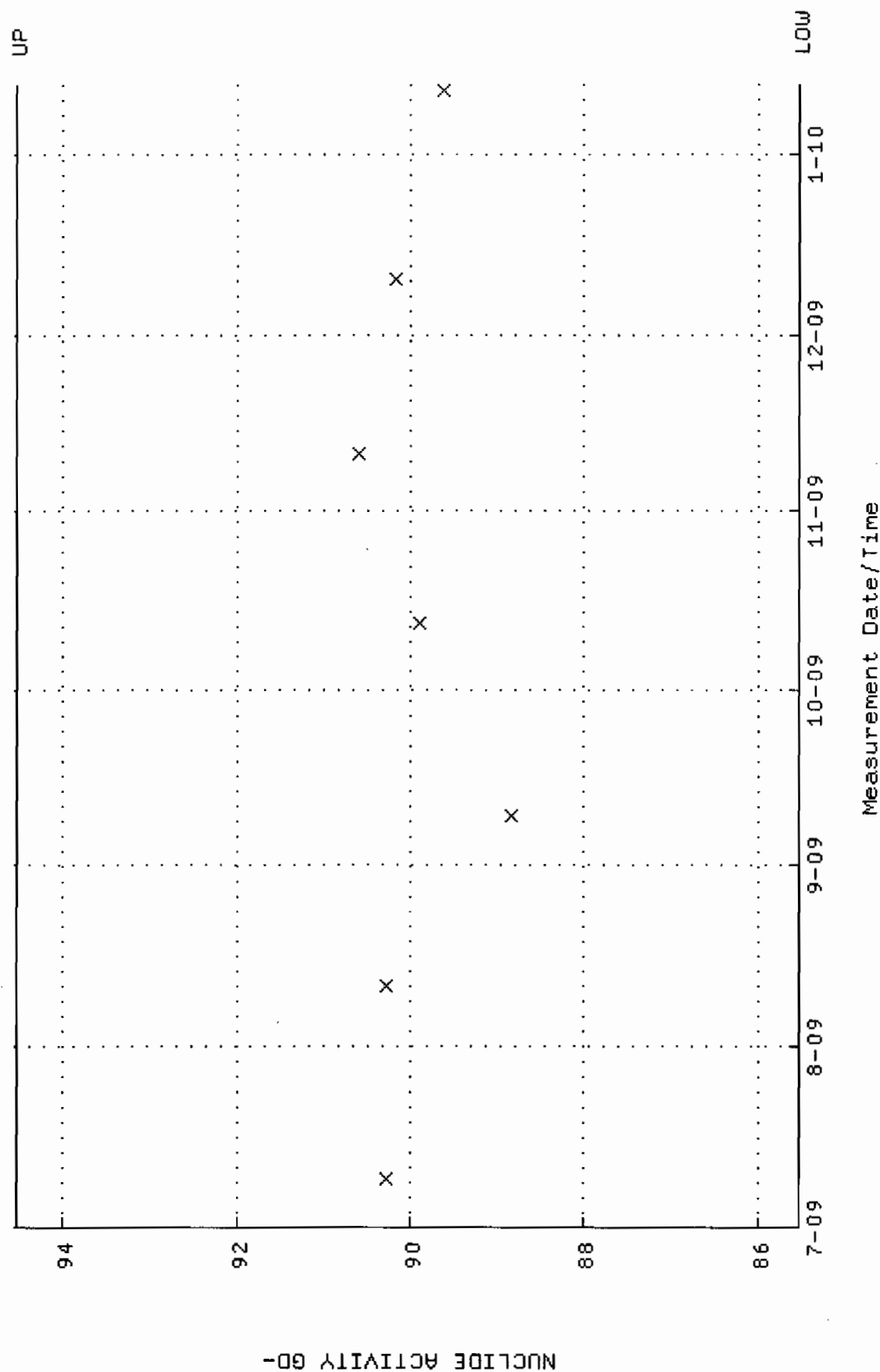
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



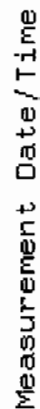
QA filename : DKA100:[ENV\_ALPHA.QA.W]W070.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.342785 through 0.362785



QA filename : DKA100:[ENV\_ALPHA.QA.W]W070.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.5293 through 94.5323

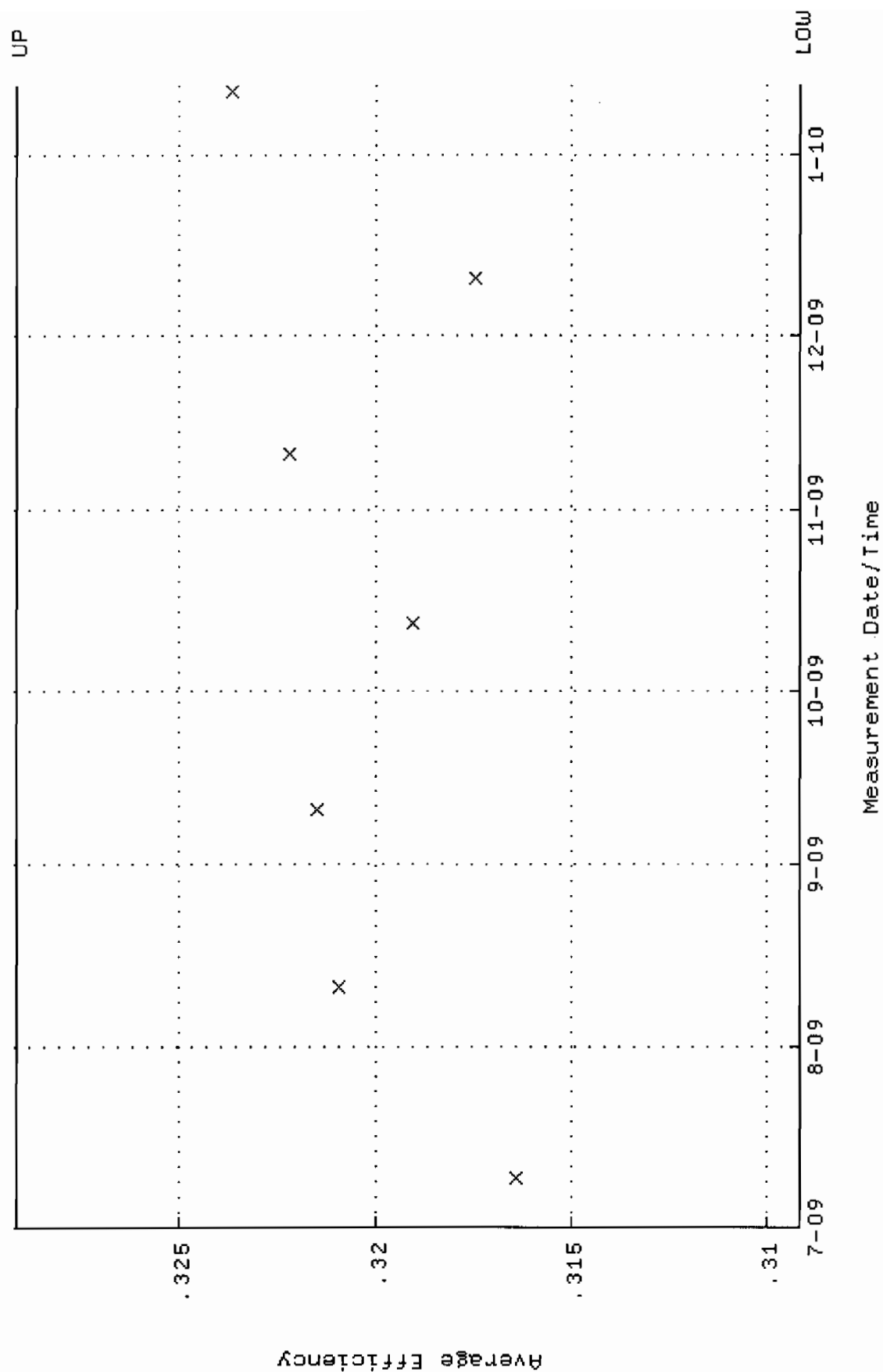


Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

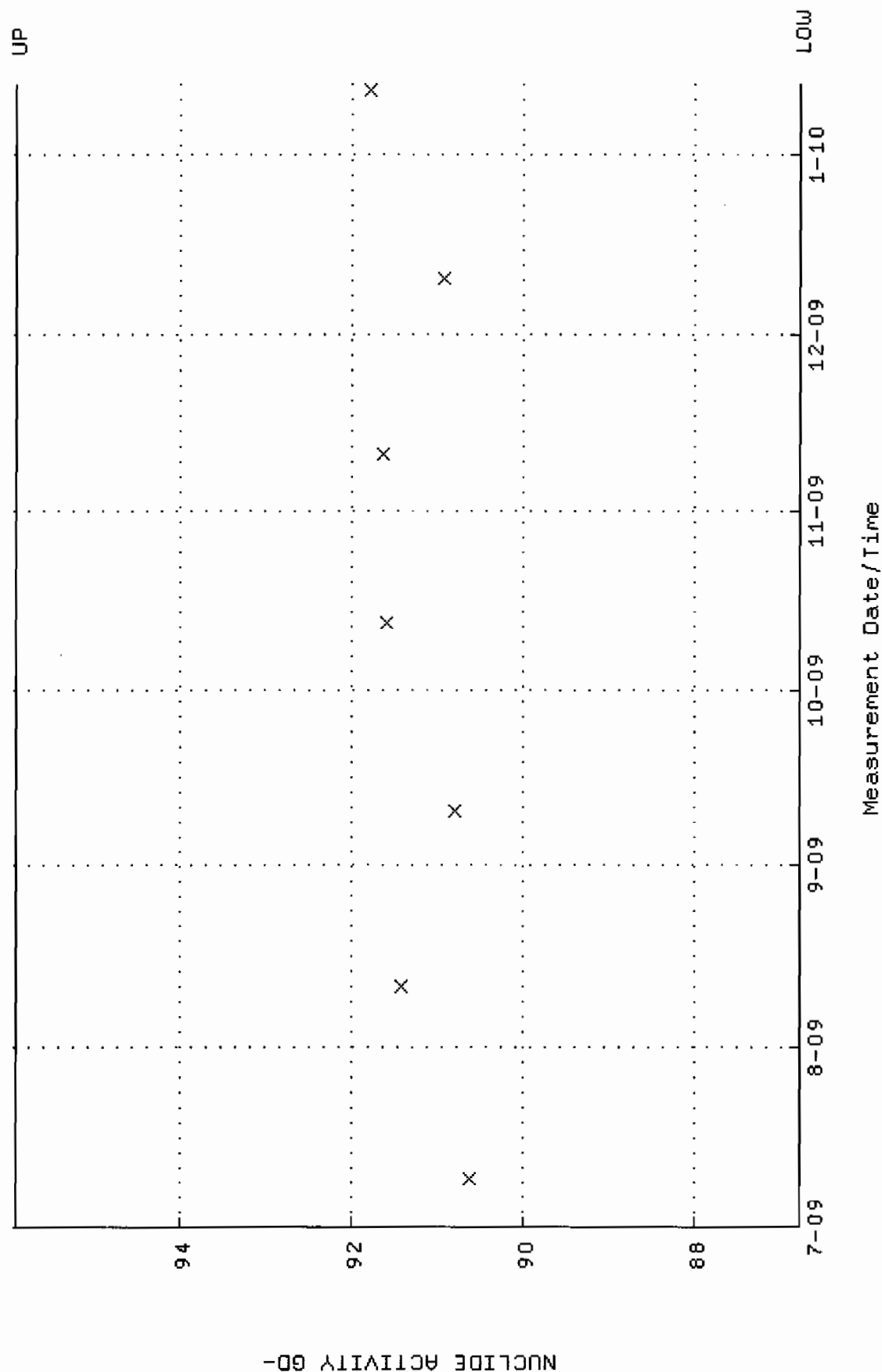




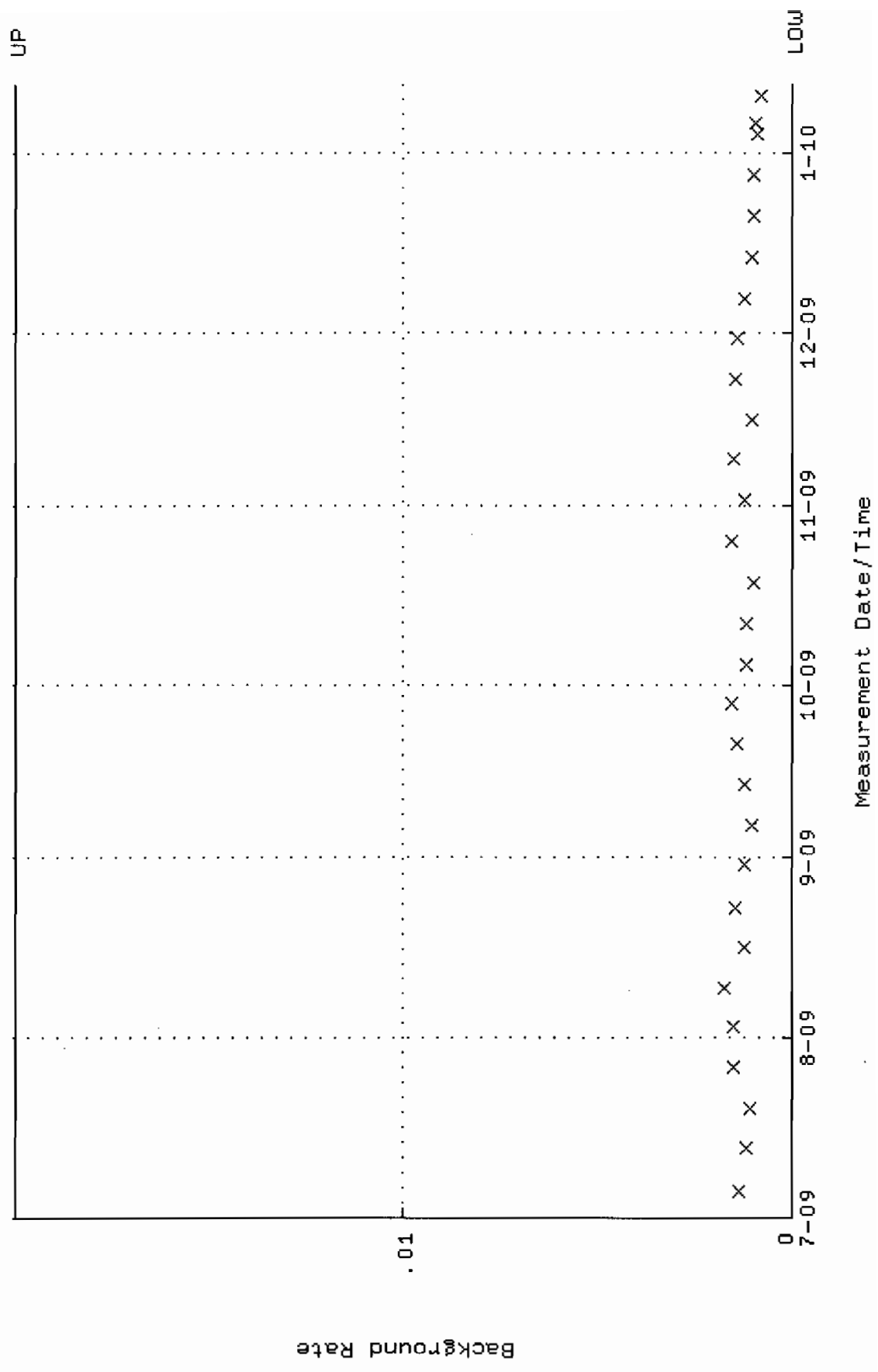
QA filename : DKA100:[ENV\_ALPHA.QA.W]w071.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.309161 through 0.329161



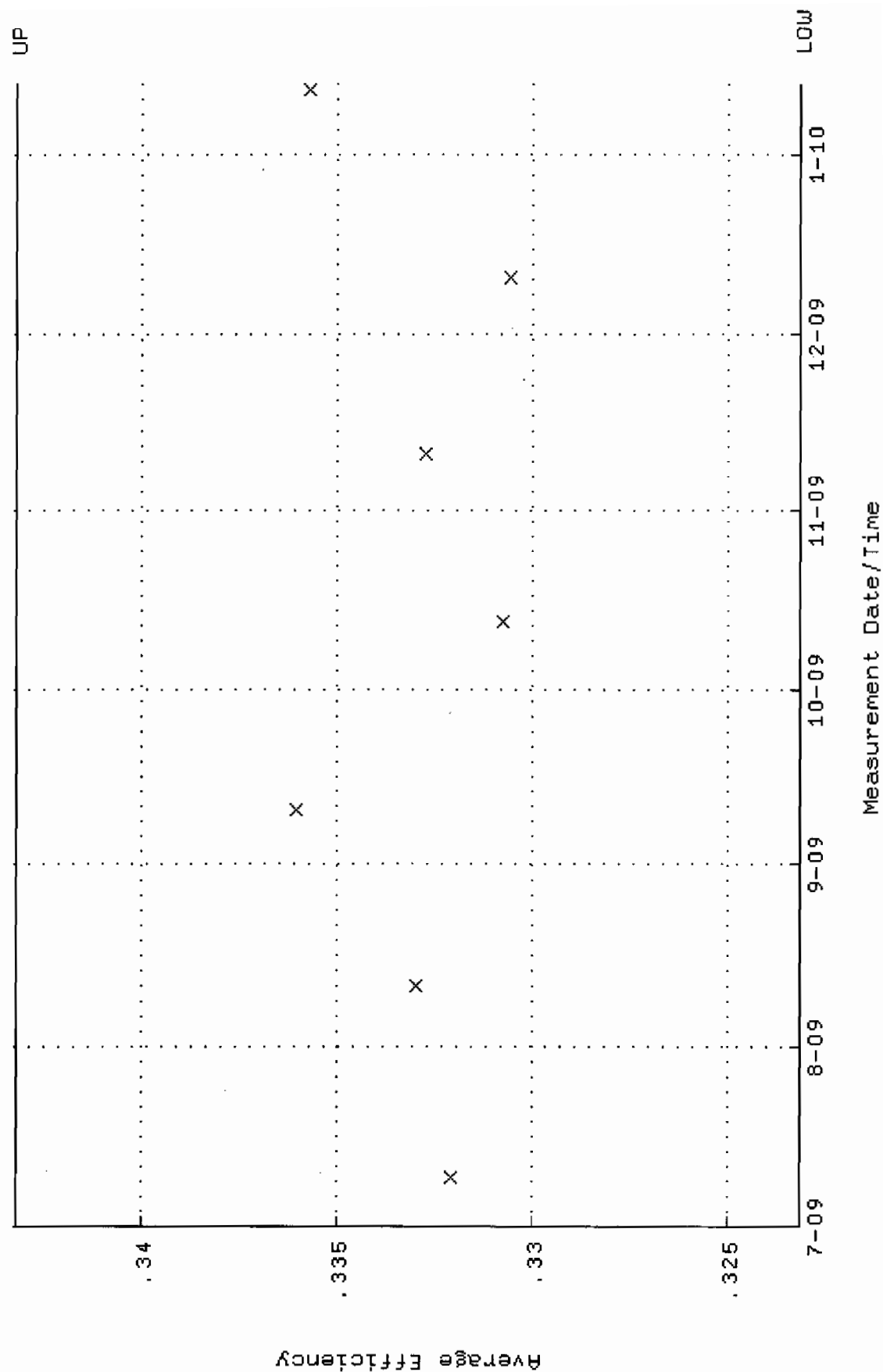
QA filename : DKA100:[ENV\_ALPHA.QA.W]W071.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.7769 through 95.9113



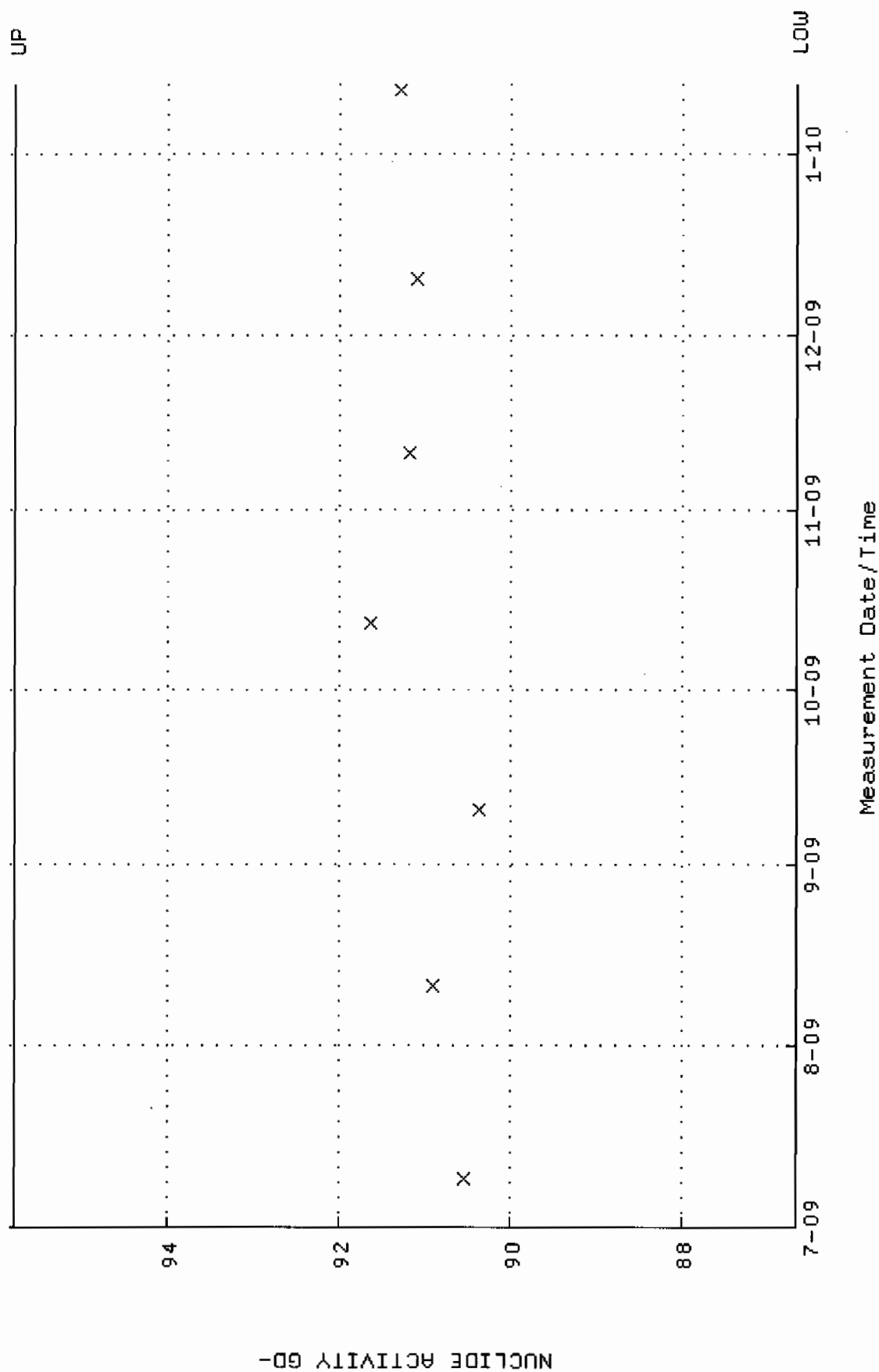
QA filename : DKA100:[ENV\_ALPHA.QA.B]B071.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:02 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



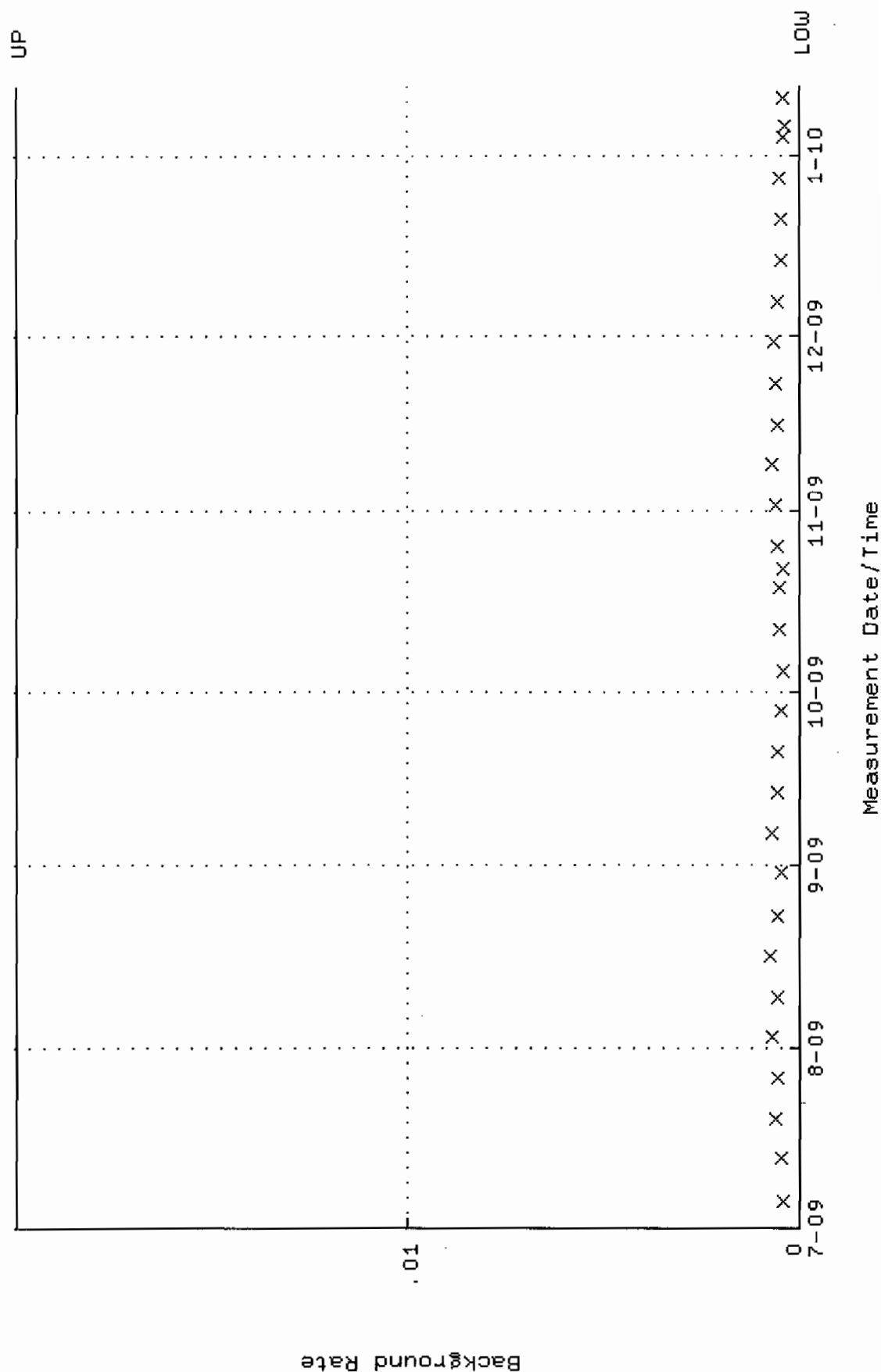
QA filename : DKA100:[ENV\_ALPHA.QA.W]W073.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.323184 through 0.343184



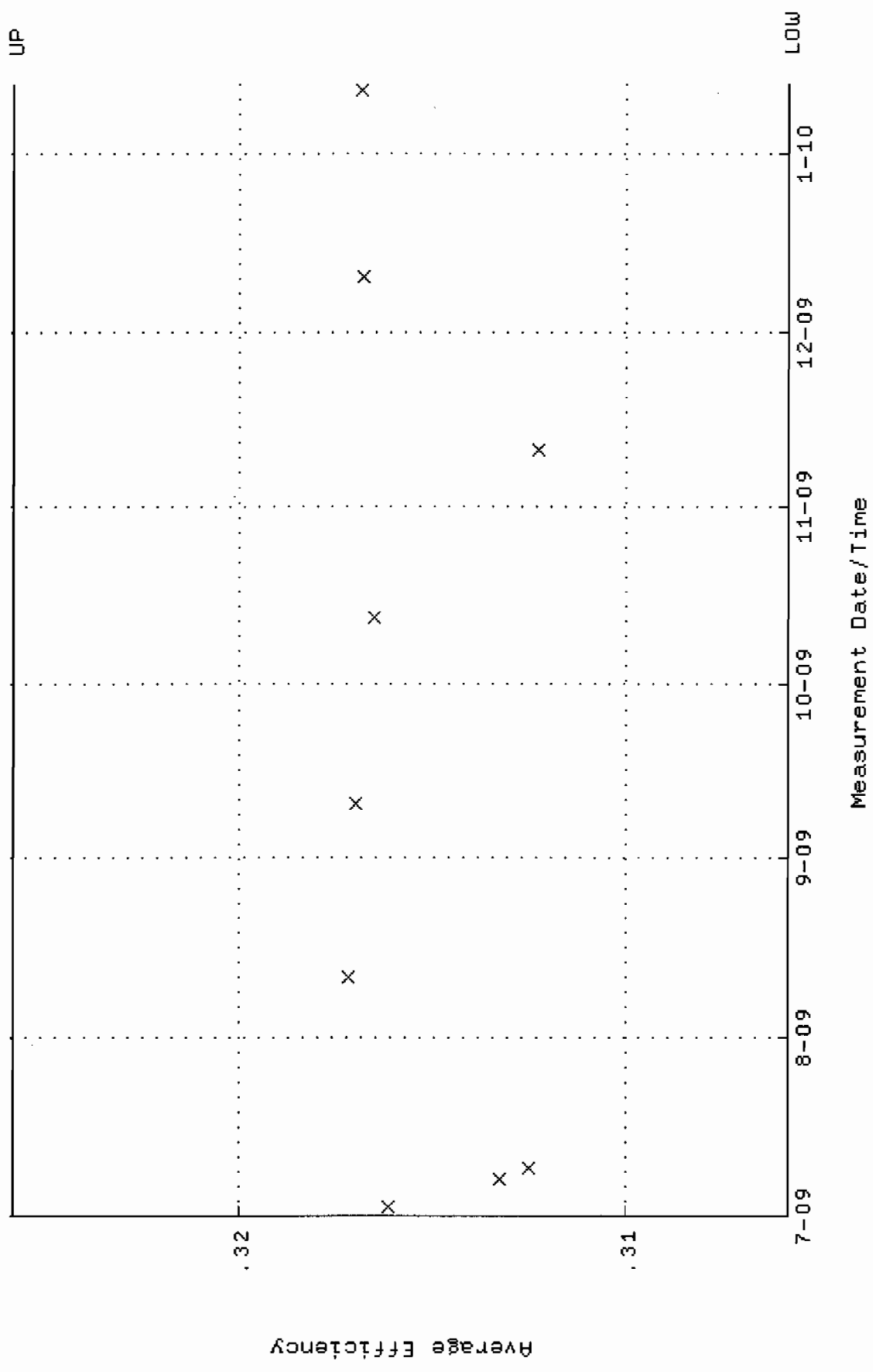
QA filename : DKA100:[ENV\_ALPHA.QA.W]W073.QAF;3  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.6734 through 95.7970



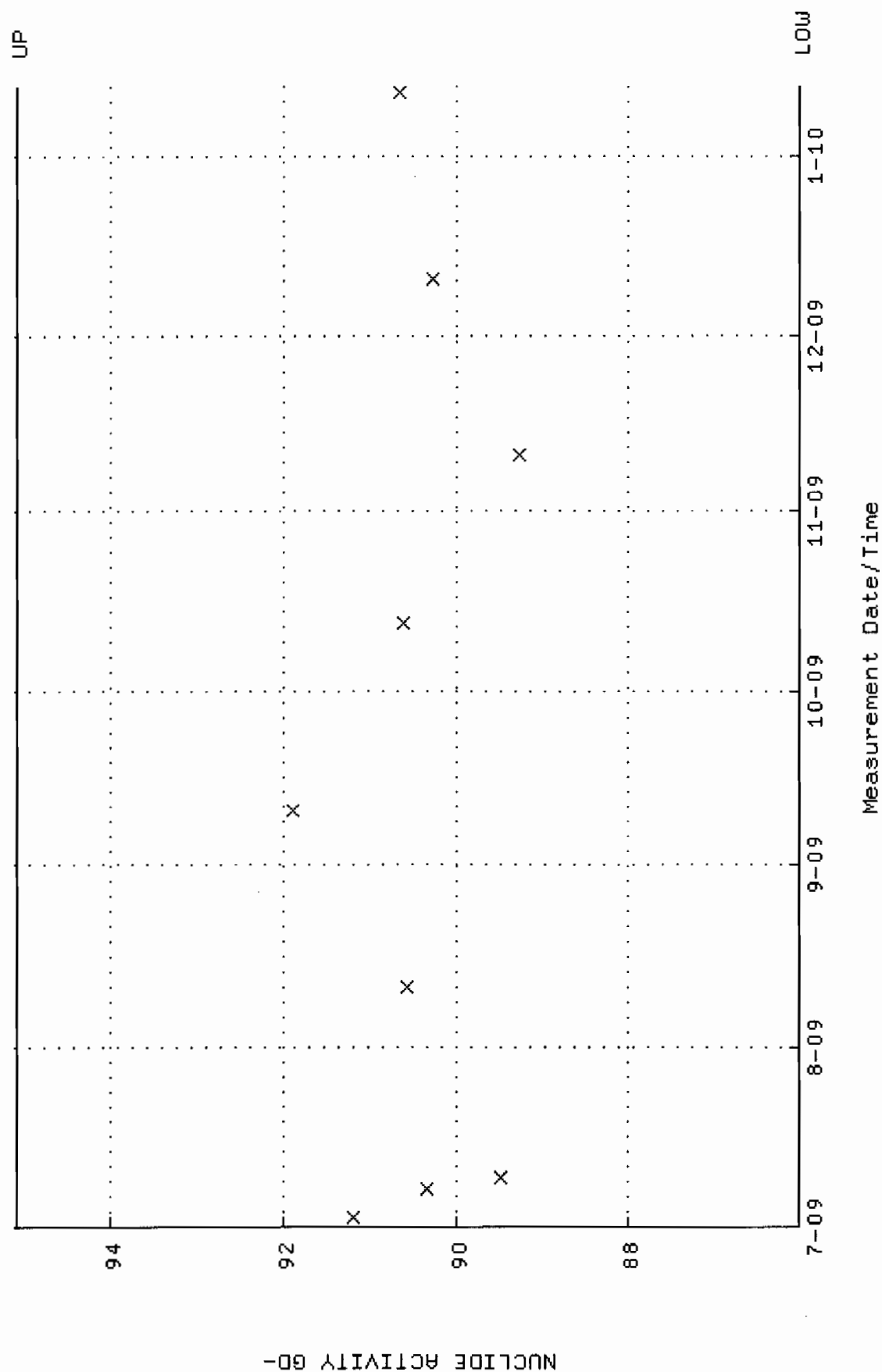
QA filename : DKA100:[ENV-ALPHA.QA.B]B073.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:02 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W074.QAF;4  
Parameter Name : AVRGEFF (Average Efficiency)  
Start/End Dates : 2-JUL-2009 15:04:13 through 12-JAN-2010 12:00:00  
Lower/Upper Lmts: 0.305830 through 0.325830

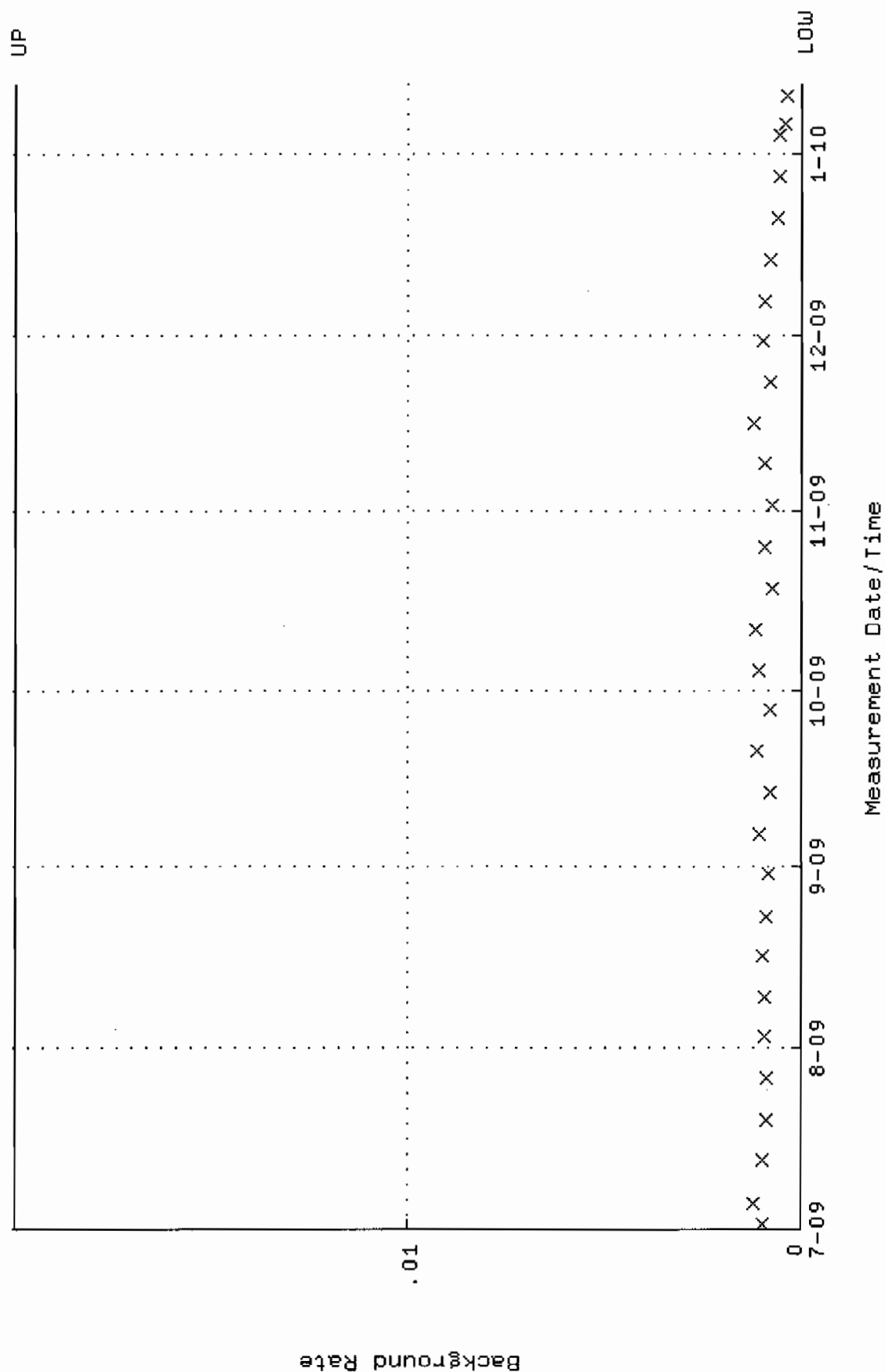


QA filename : DKA100:[ENV\_ALPHA.QA.W]W074.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUL-2009 15:04:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.0289 through 95.0845

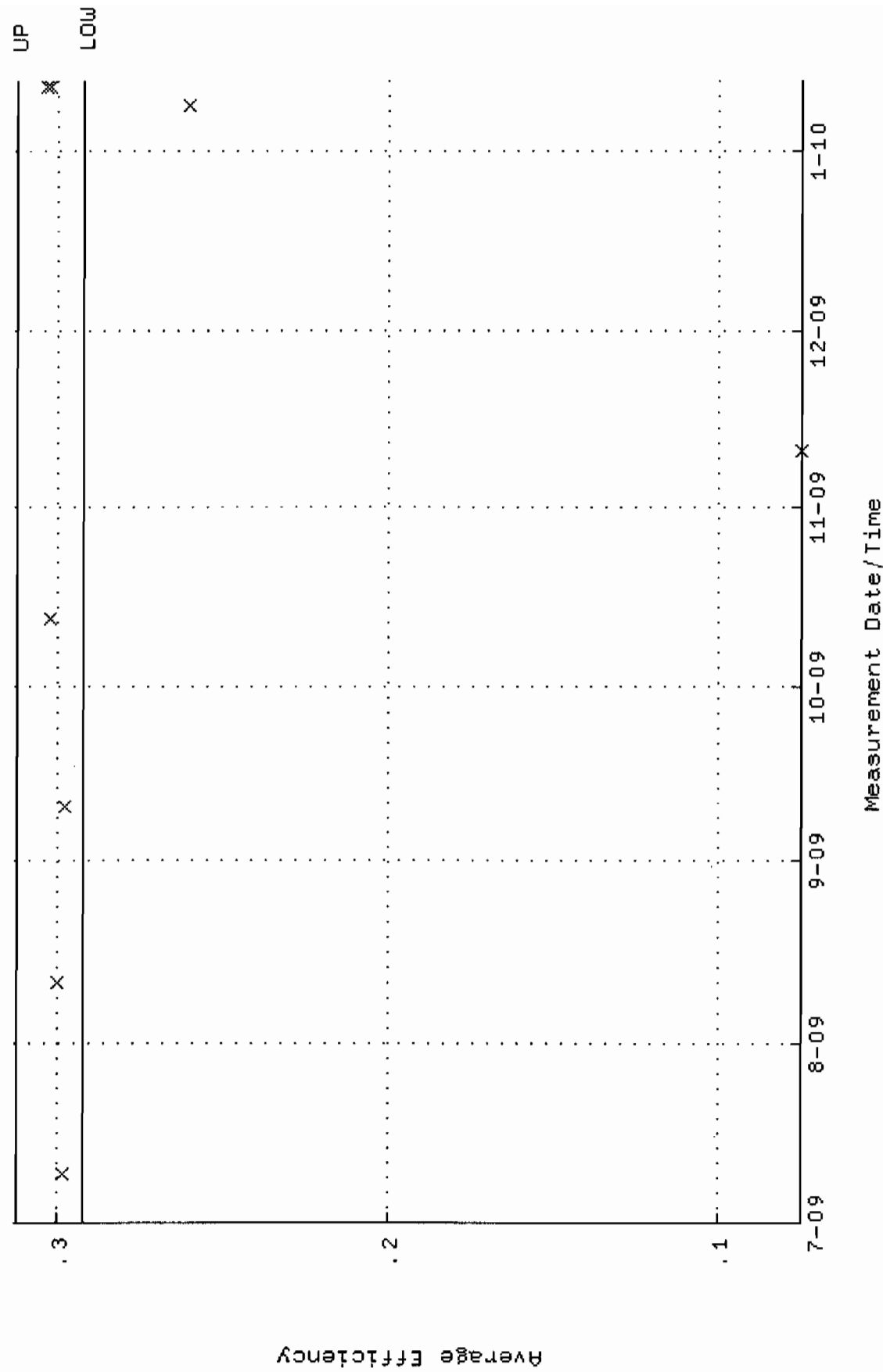




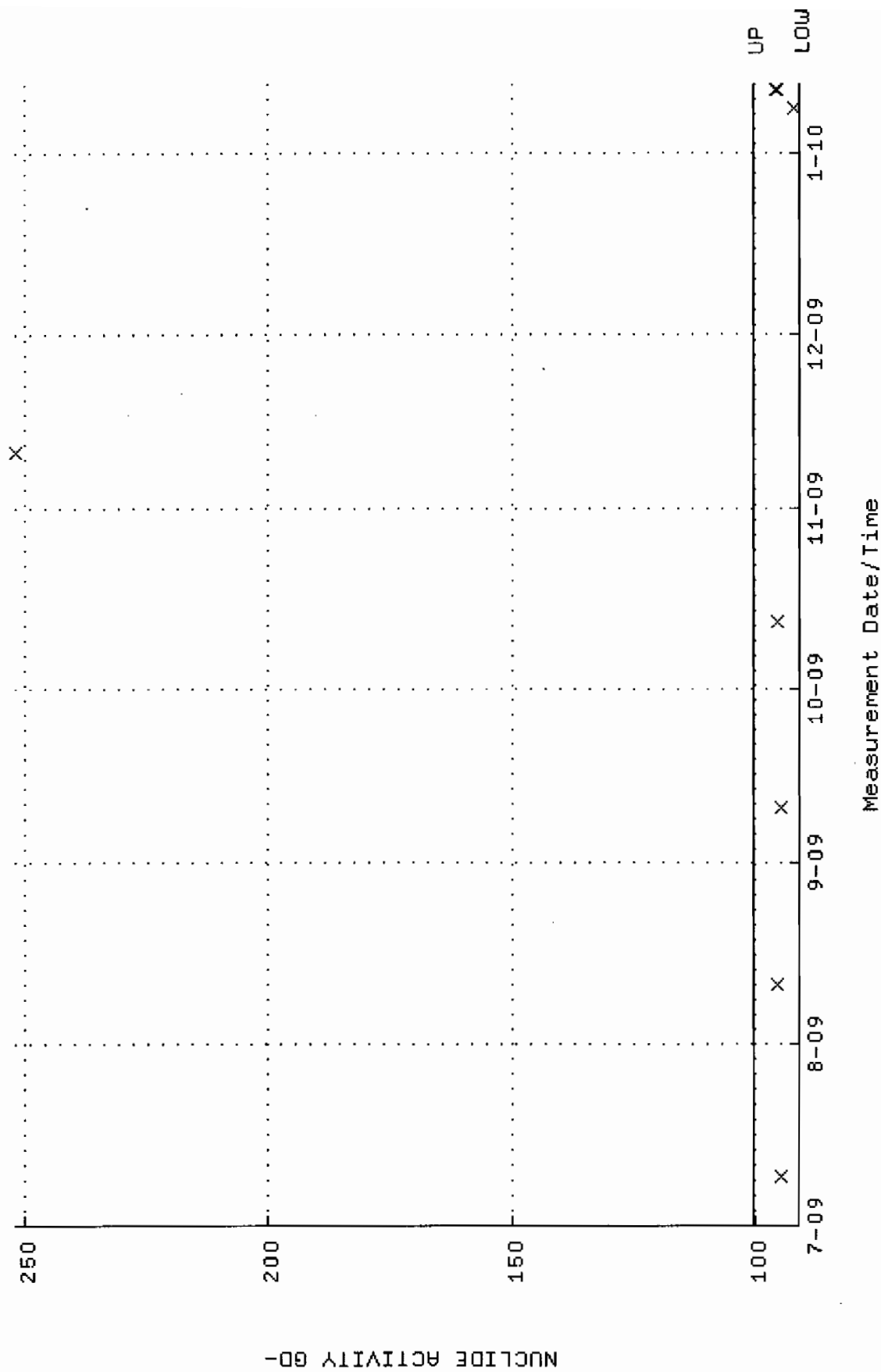
QA filename : DKA100:[ENV\_ALPHA.QA.B]B074.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUL-2009 21:39:57 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W075.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.292134 through 0.312134

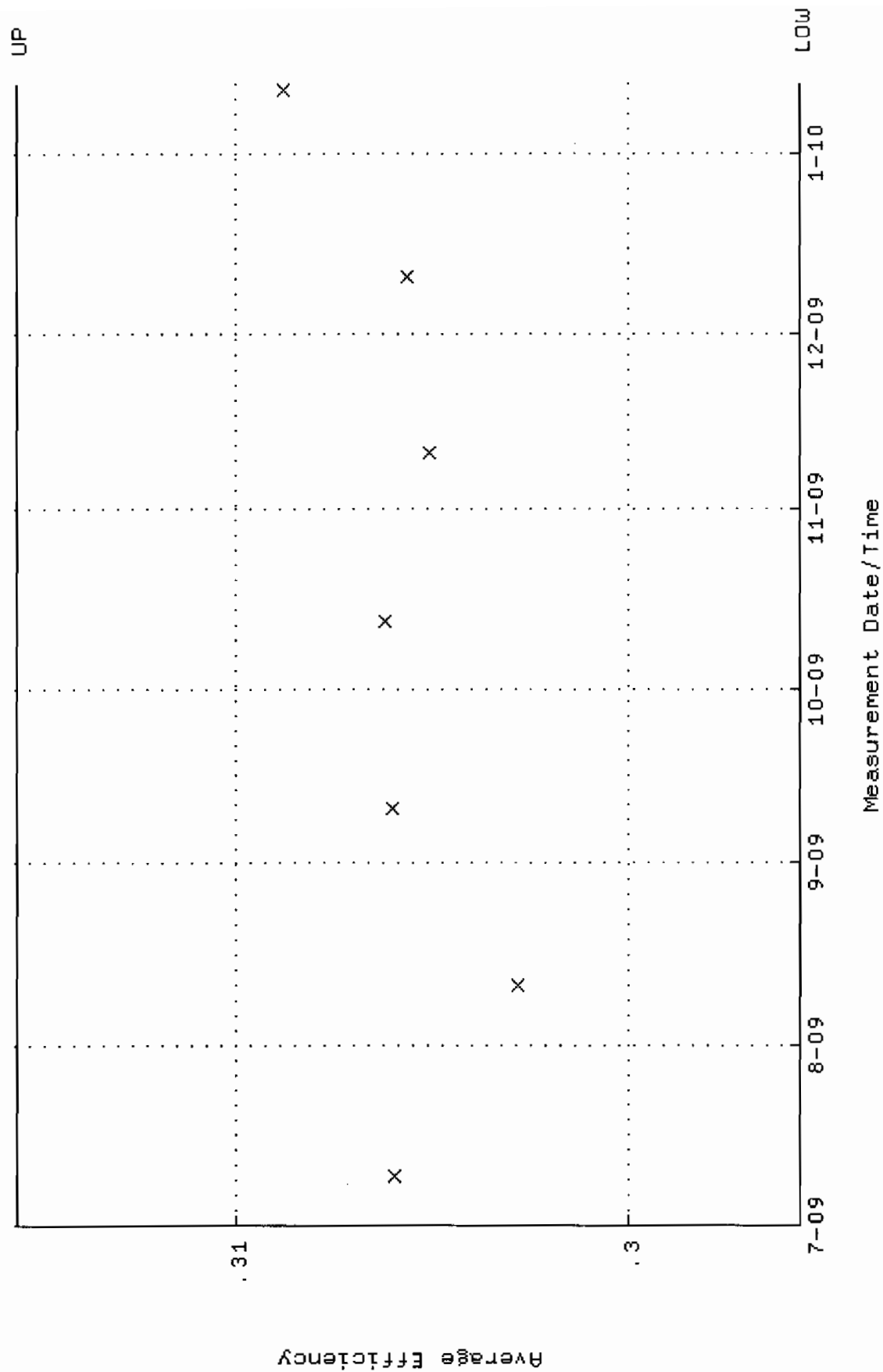


QA filename : DKA100:[ENV\_ALPHA.QA.W]W075.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 91.1212 through 100.713

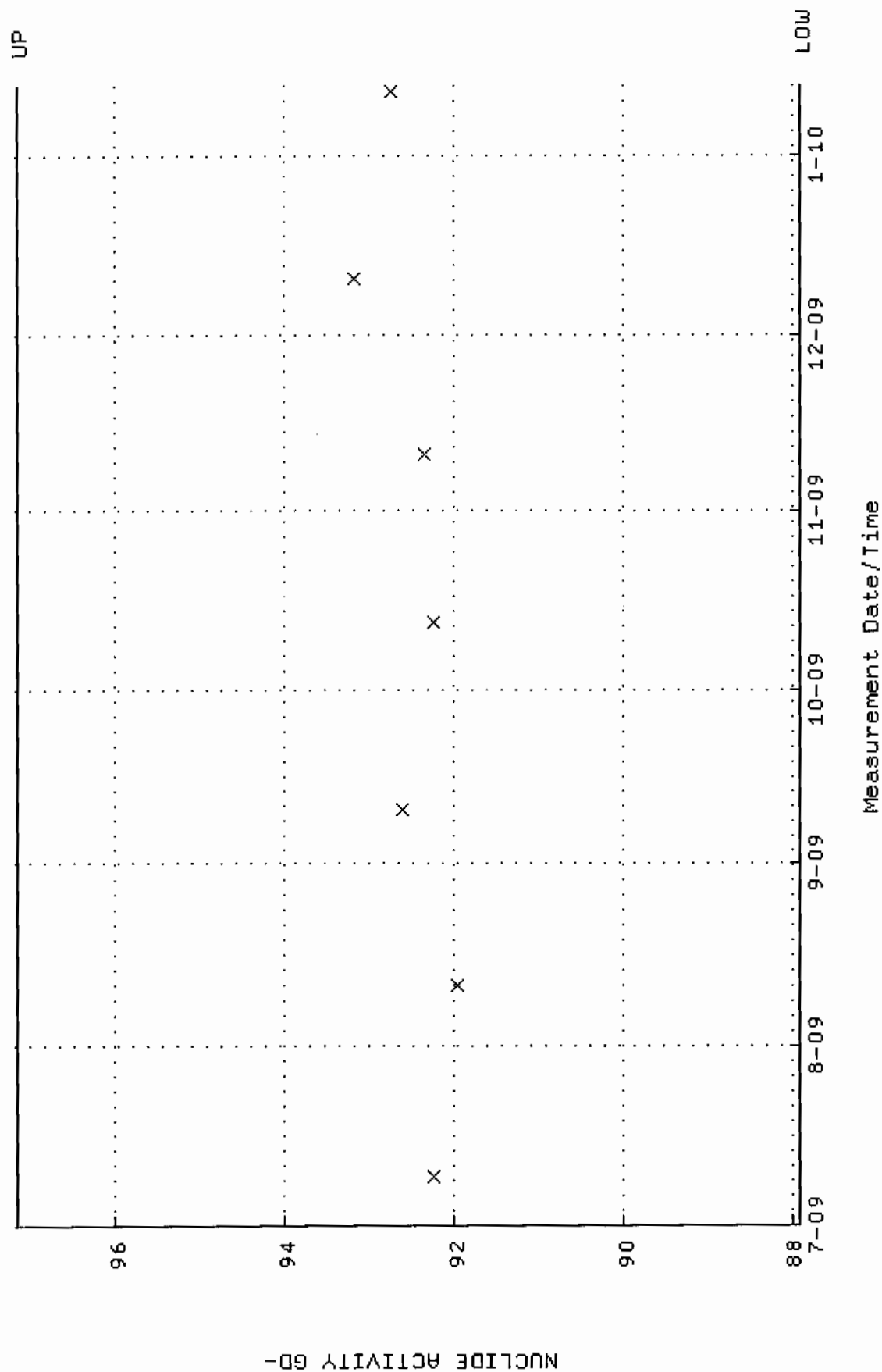




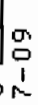
QA filename : DKA100:[ENV\_ALPHA.QA.W]W076.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.295613 through 0.315613



QA filename : DKA100:[ENV\_ALPHA.QA.W]W076.QAF;2  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.9031 through 97.1561

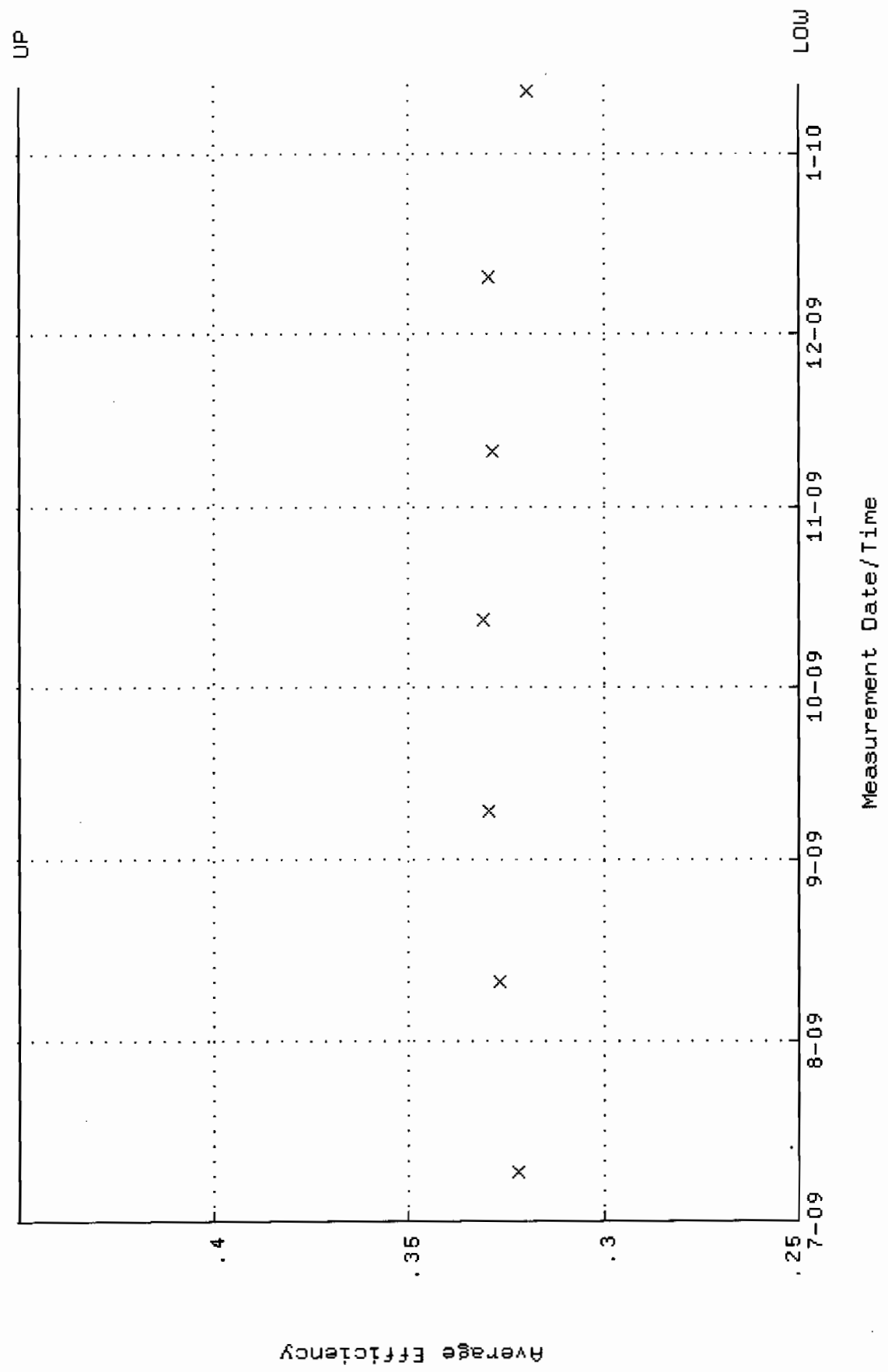


Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



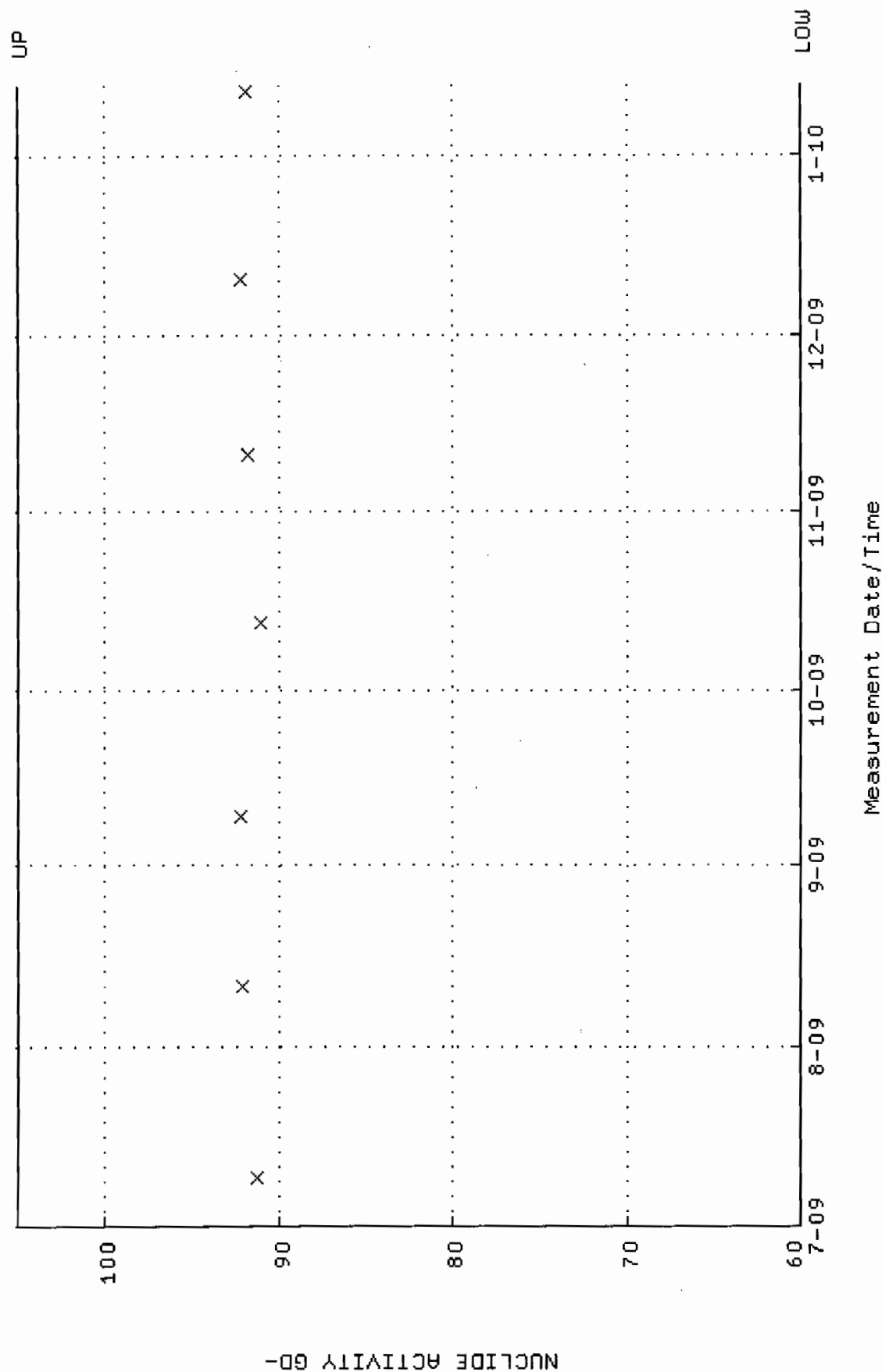
Measurement Date/Time

QA filename : DKA100:[ENV\_ALPHA.QA.W]W077.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000

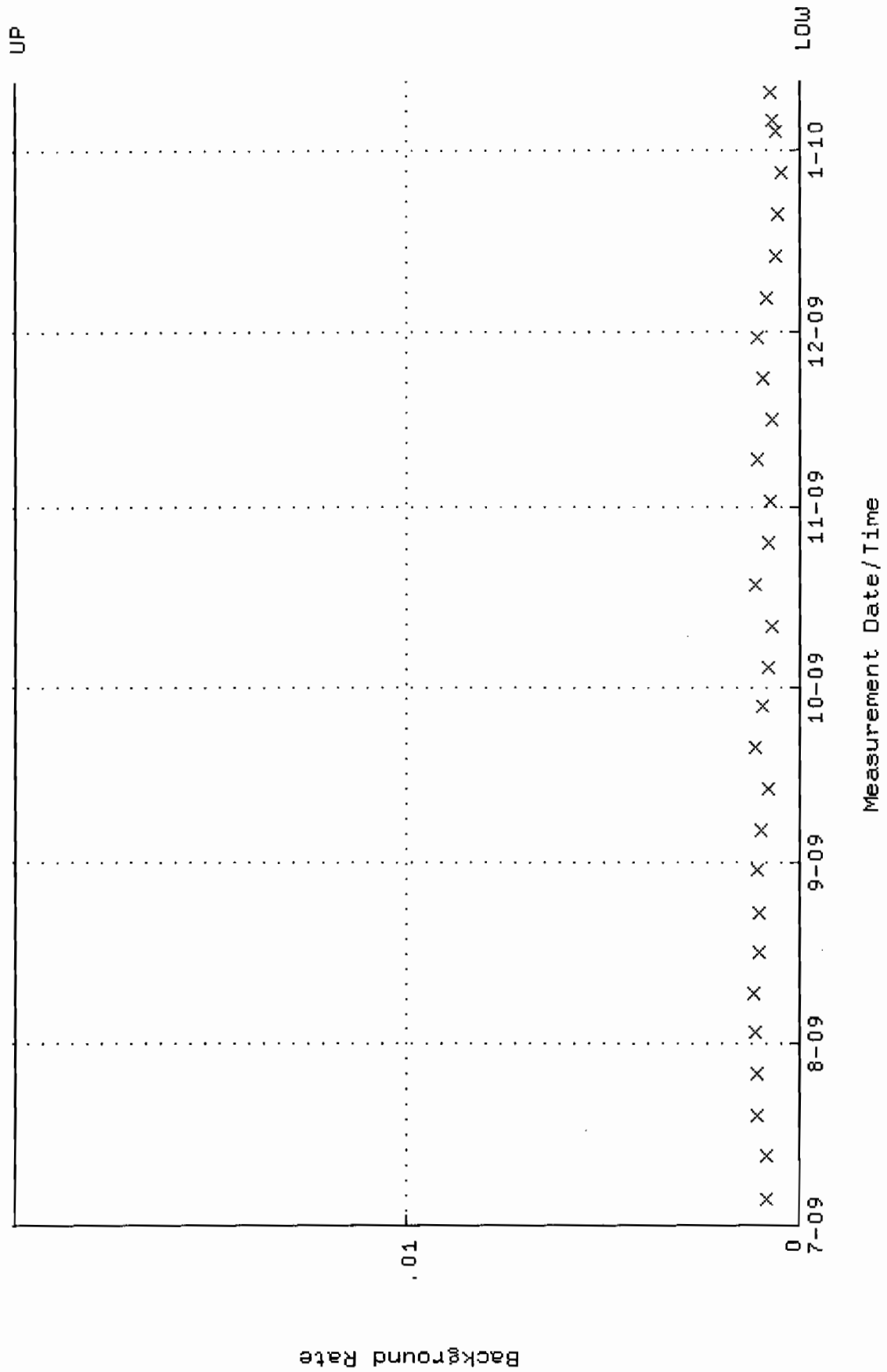




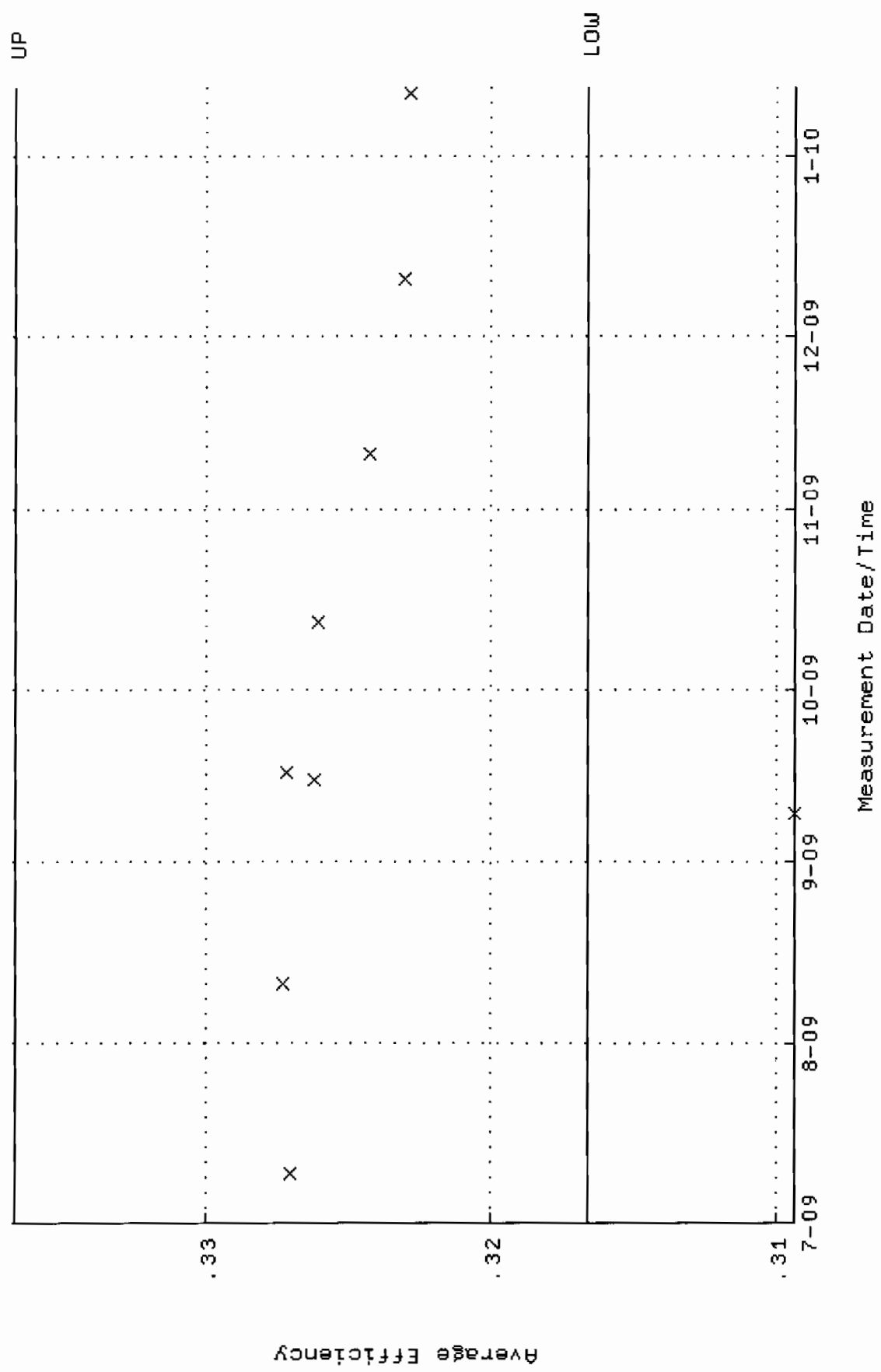
QA filename : DKA100:[ENV\_ALPHA.QA.W]W077.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



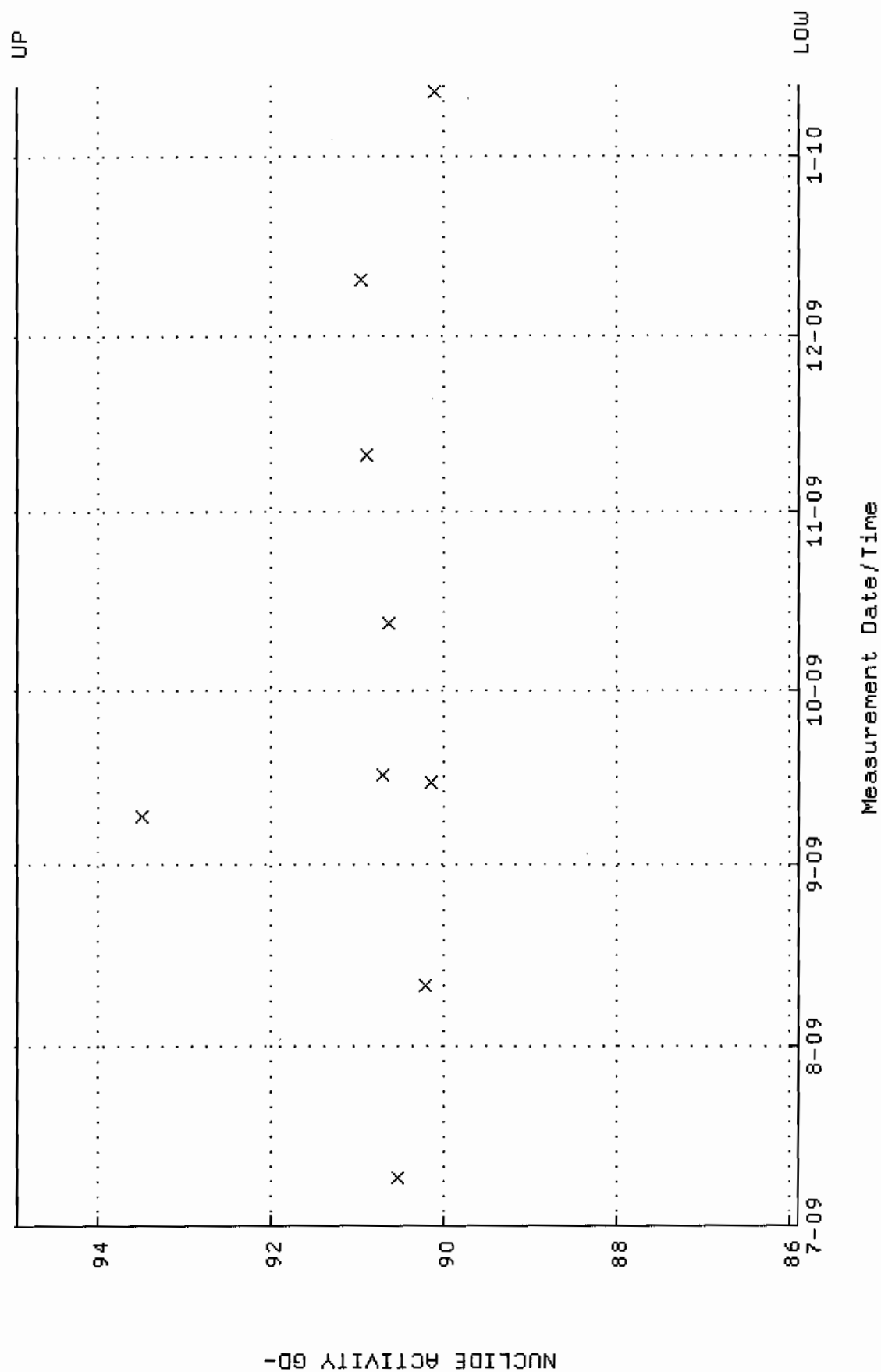
QA filename : DKA100:[ENV\_ALPHA.QA.B]B077.QAF;3  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:03 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



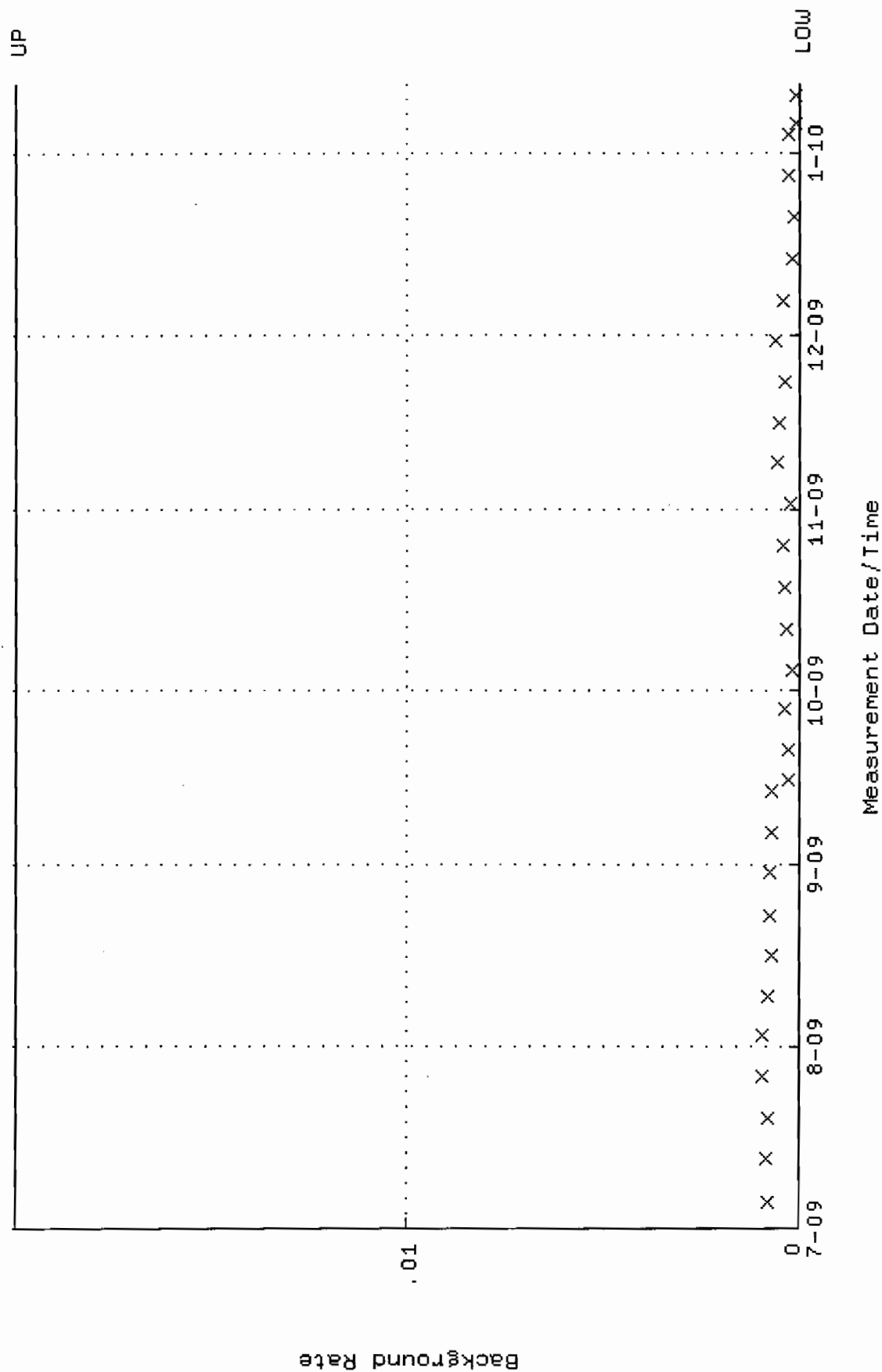
QA filename : DKA100:[ENV\_ALPHA.QA.W]W079.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.316654 through 0.336654



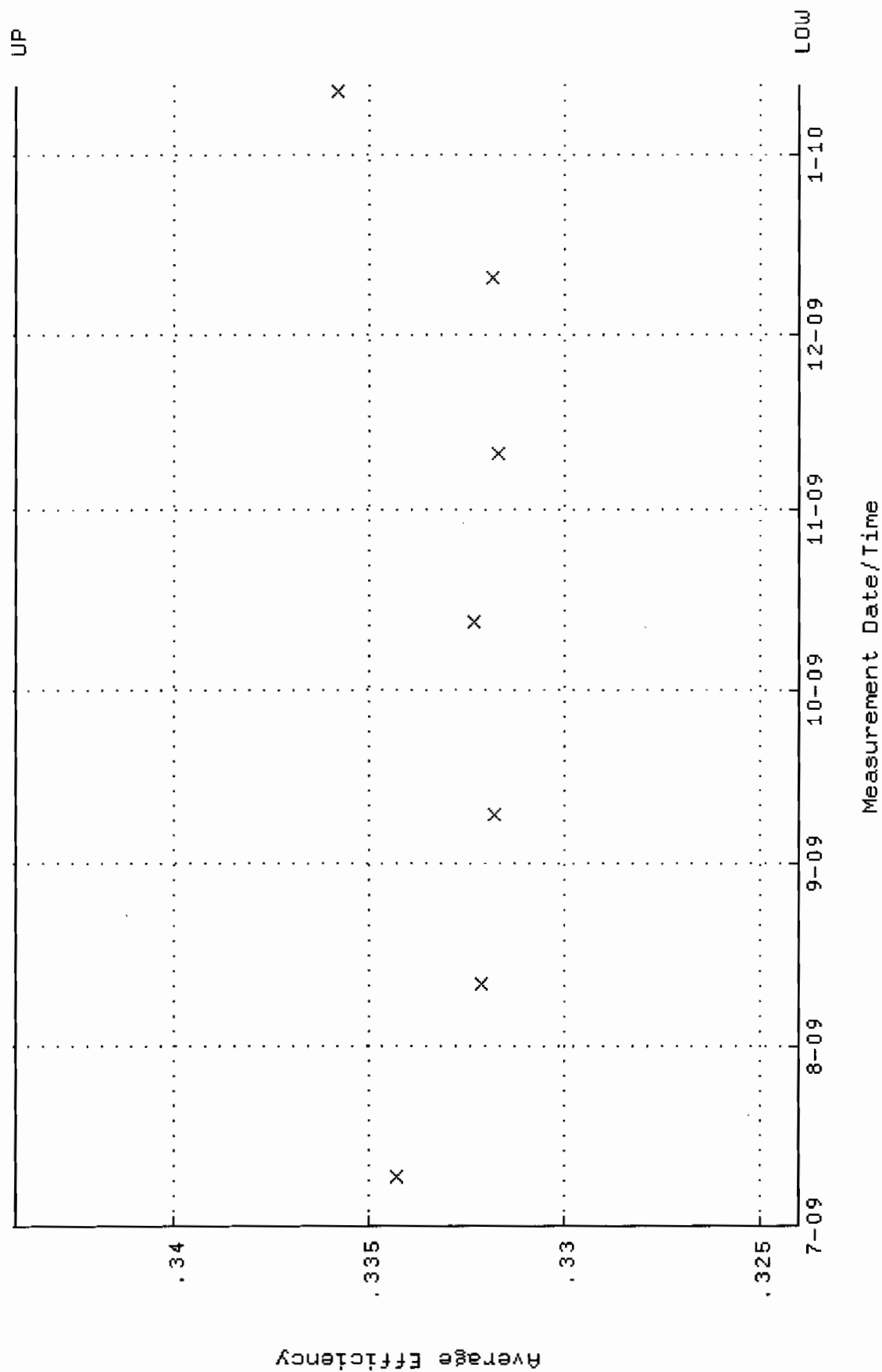
QA filename : DKA100:[ENV\_ALPHA.QA.W]W079.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.8913 through 94.9325



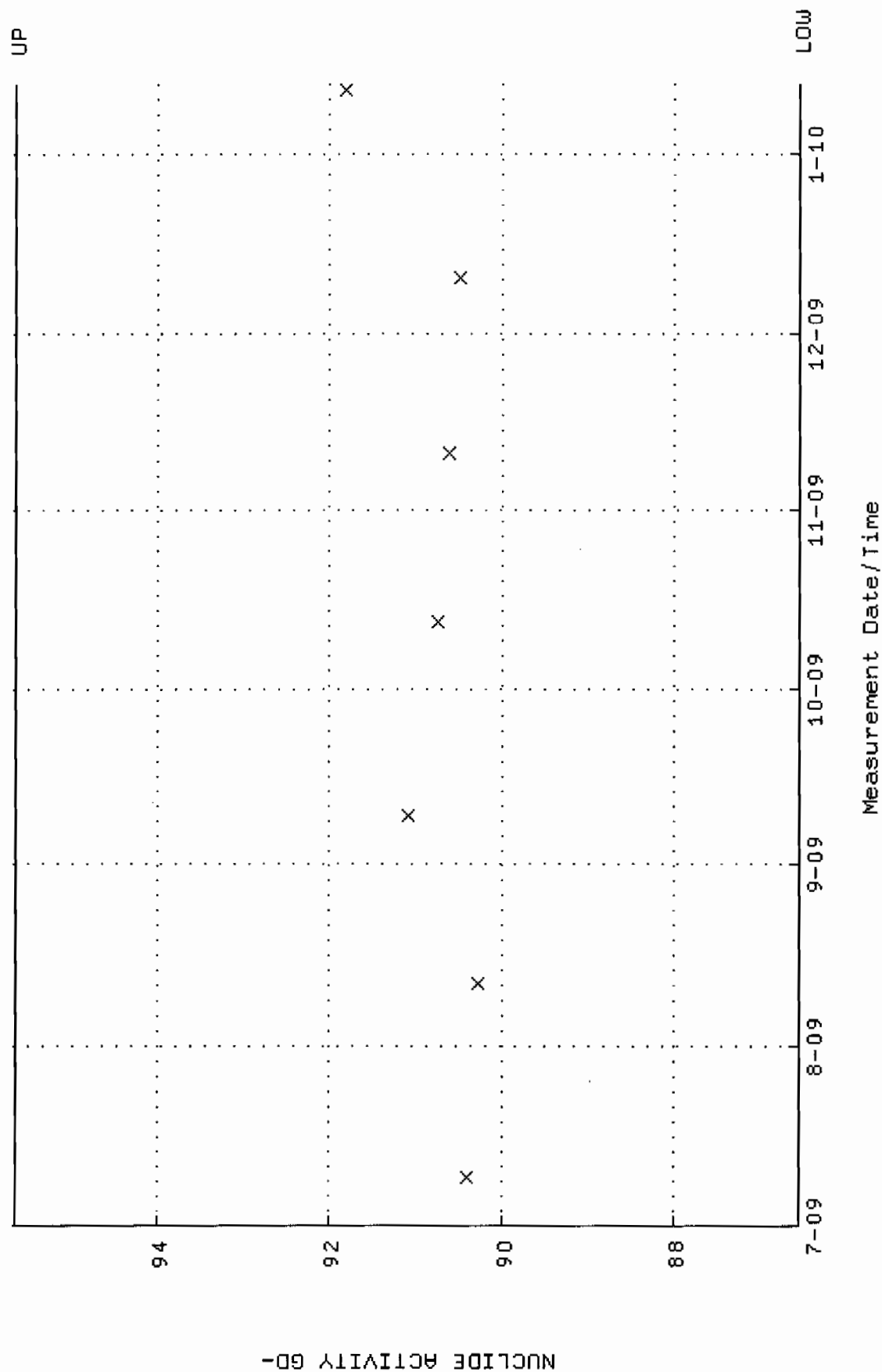
QA filename : DKA100:[ENV\_ALPHA.QA.B]B079.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:03 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



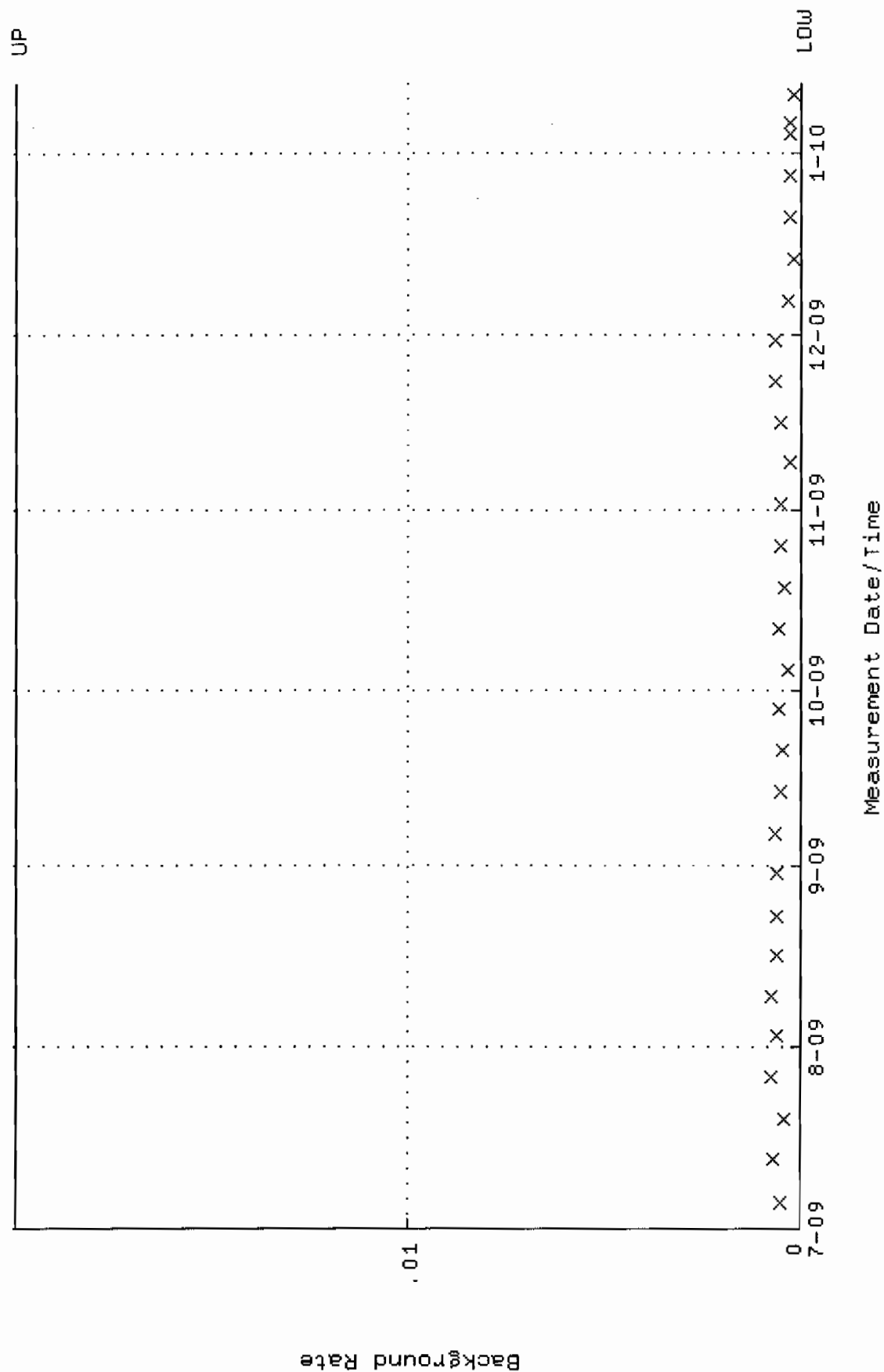
QA filename : DKA100:[ENV\_ALPHA.QA.W]W080.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.324032 through 0.344032



QA filename : DKA100:[ENV\_ALPHA.QA.W]W080.QAF;4  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.5393 through 95.6487

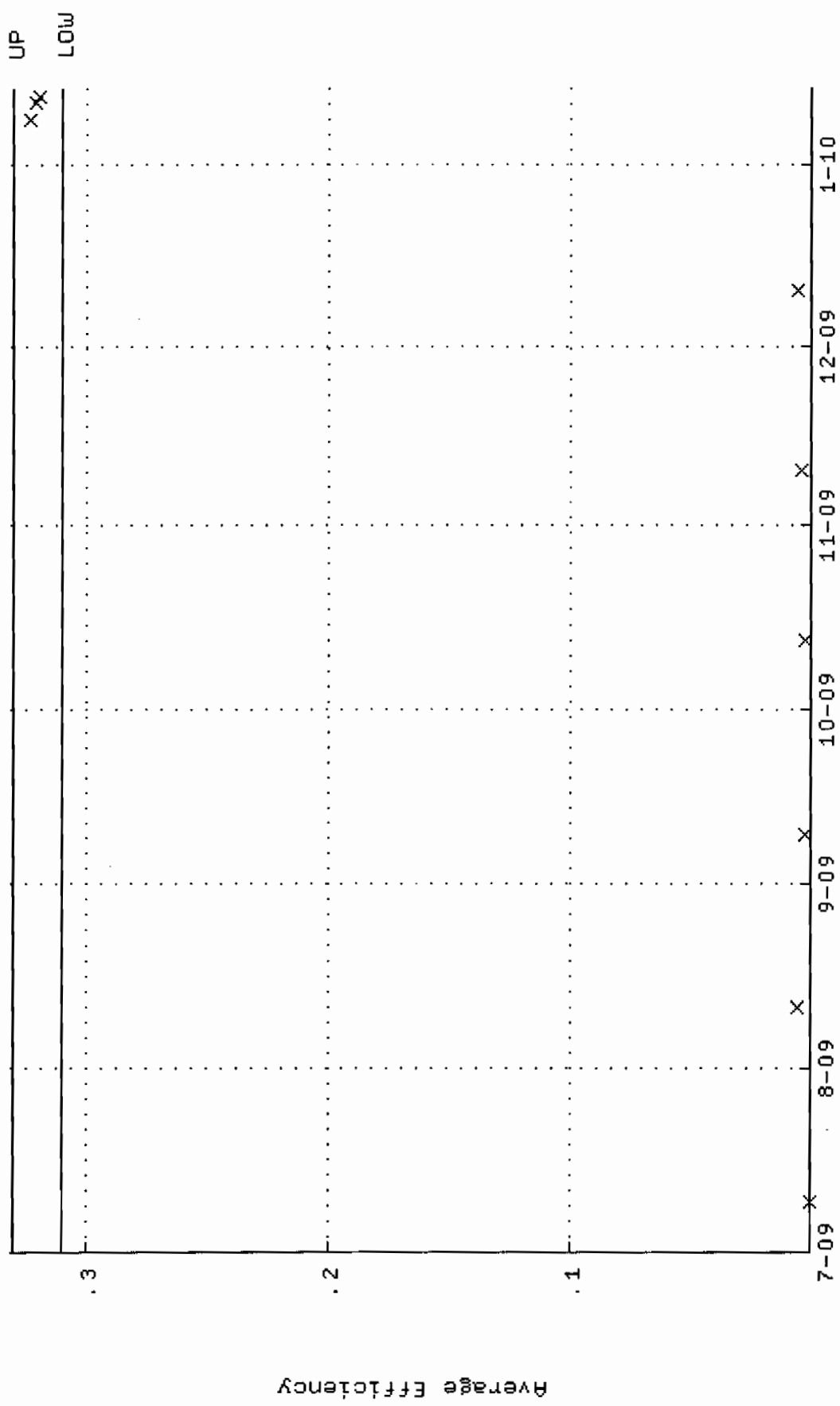


QA filename : DKA100:[ENV\_ALPHA.QA.B]B080.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:03 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

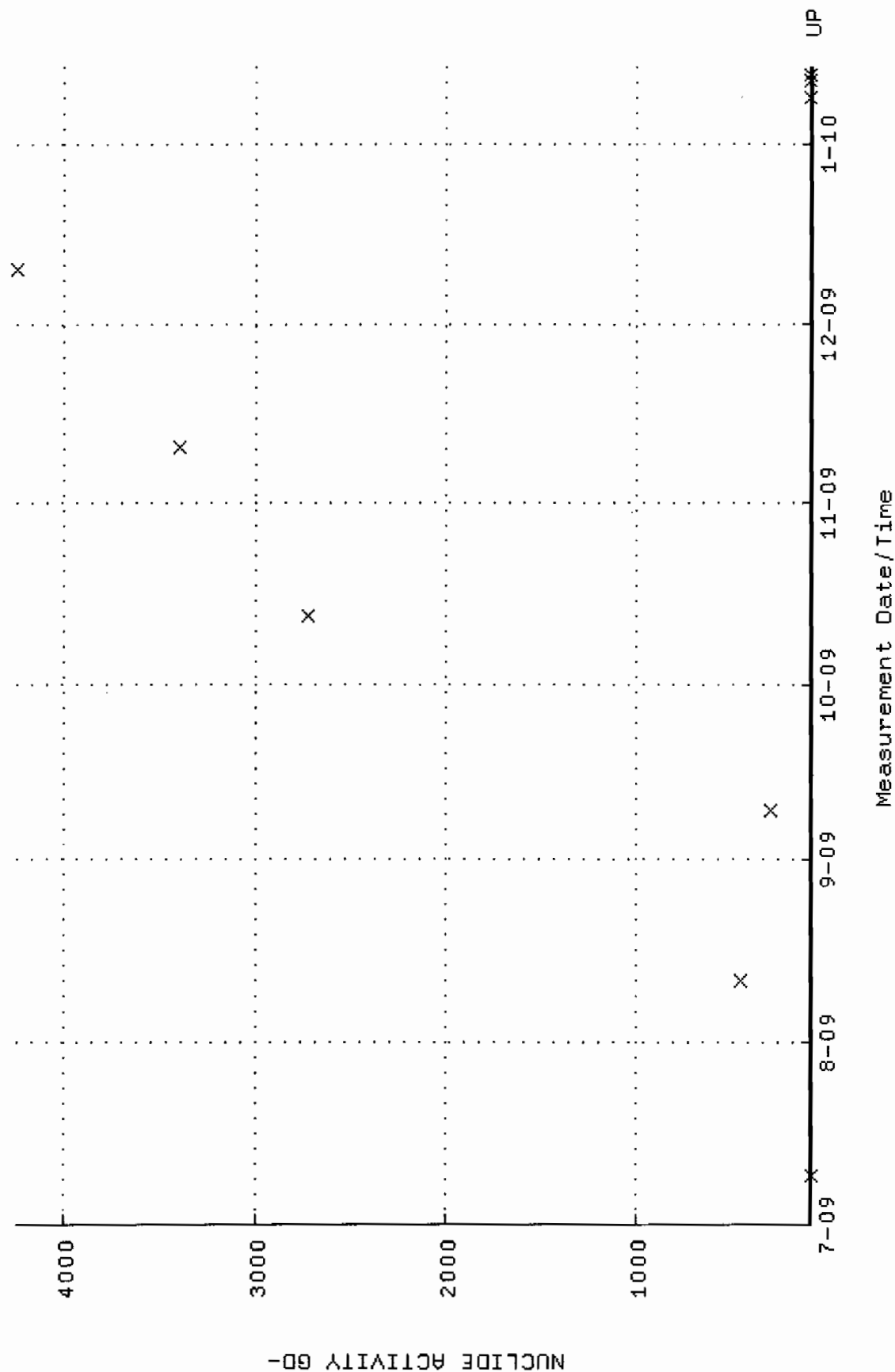




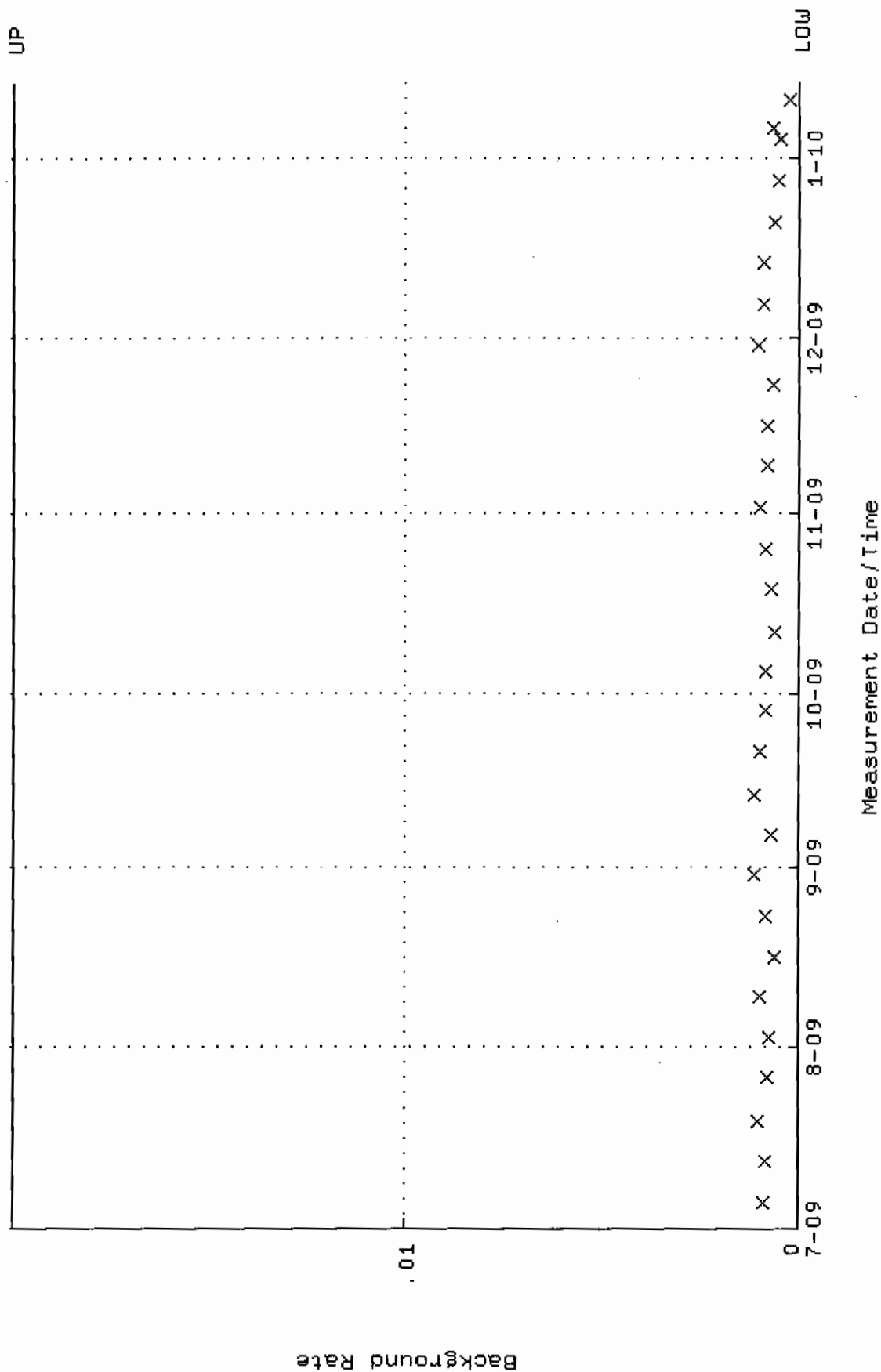
QA filename : DKA100:[ENV\_ALPHA.QA.W]W081.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 13-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.310202 through 0.330202



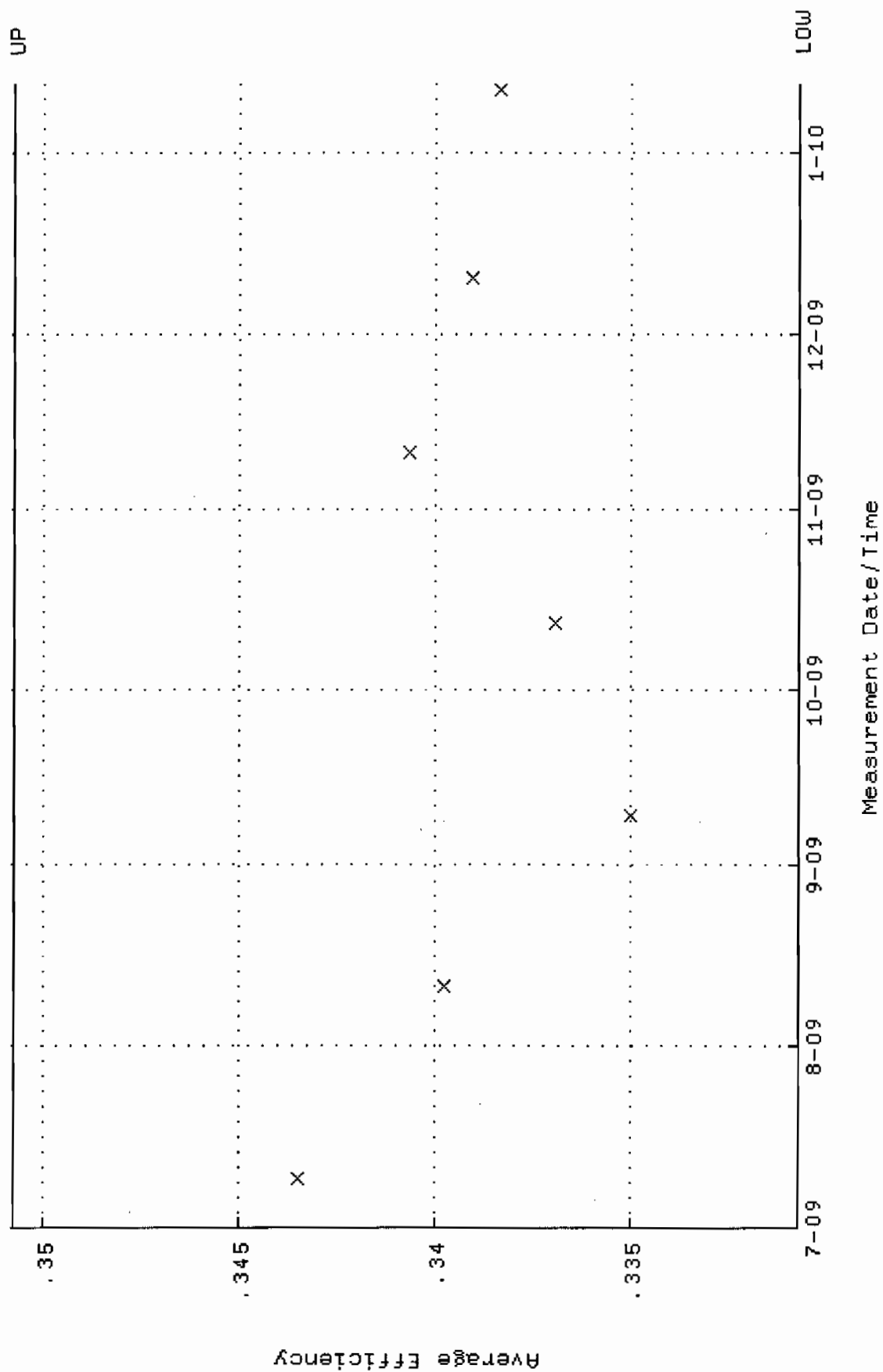
QA filename : DKA100:[ENV\_ALPHA.QA.W]W081.QAF;5  
 Parameter Name : NLAIVITY-G0148 (NUCLIDE ACTIVITY G0-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 13-JAN-2010 12:00:00  
 Lower/Upper Lmts: 89.2016 through 98.5912



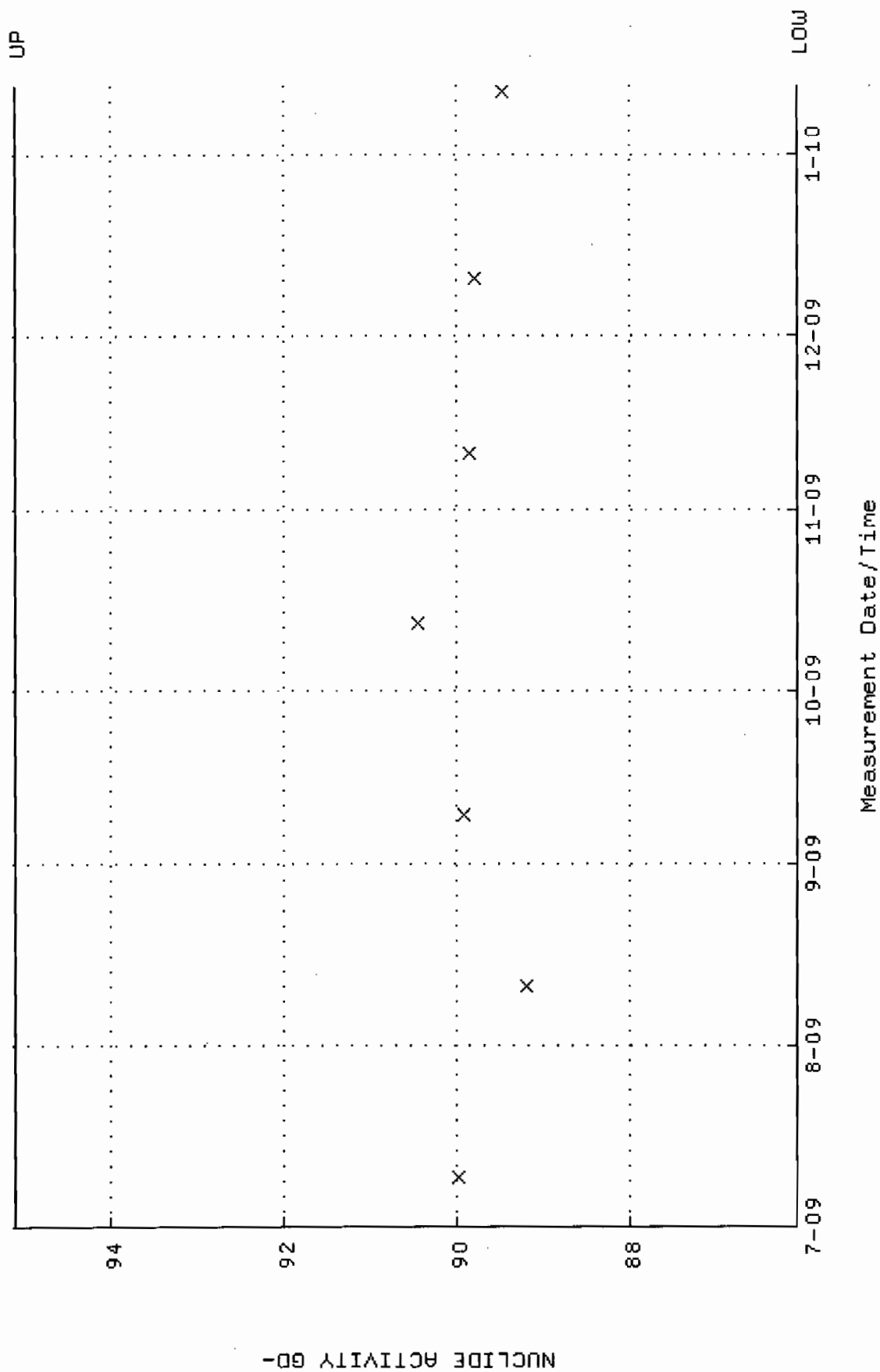
QA filename : DKA100:[ENV\_ALPHA.QA.B]B081.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:03 through 13-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



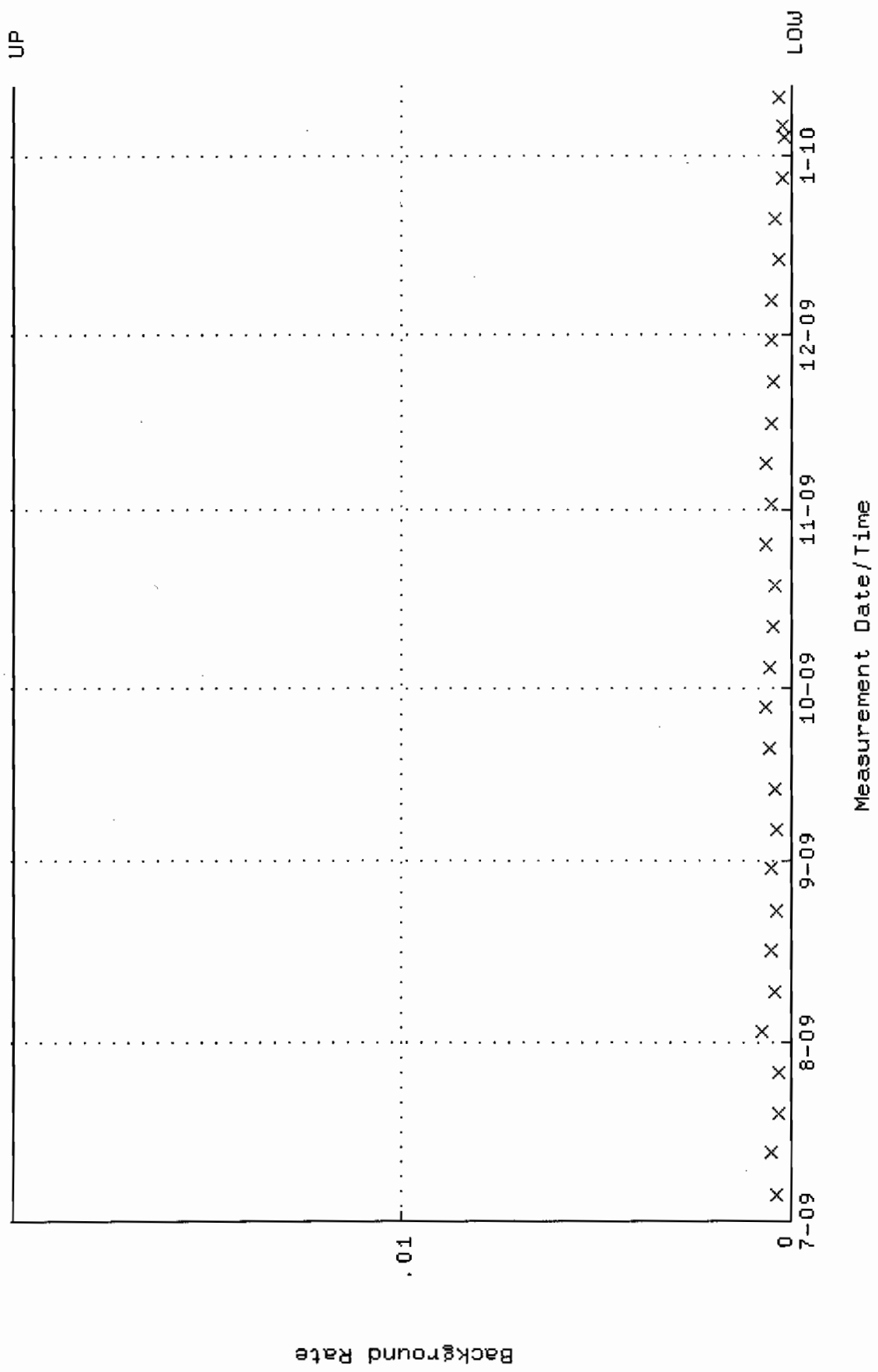
QA filename : DKA100:[ENV\_ALPHA.QA.W]W084.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.330740 through 0.350740



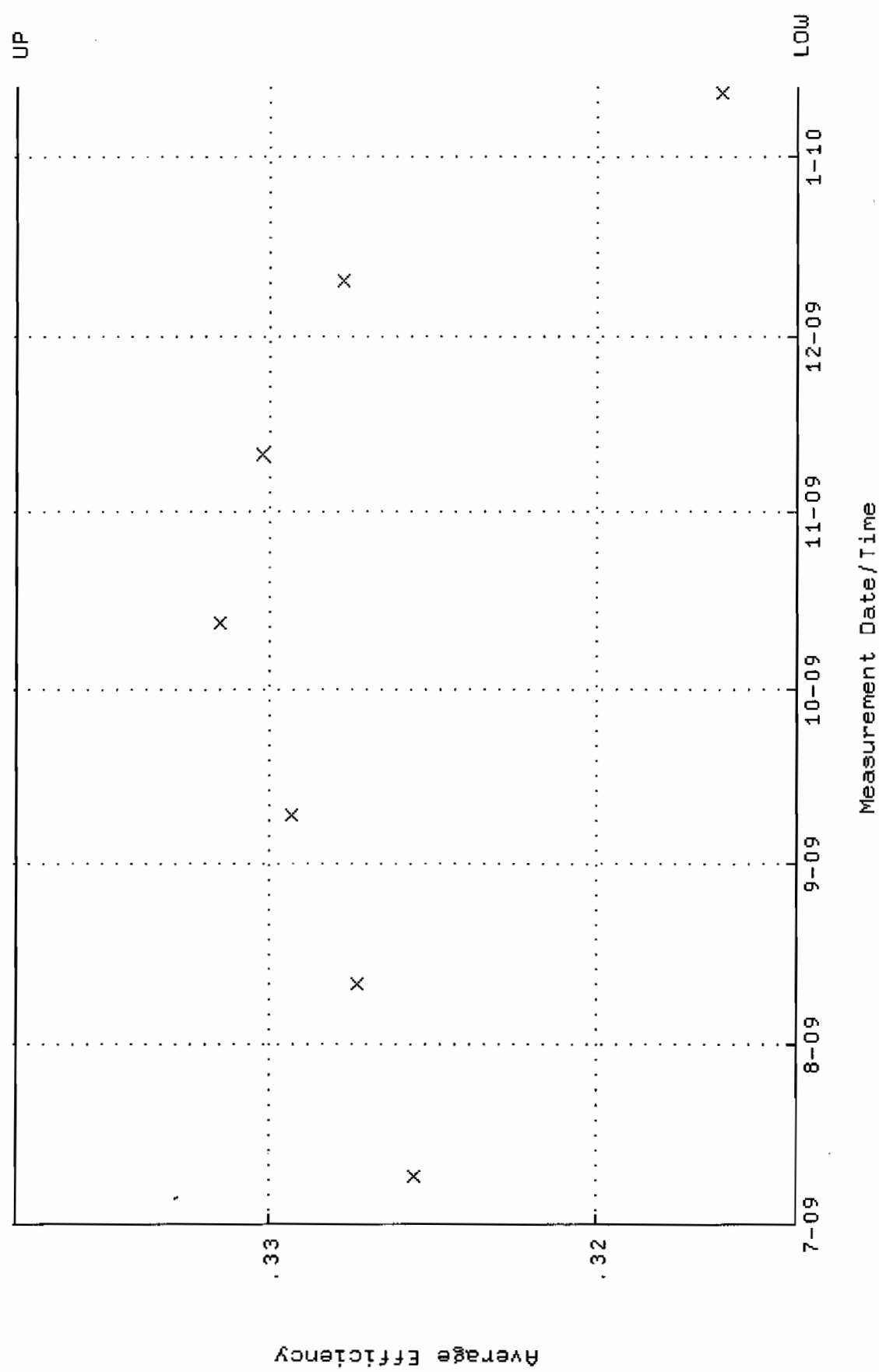
QA filename : DKA100:[ENV\_ALPHA.QA.W]W084.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.0569 through 95.1155



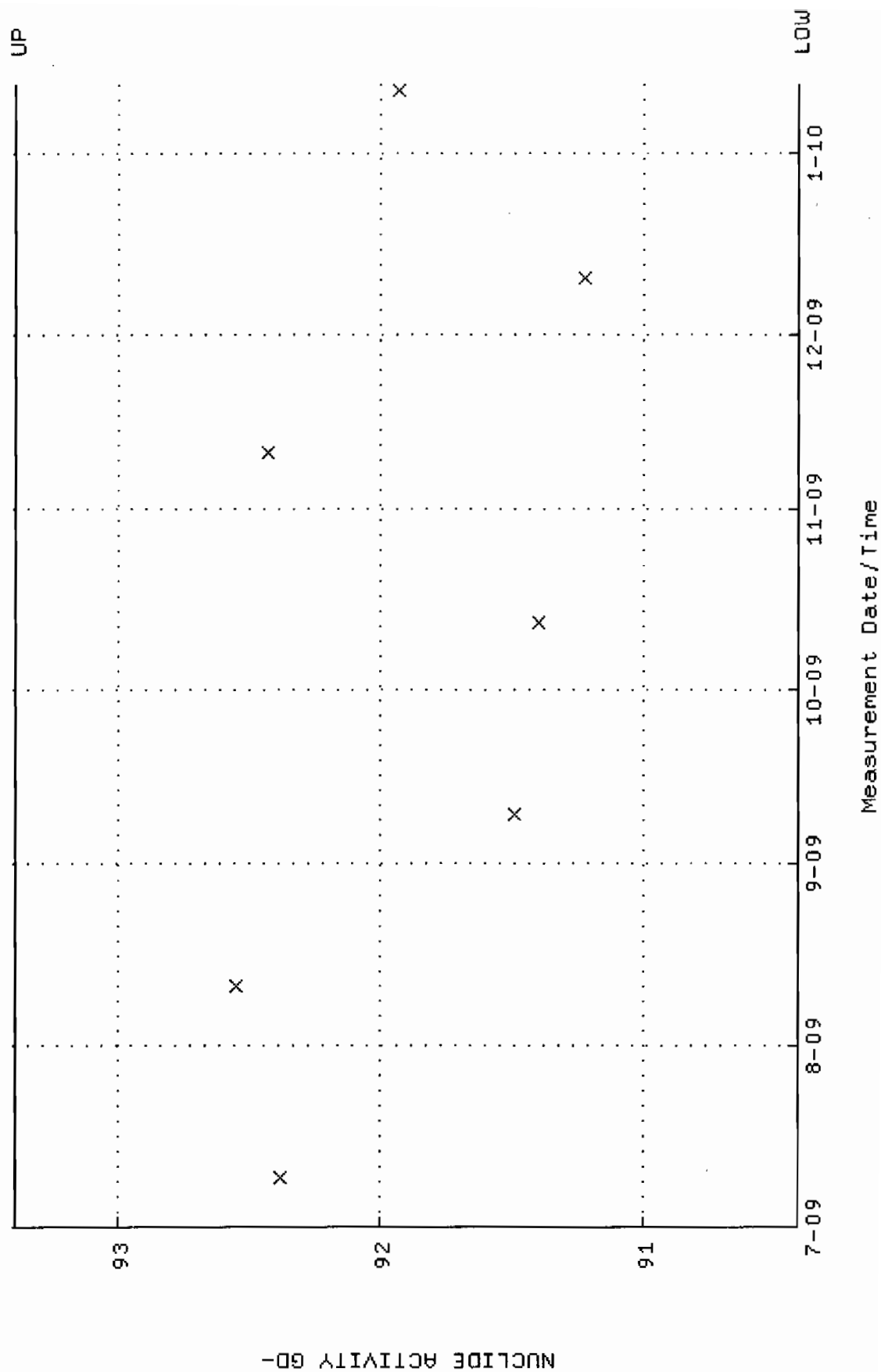
QA filename : DKA100:[ENV\_ALPHA.QA.B]B084.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]W085.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.313884 through 0.337714

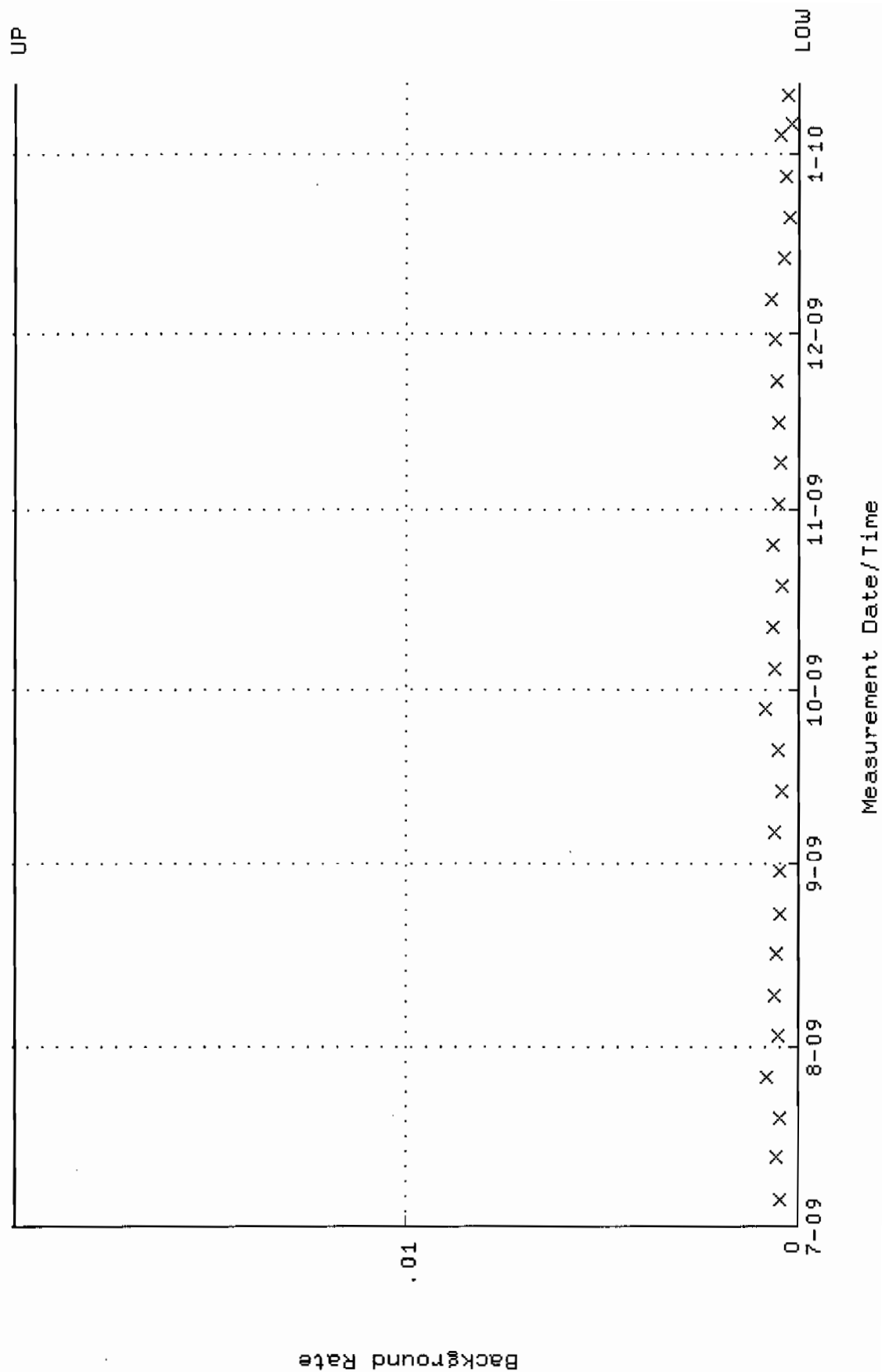


QA filename : DKA100:[ENV\_ALPHA.QA.W]W085.QAF;6  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.4059 through 93.3969

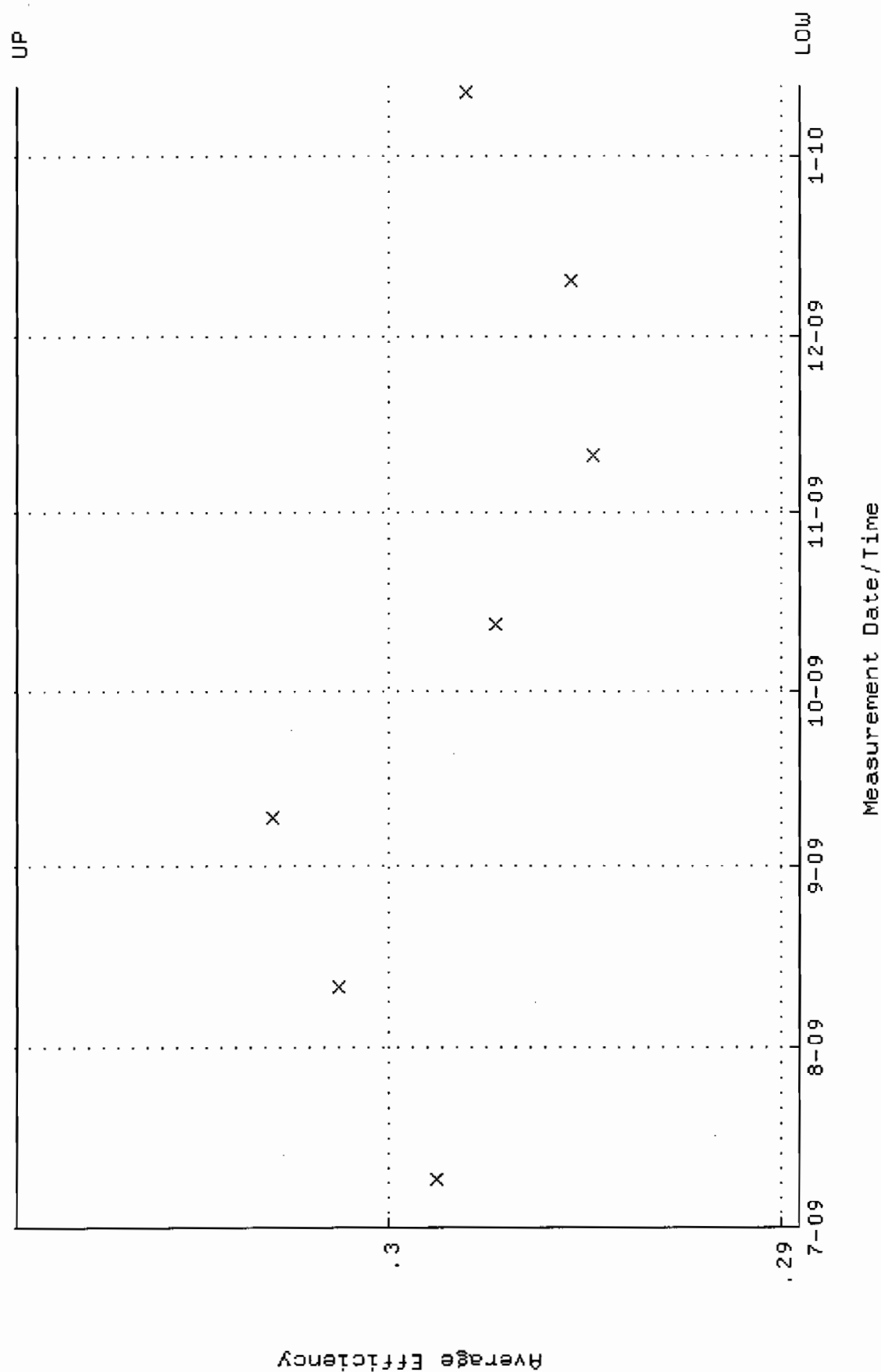




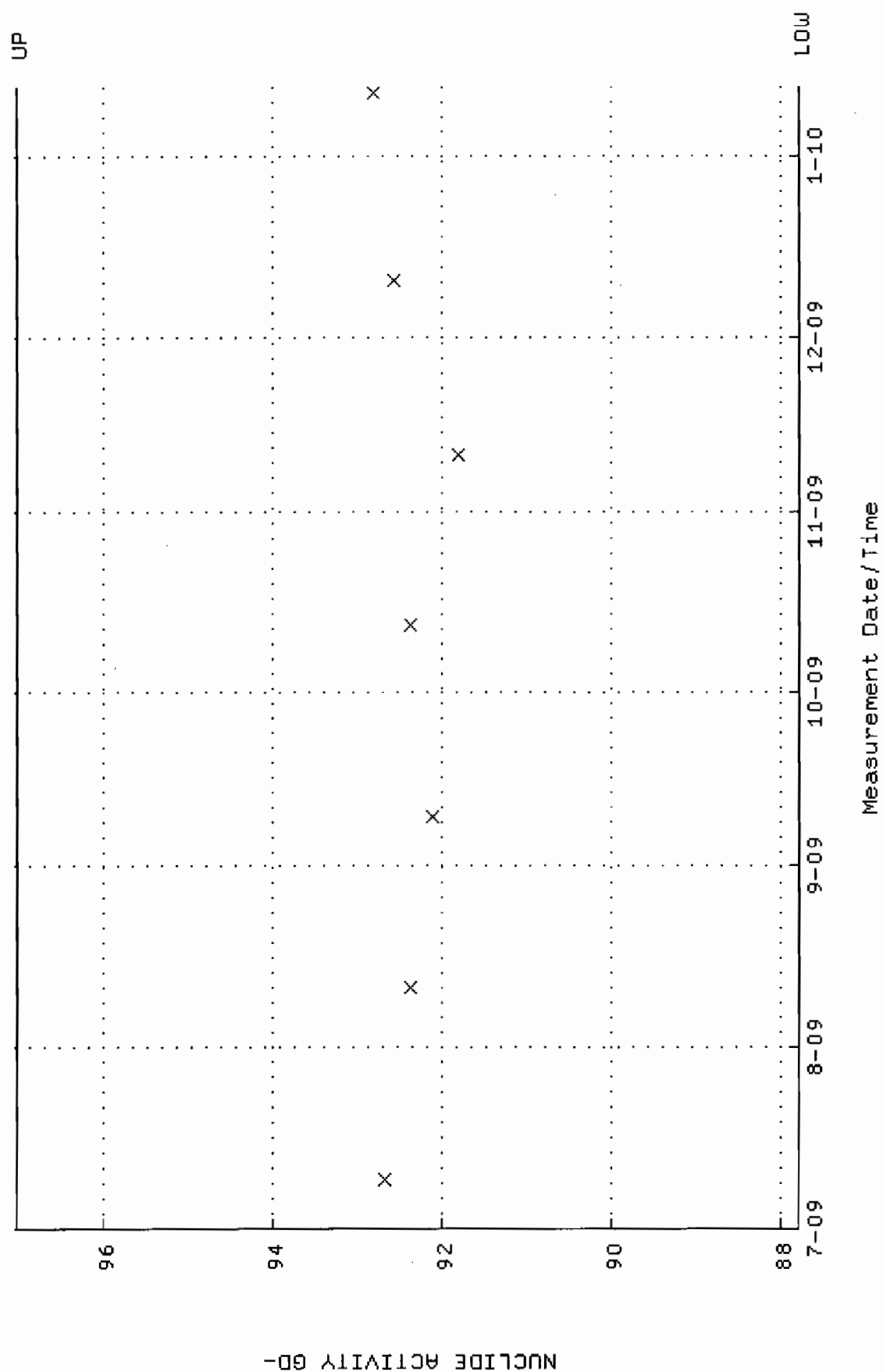
QA filename : DKA100:[ENV\_ALPHA.QA.B]B085.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



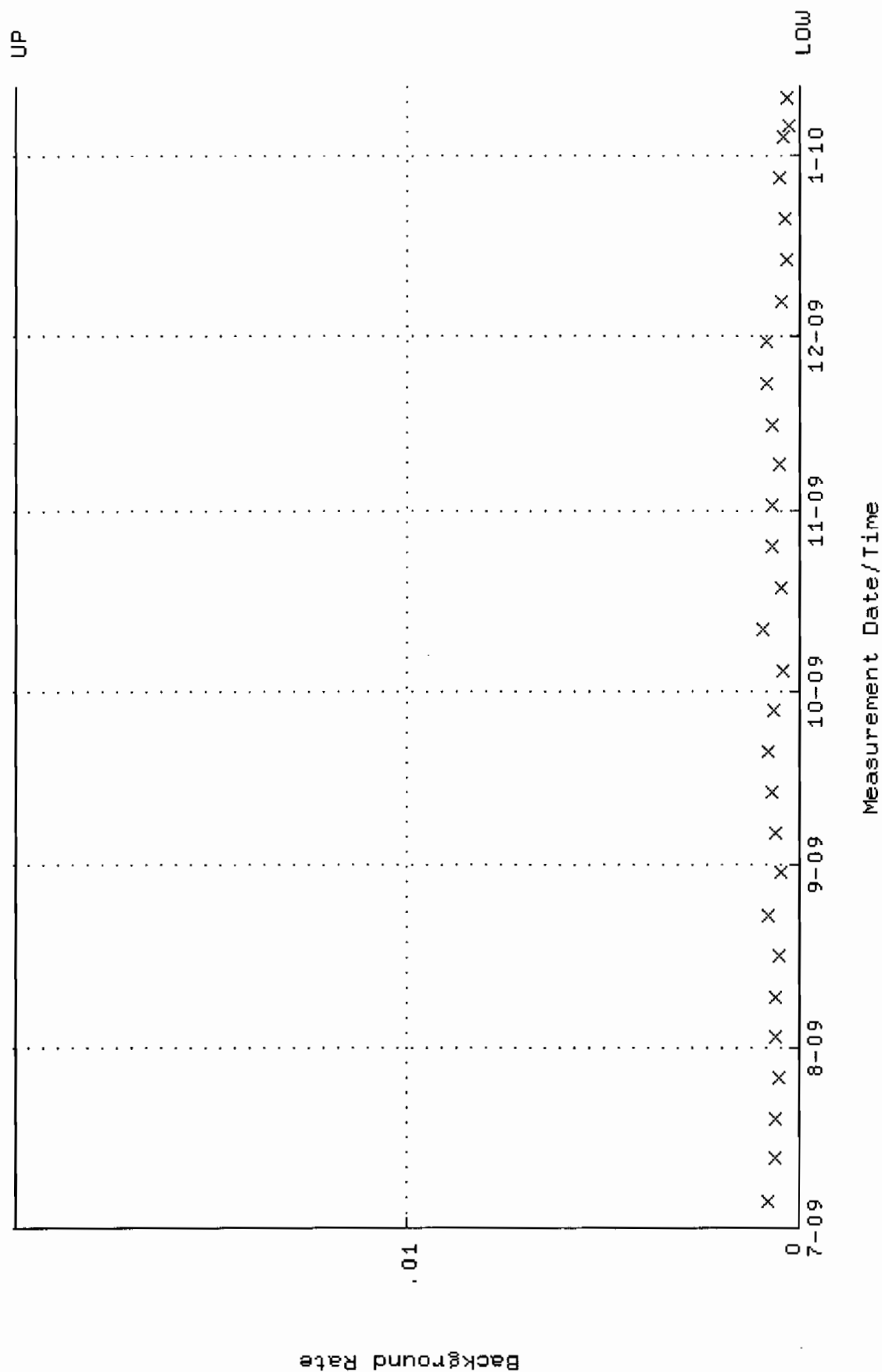
QA filename : DKA100:[ENV\_ALPHA.QA.W]W086.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.289508 through 0.309508



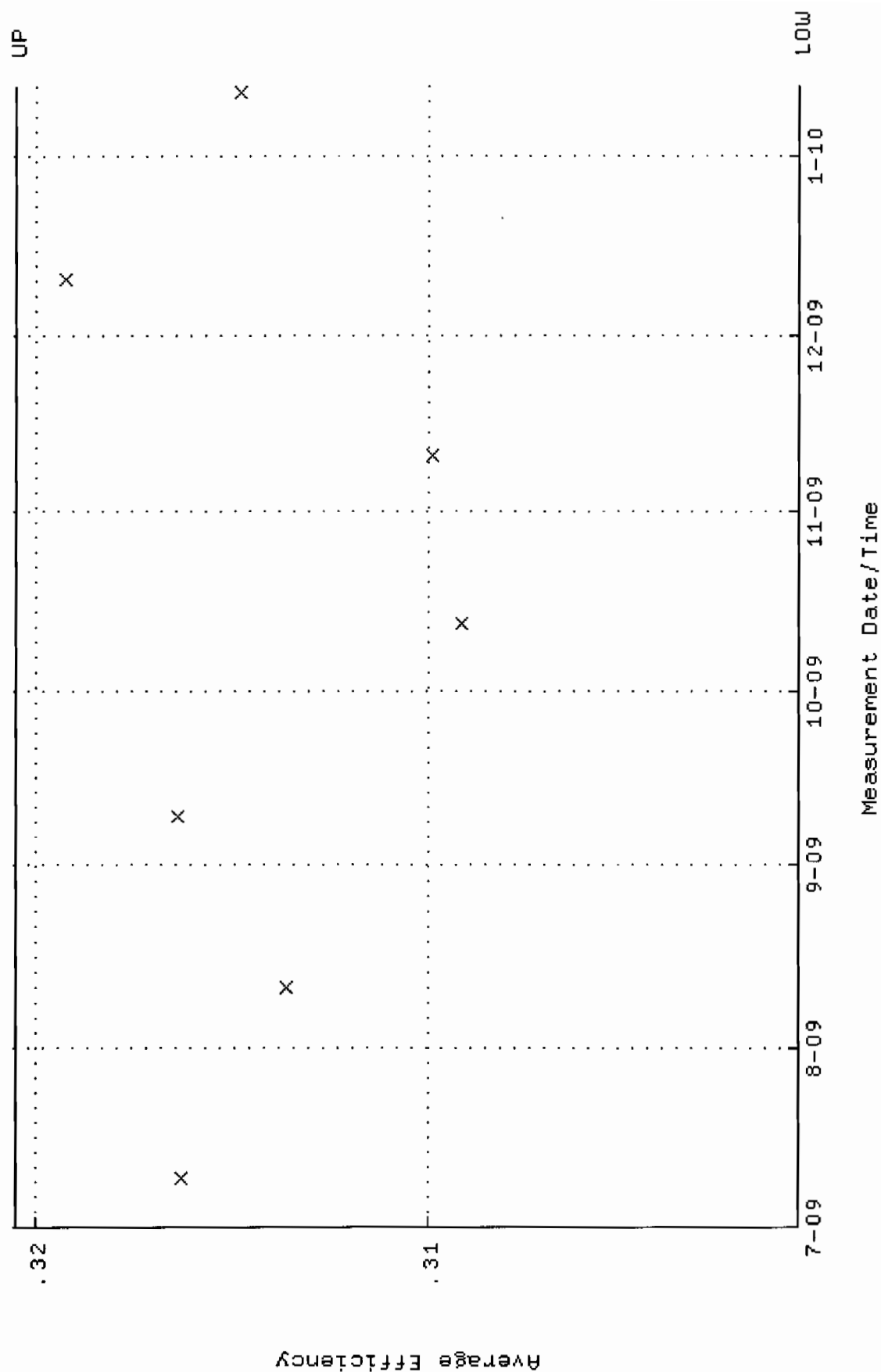
QA filename : DKA100:[ENV\_ALPHA.QA.W]W086.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.7898 through 97.0308



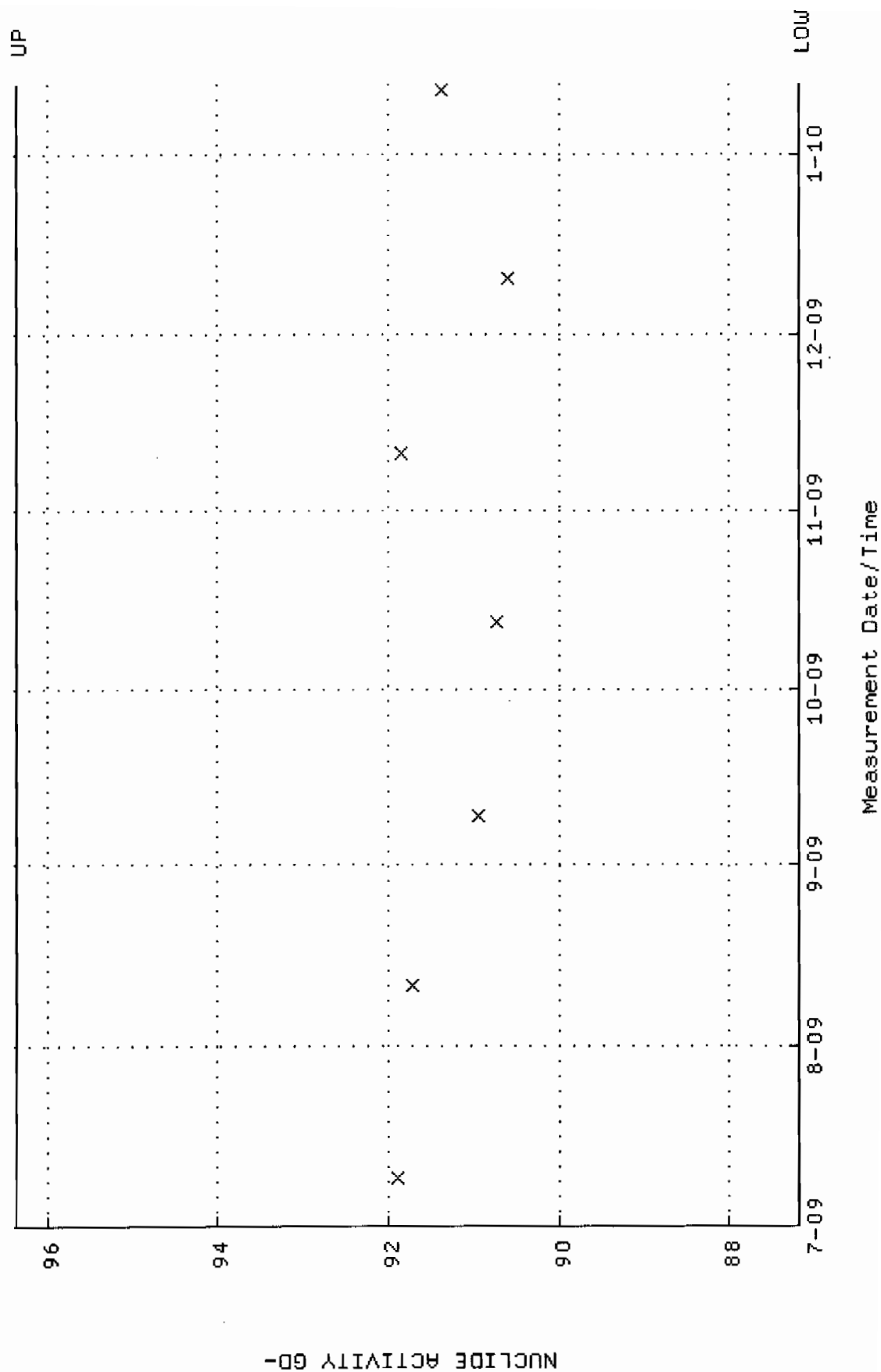
QA filename : DKA100:[ENV-ALPHA.QA.B]B086.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



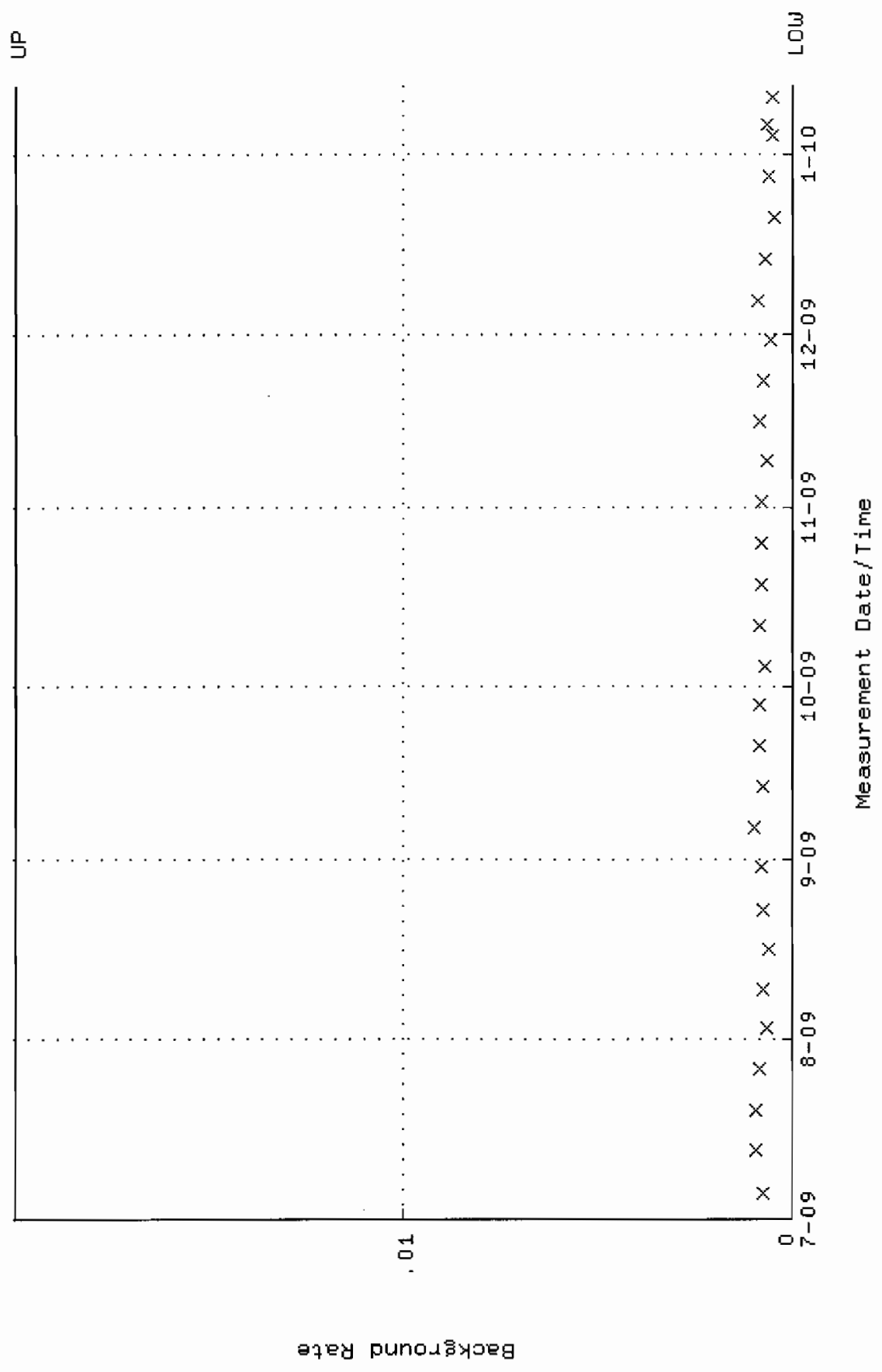
QA filename : DKA100:[ENV\_ALPHA.QA.W]W087.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.300530 through 0.320530



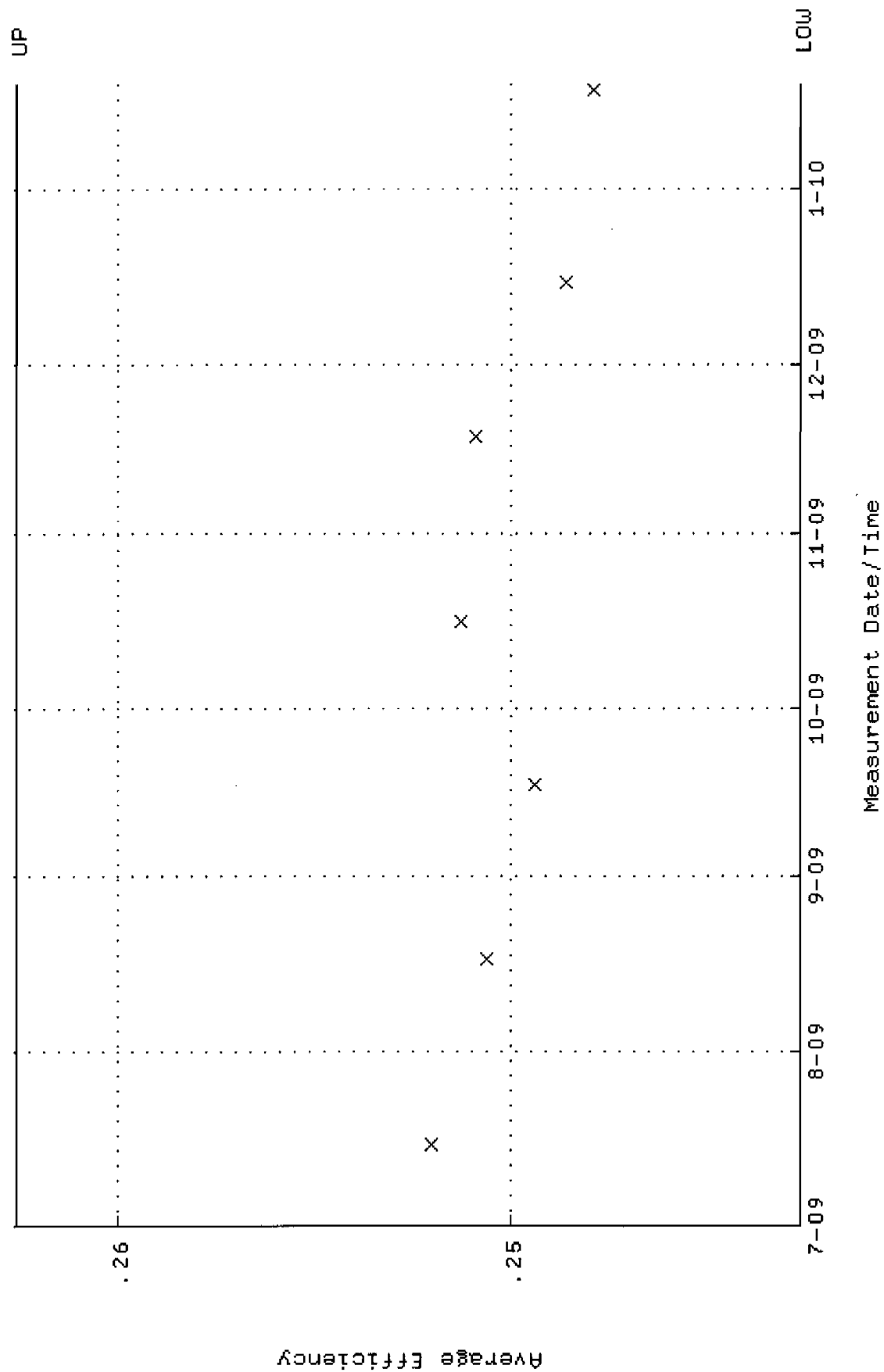
QA filename : DKA100:[ENV-ALPHA.QA.W]W087.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.1845 through 96.3619



QA filename : DKA100:[ENV\_ALPHA.QA.B]B087.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

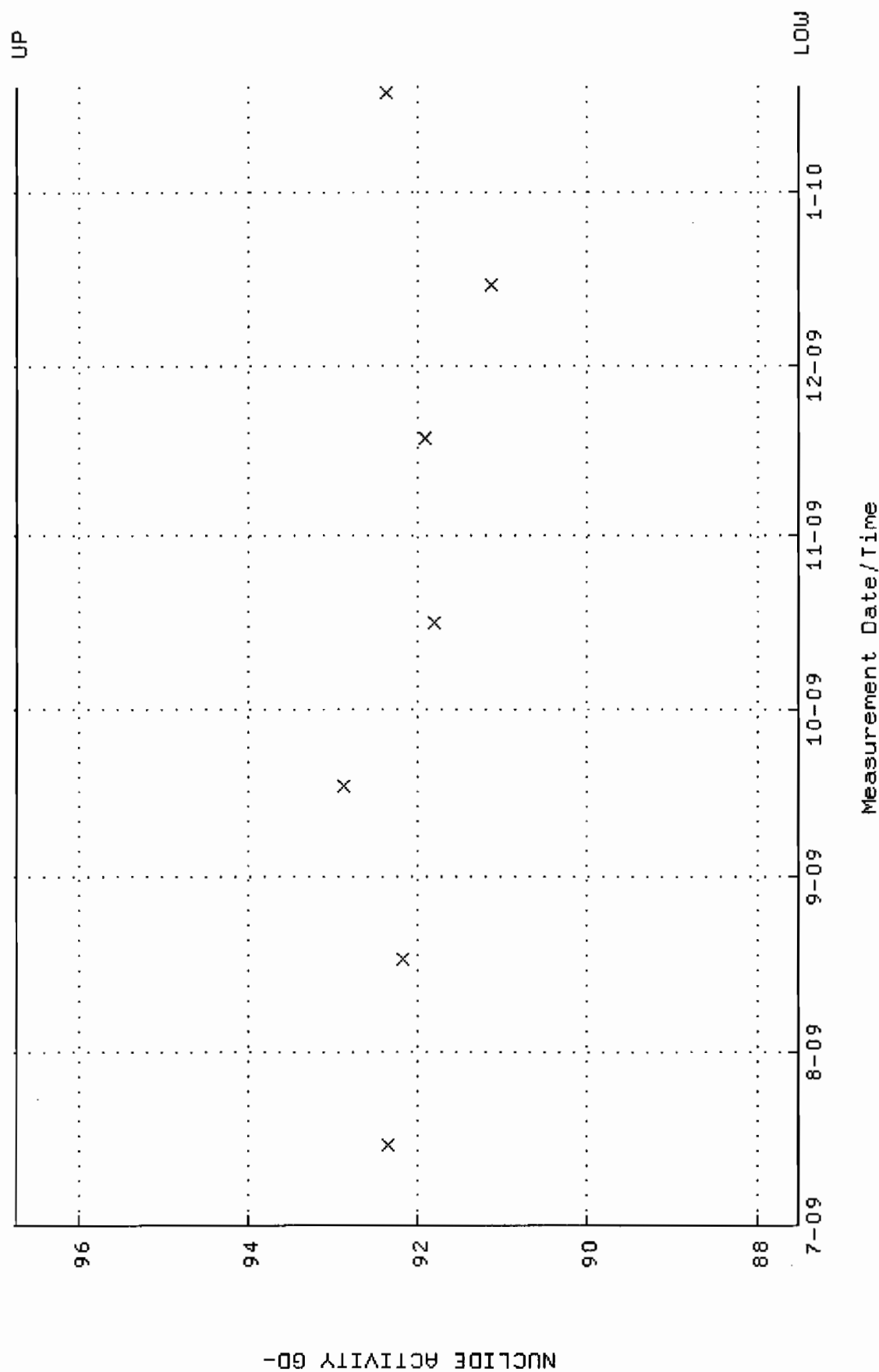


QA filename : DKA100:[ENV\_ALPHA.QA.W]W113.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:37:50 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.242598 through 0.262598

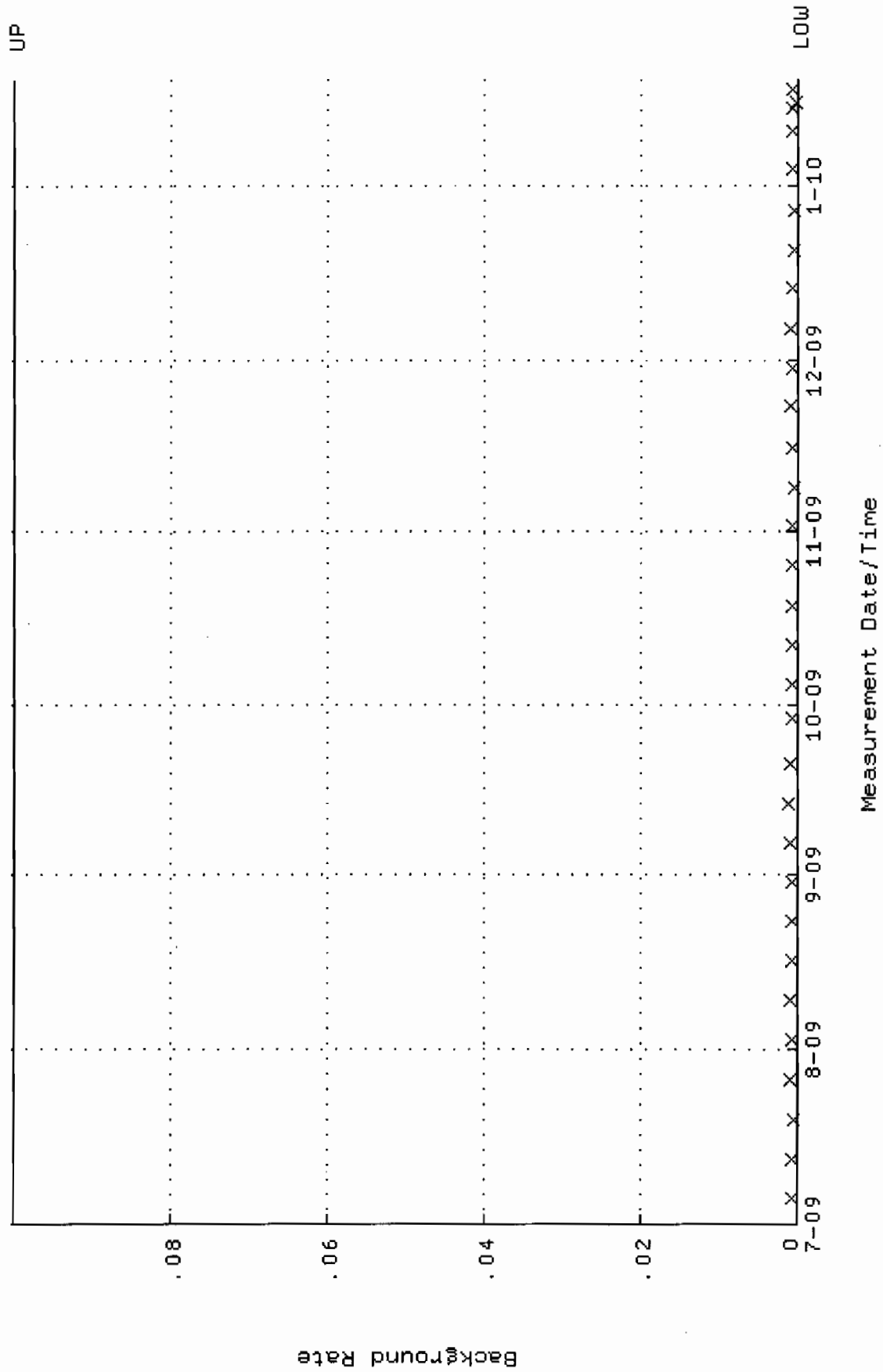




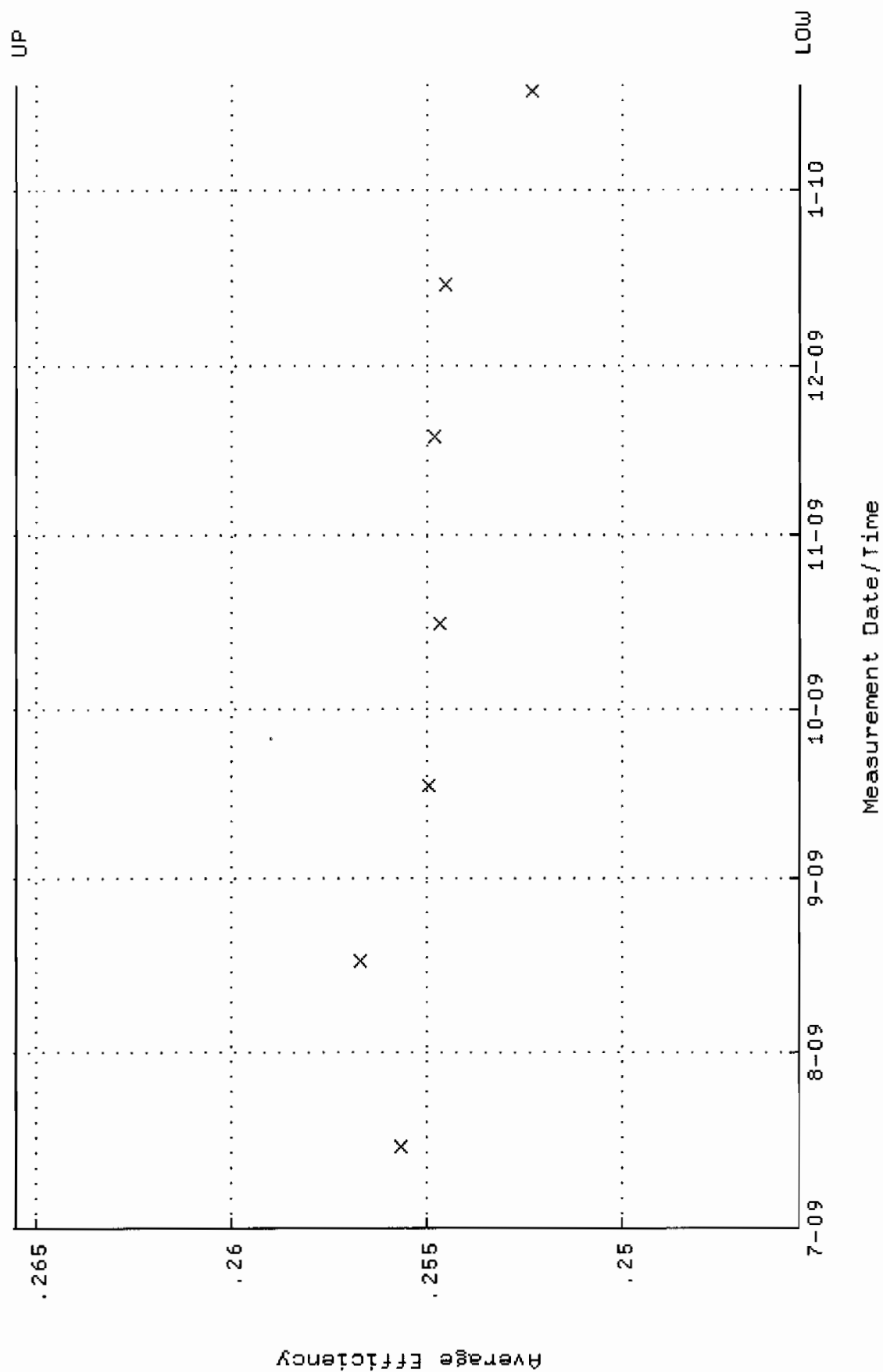
QA filename : DKA100:[ENV\_ALPHA.QA.W]W113.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:50 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.5172 through 96.7296



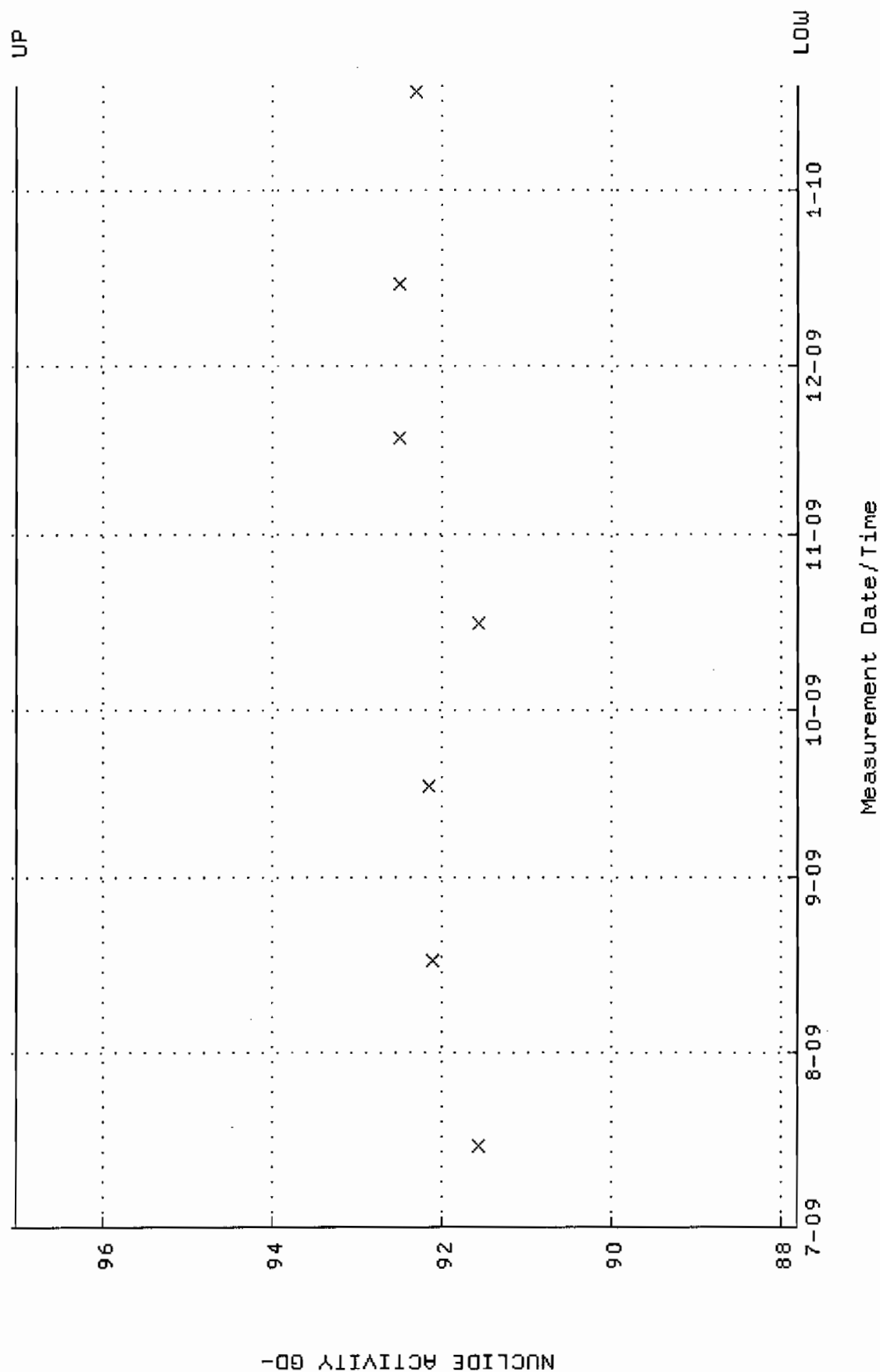
QA filename : DKA100:[ENV\_ALPHA.QA.B]B113.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:44 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



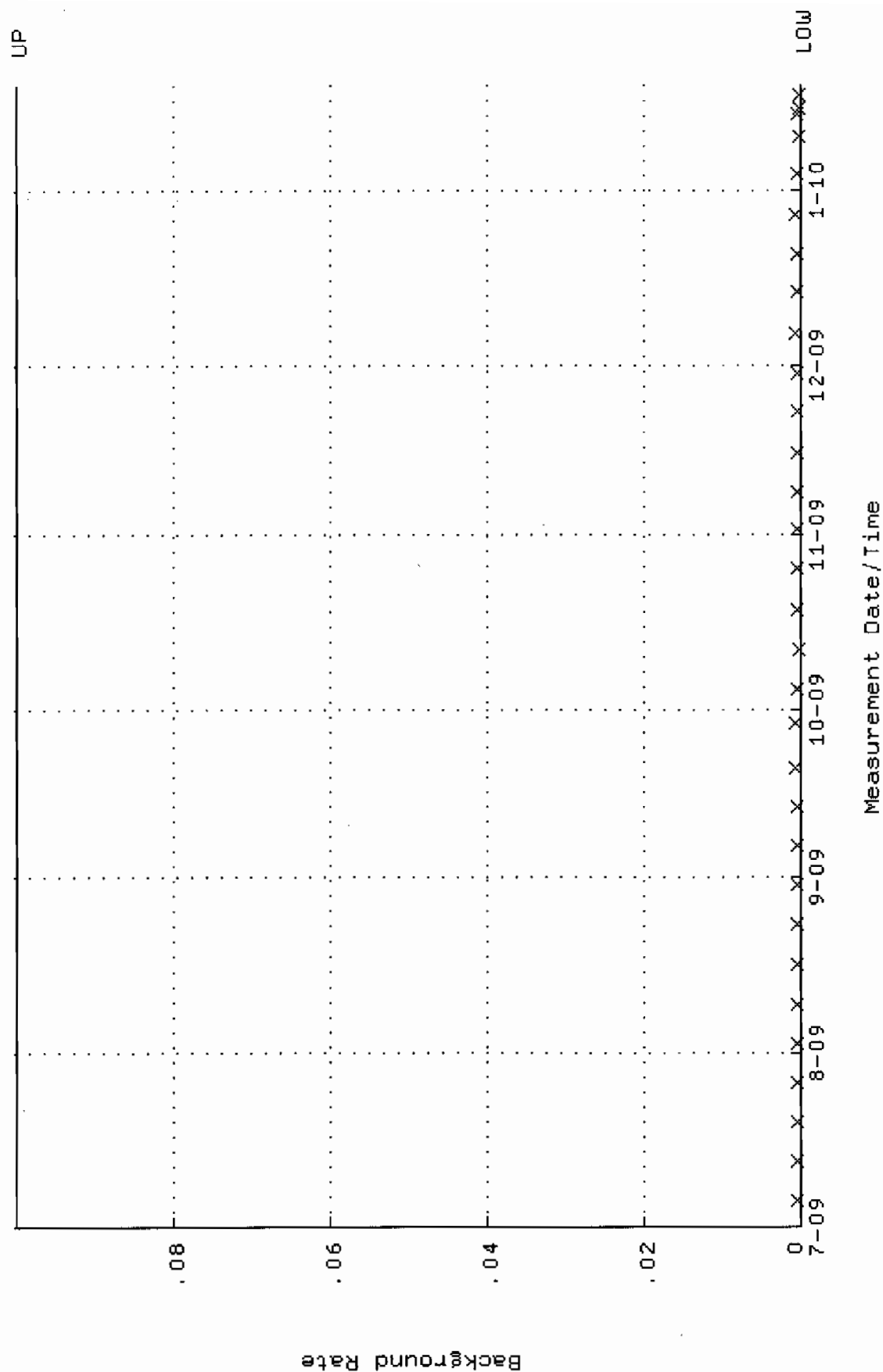
QA filename : DKA100:[ENV\_ALPHA.QA.W]W114.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:37:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.245499 through 0.265499



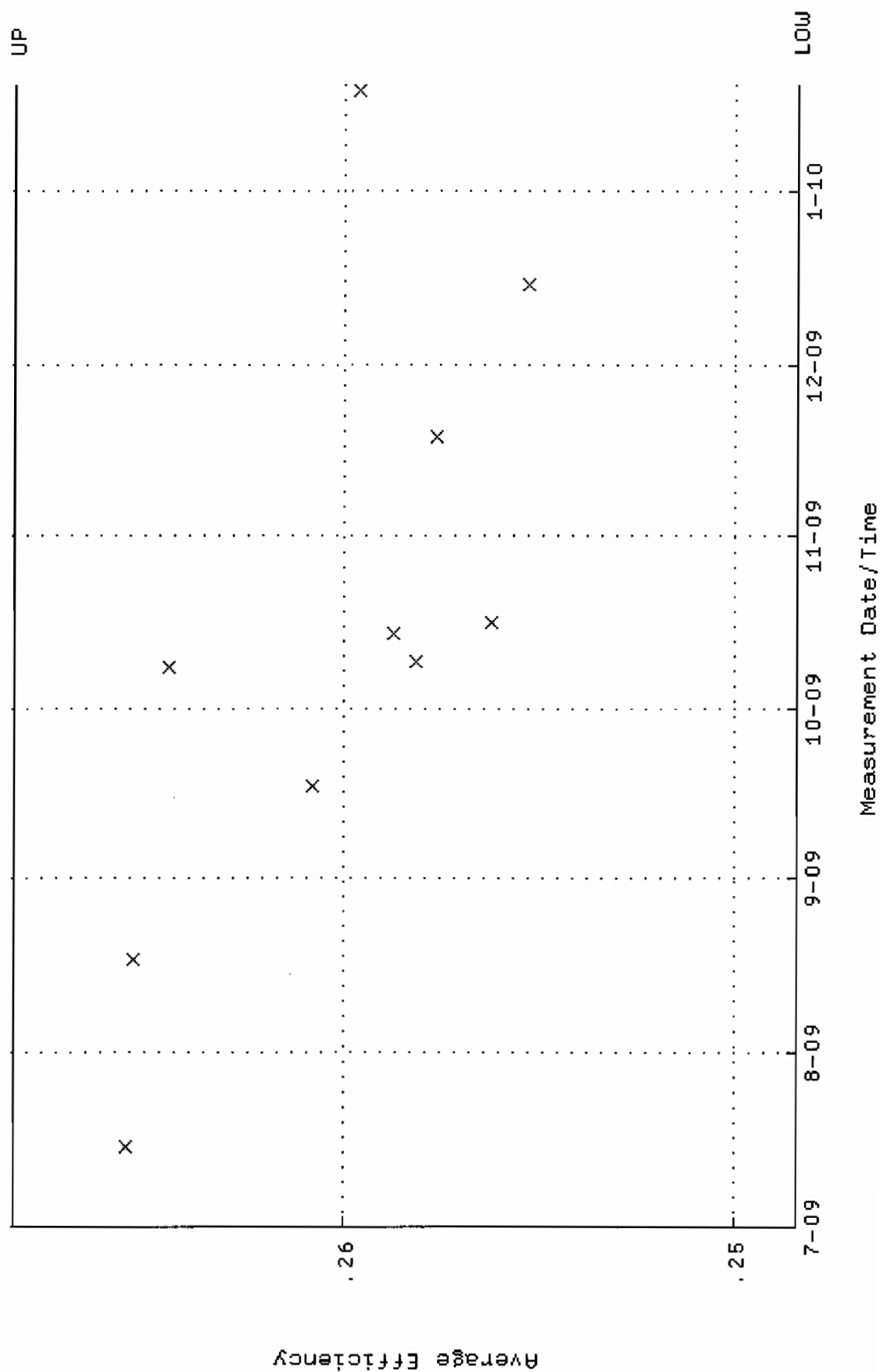
QA filename : DKA100:[ENV\_ALPHA.QA.W]w114.QAF;1  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.8108 through 97.0540



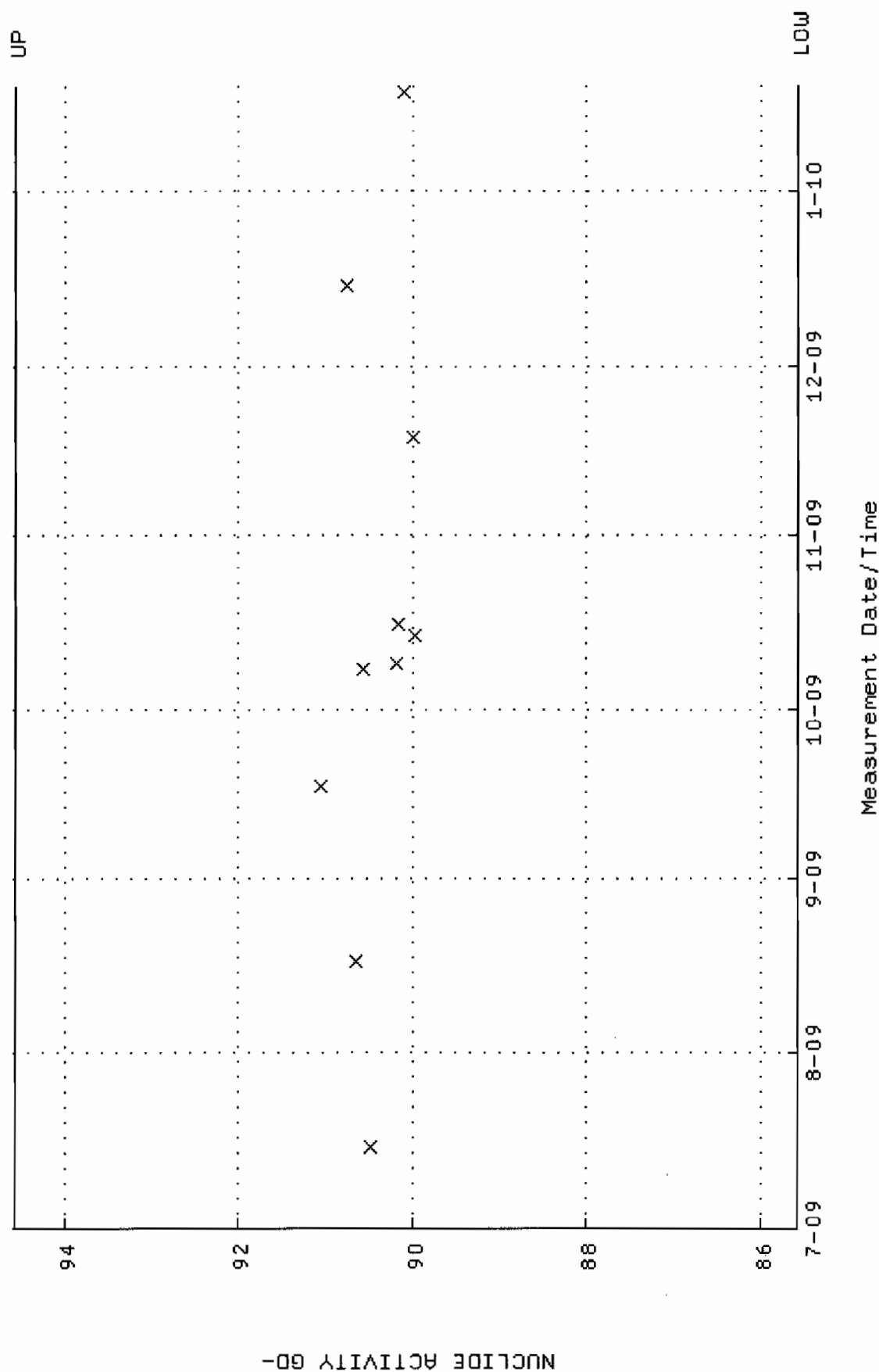
QA filename : DKA100:[ENV\_ALPHA.QA.B]B114.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:49 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



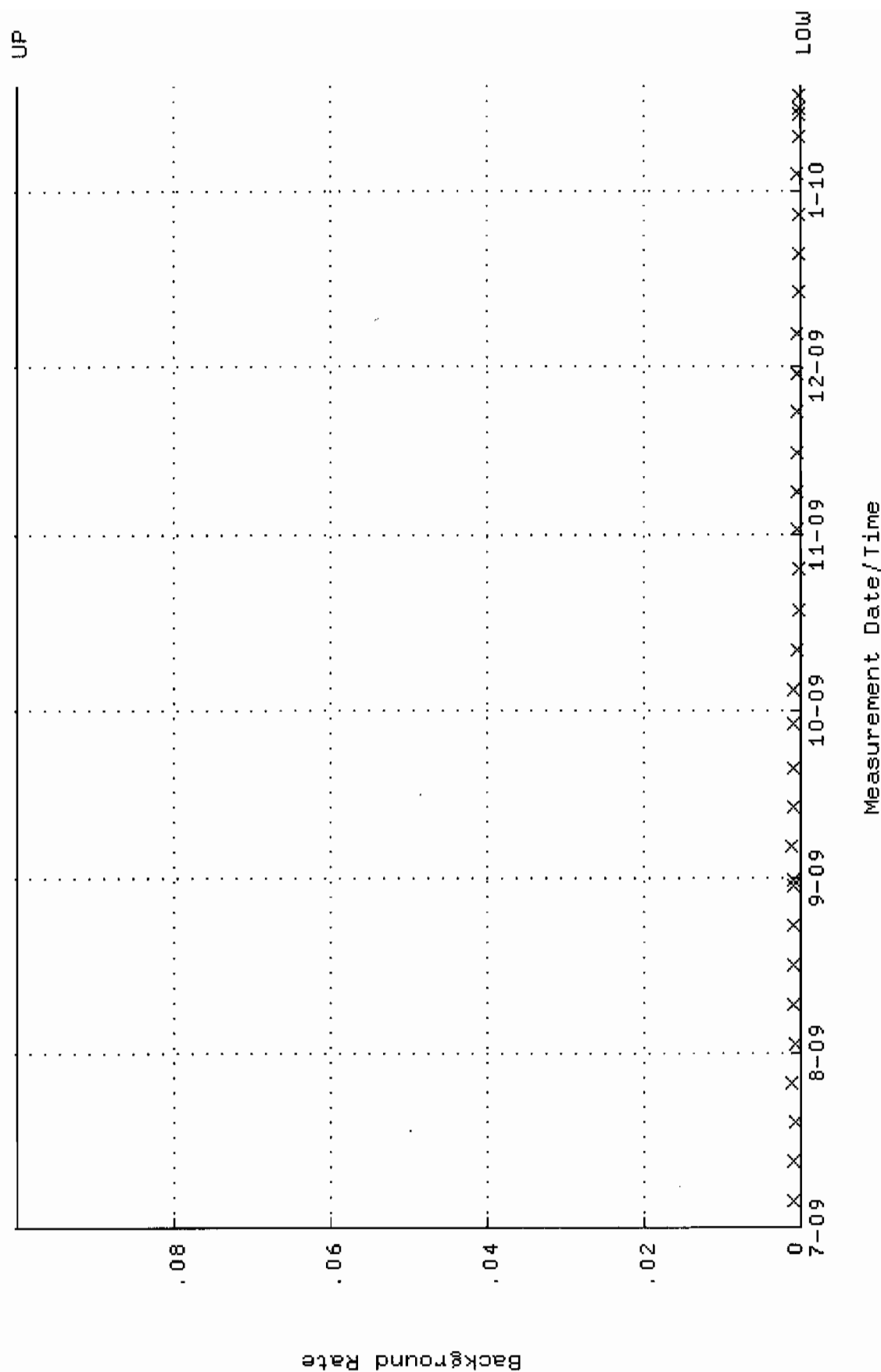
QA filename : DKA100:[ENV\_ALPHA.QA.W]W115.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:37:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.248404 through 0.268404



QA filename : DKA100:[ENV\_ALPHA.QA.W]W115.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.5661 through 94.5731

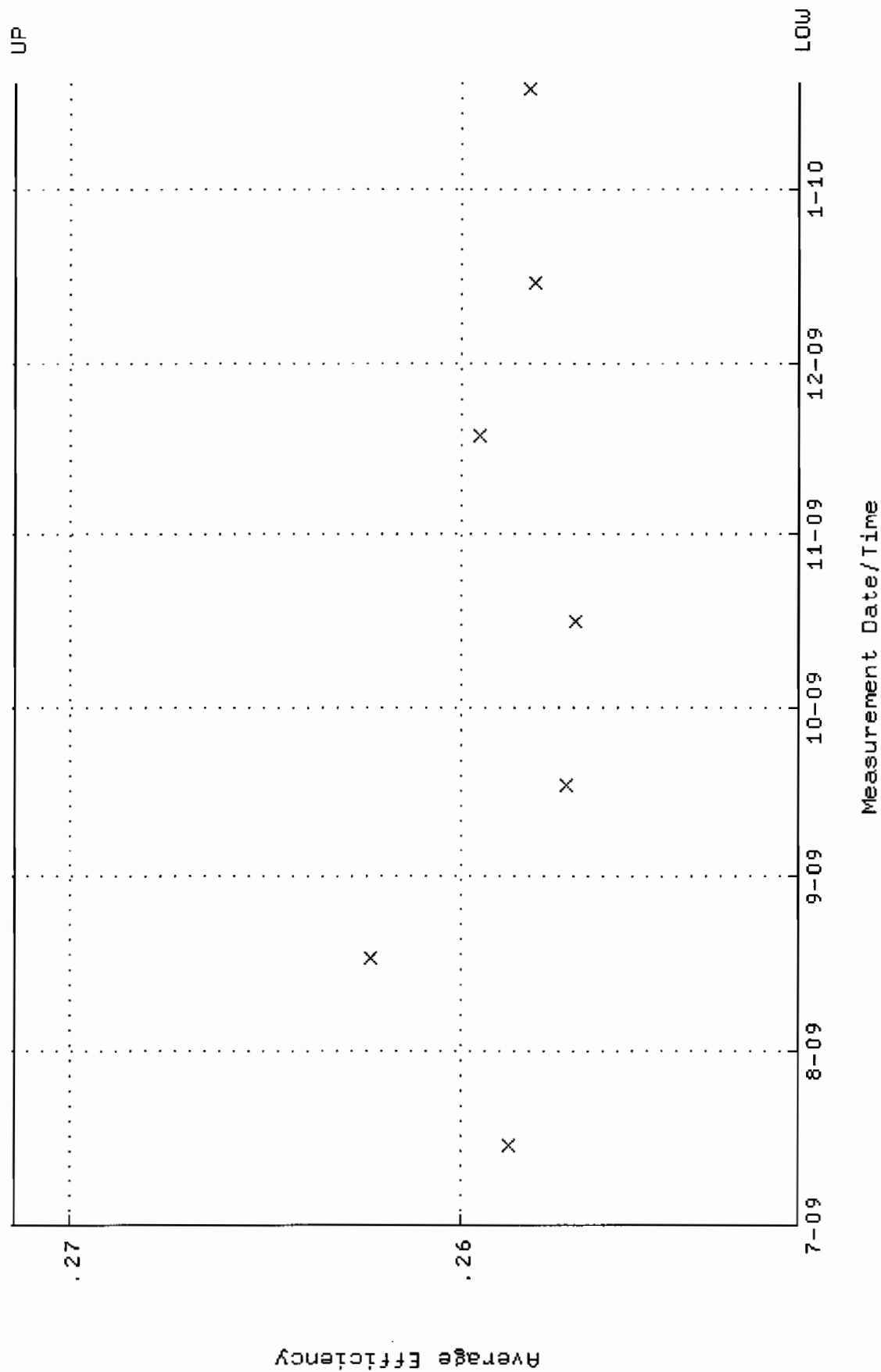


QA filename : DKA100:[ENV\_ALPHA.QA.B]B115.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:54 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

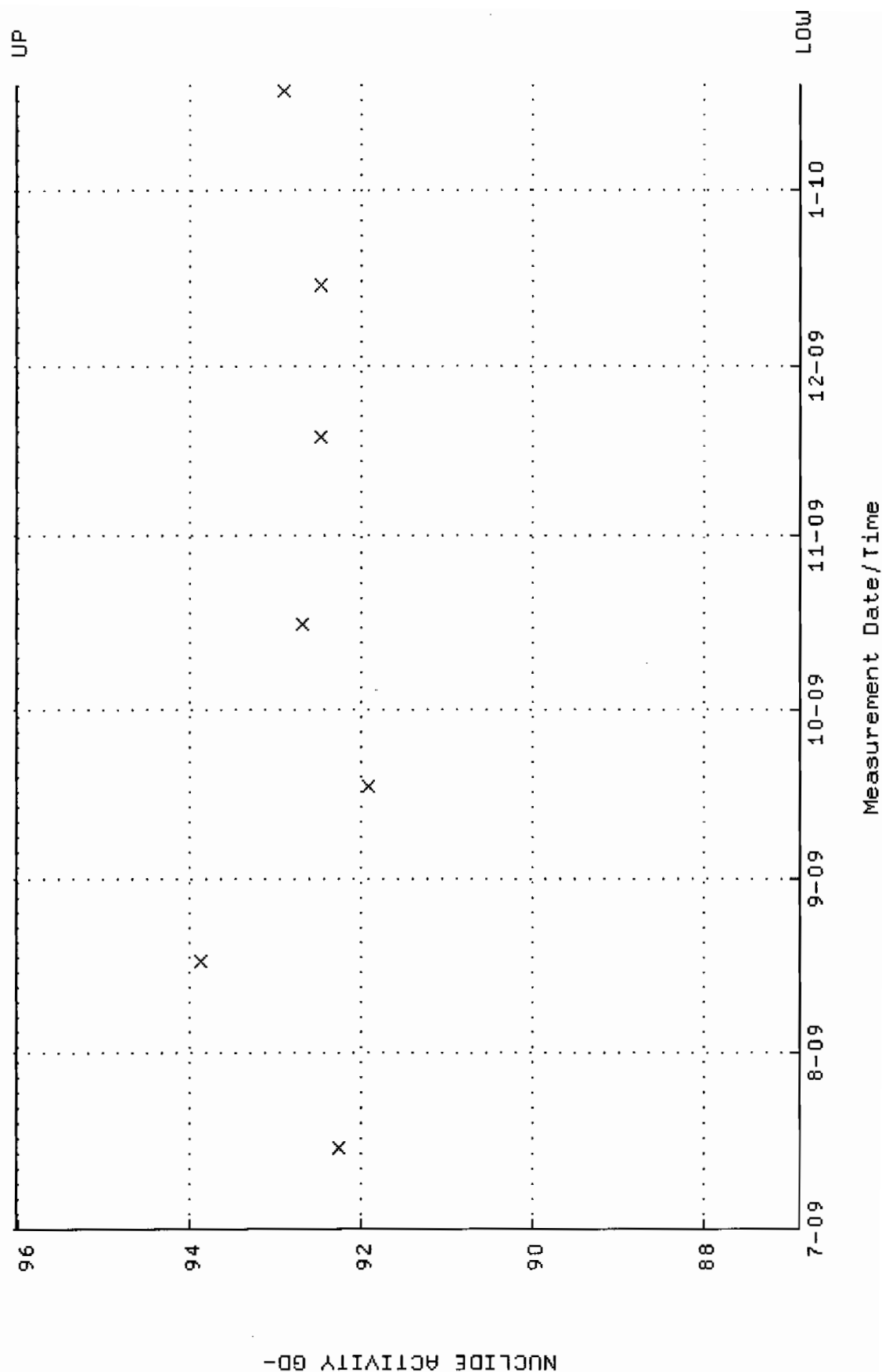




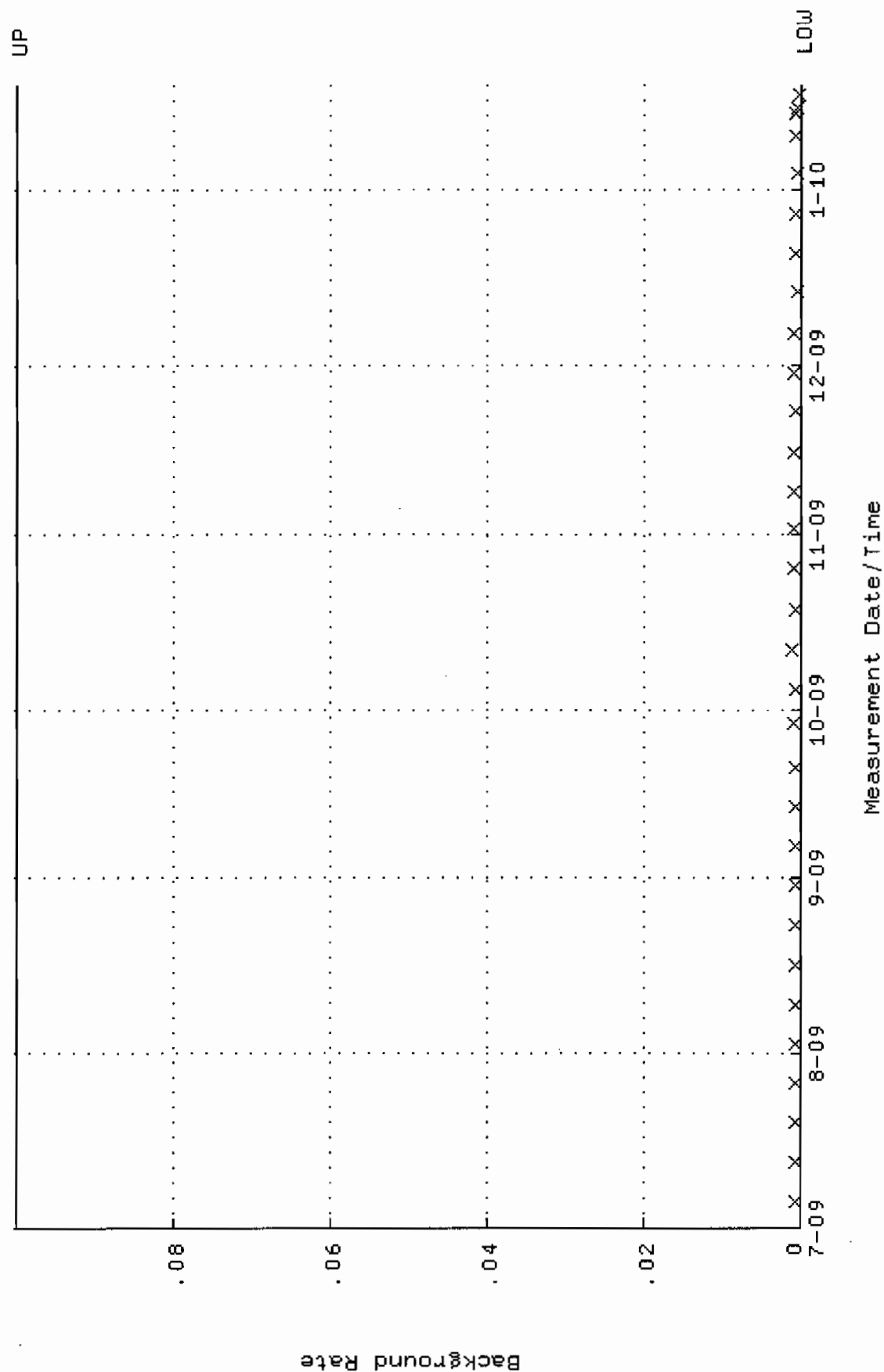
QA filename : DKA100:[ENV\_ALPHA.QA.W]W124.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.251398 through 0.271398



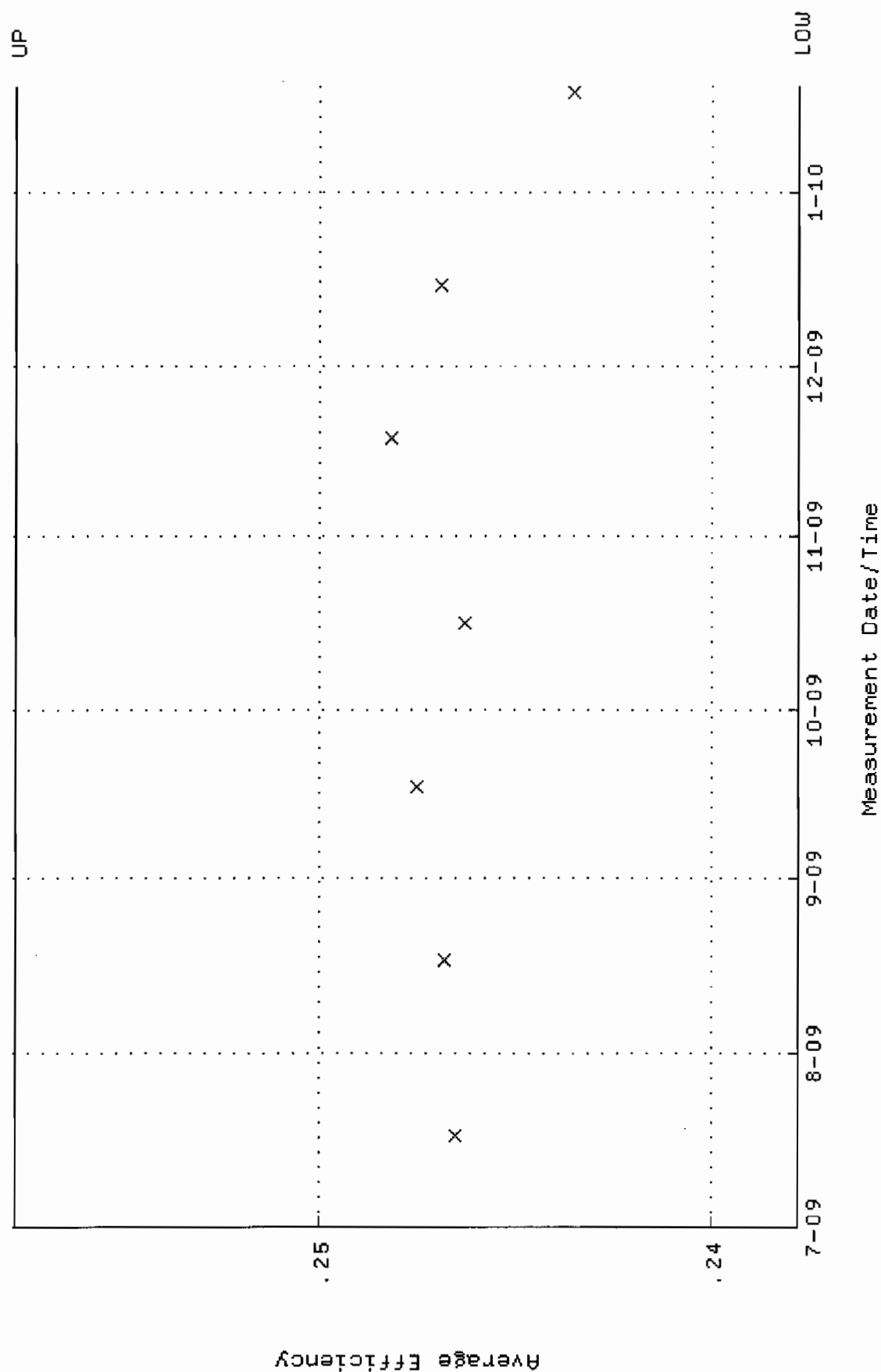
QA filename : DKA100:[ENV\_ALPHA.QA.W]W124.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.8862 through 96.0322



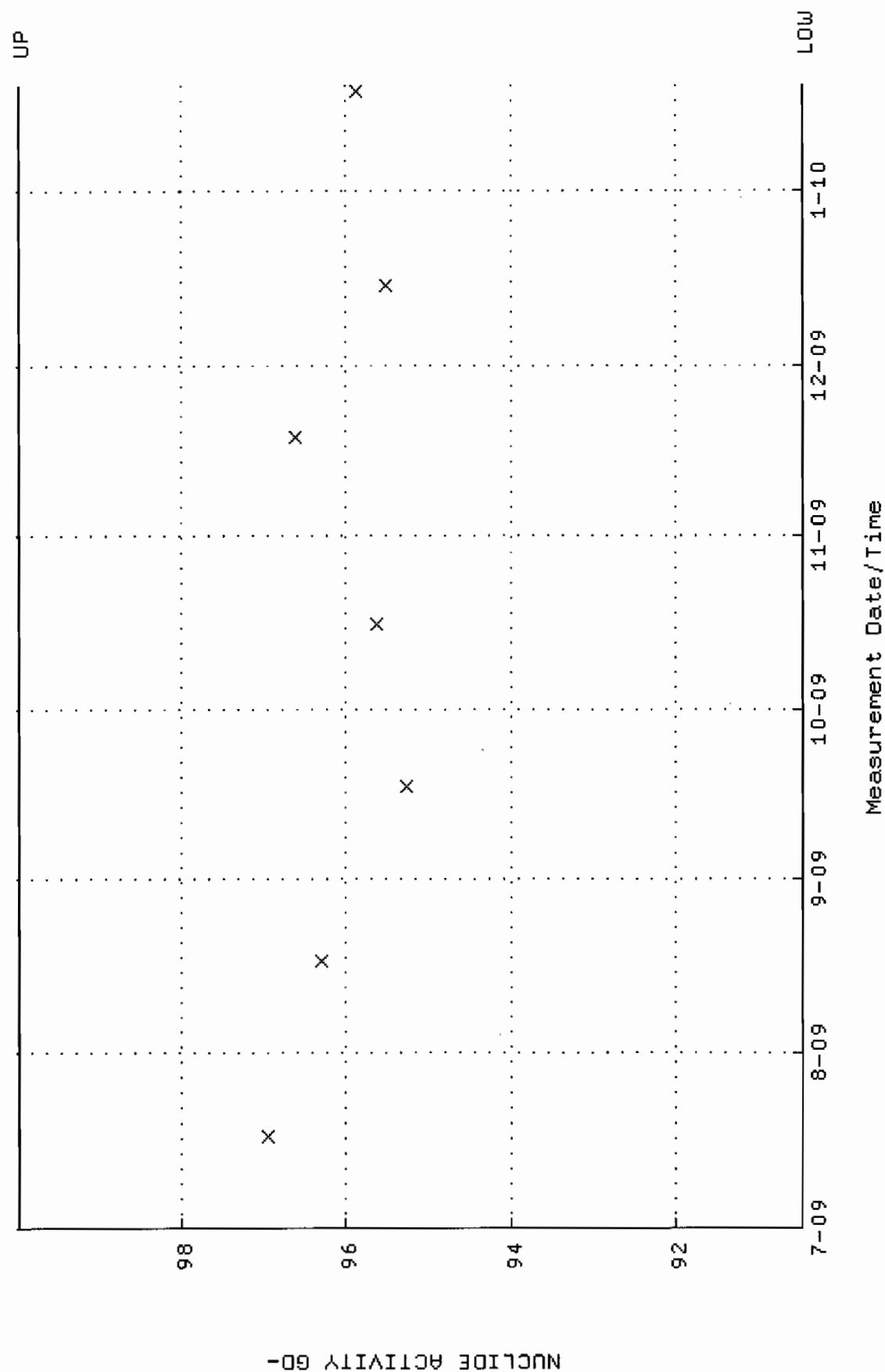
QA filename : DKA100:[ENV\_ALPHA.QA.B]B124.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:40 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



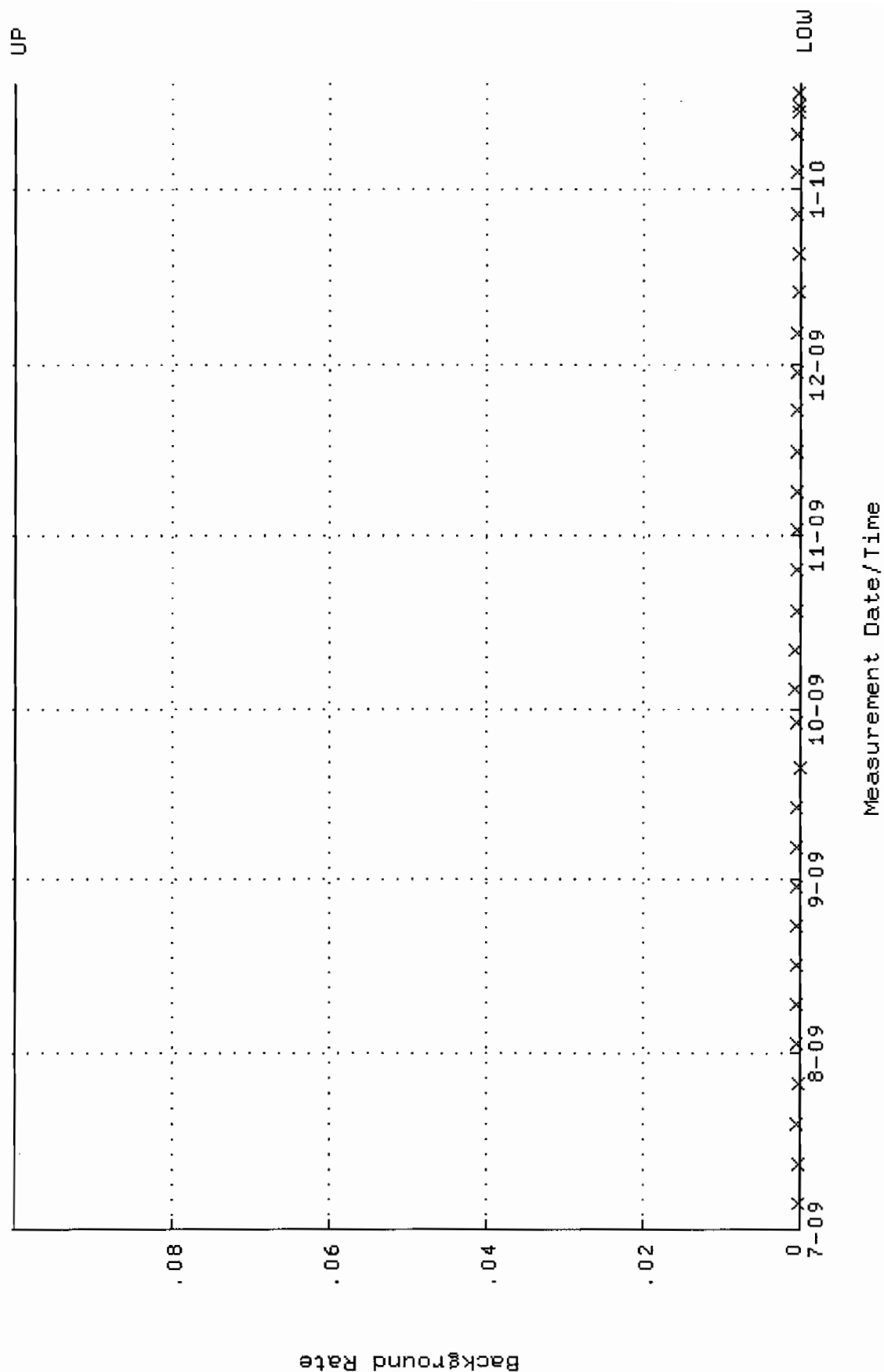
QA filename : DKA100:[ENV\_ALPHA.QA.W]W127.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.237773 through 0.257773



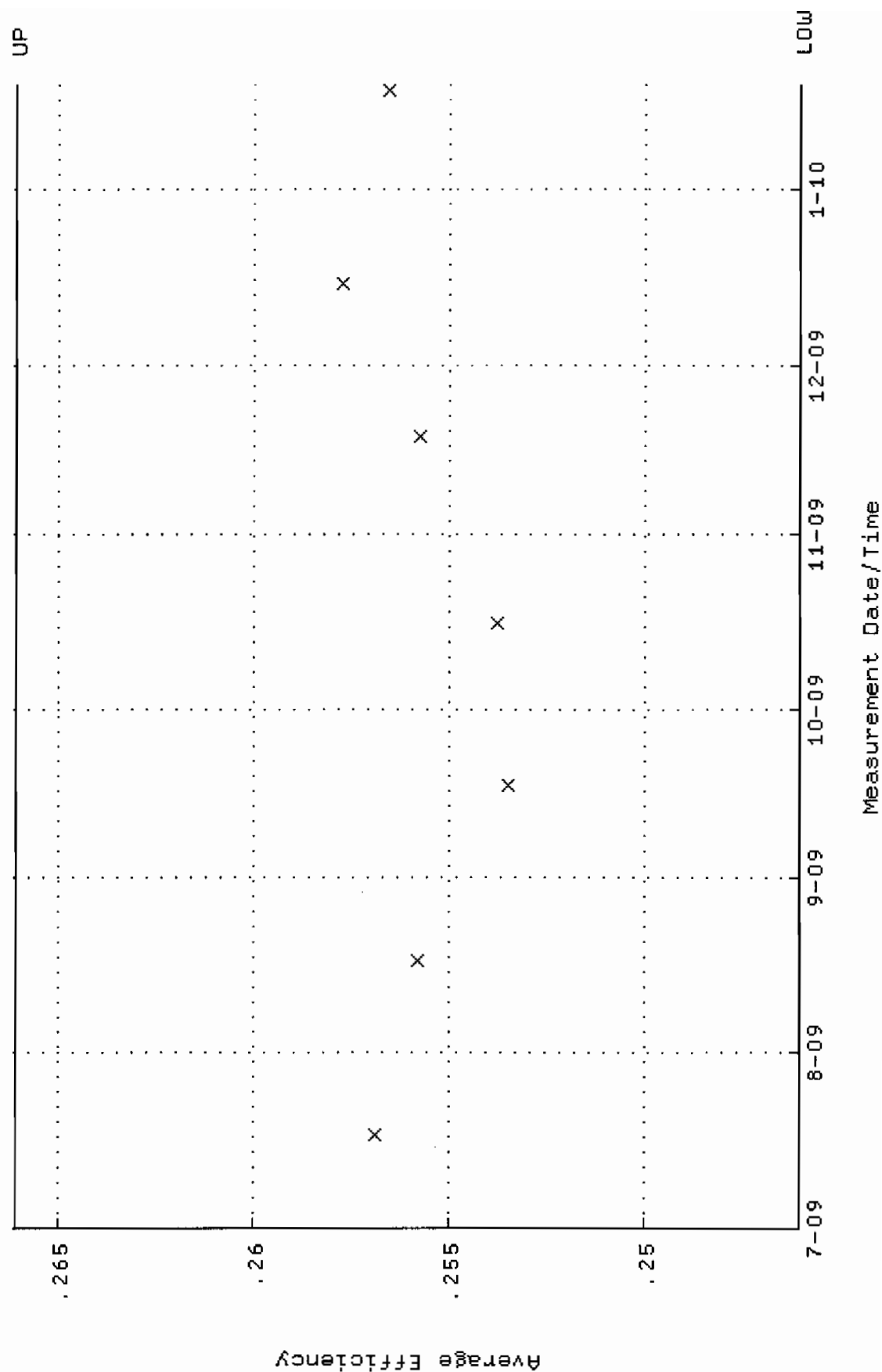
QA filename : DKA100:[ENV\_ALPHA.QA.W]W127.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.4503 through 99.9713



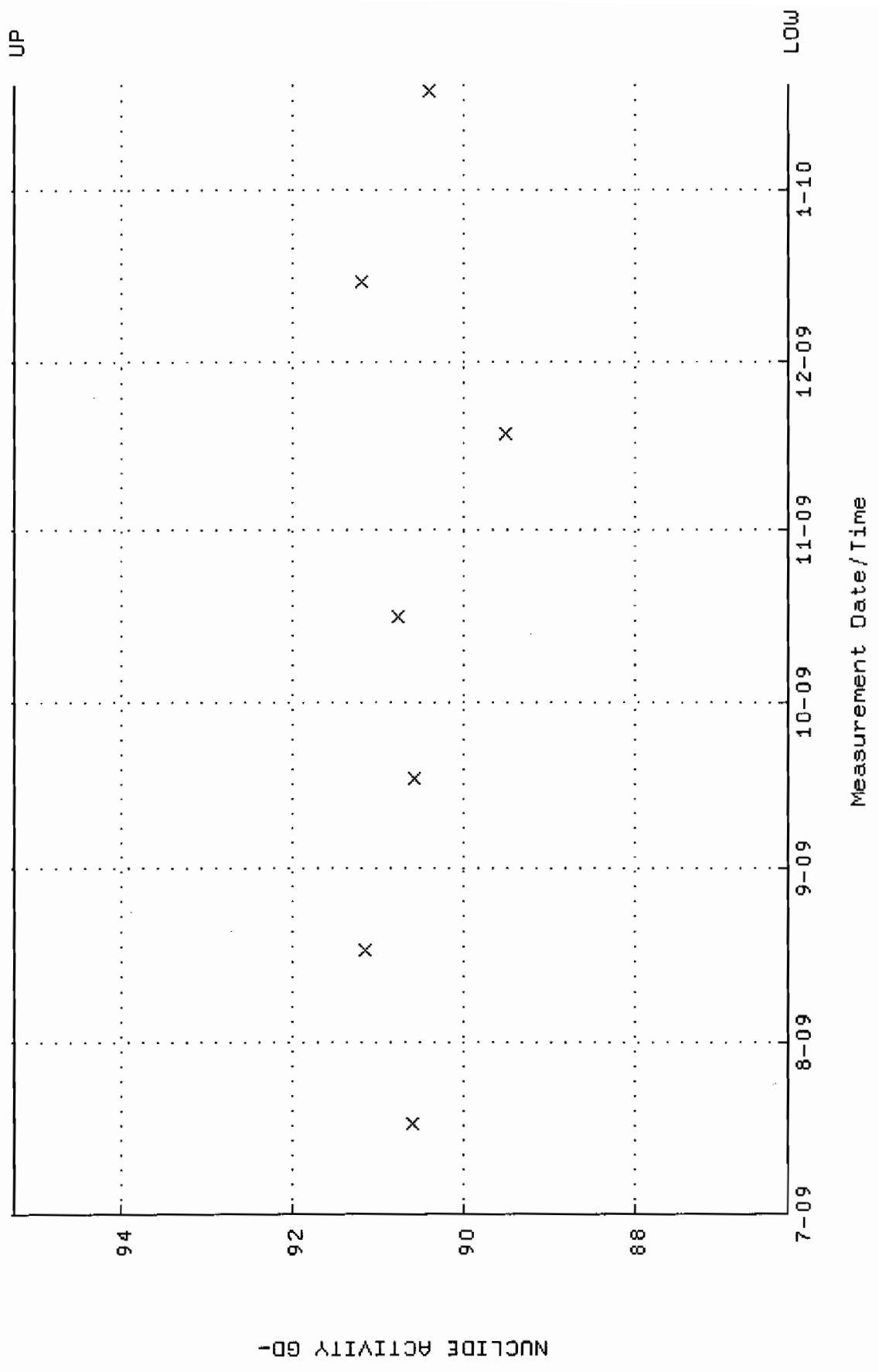
QA filename : DKA100:[ENV\_ALPHA.QA.B]B127.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W128.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:58 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.246062 through 0.266062

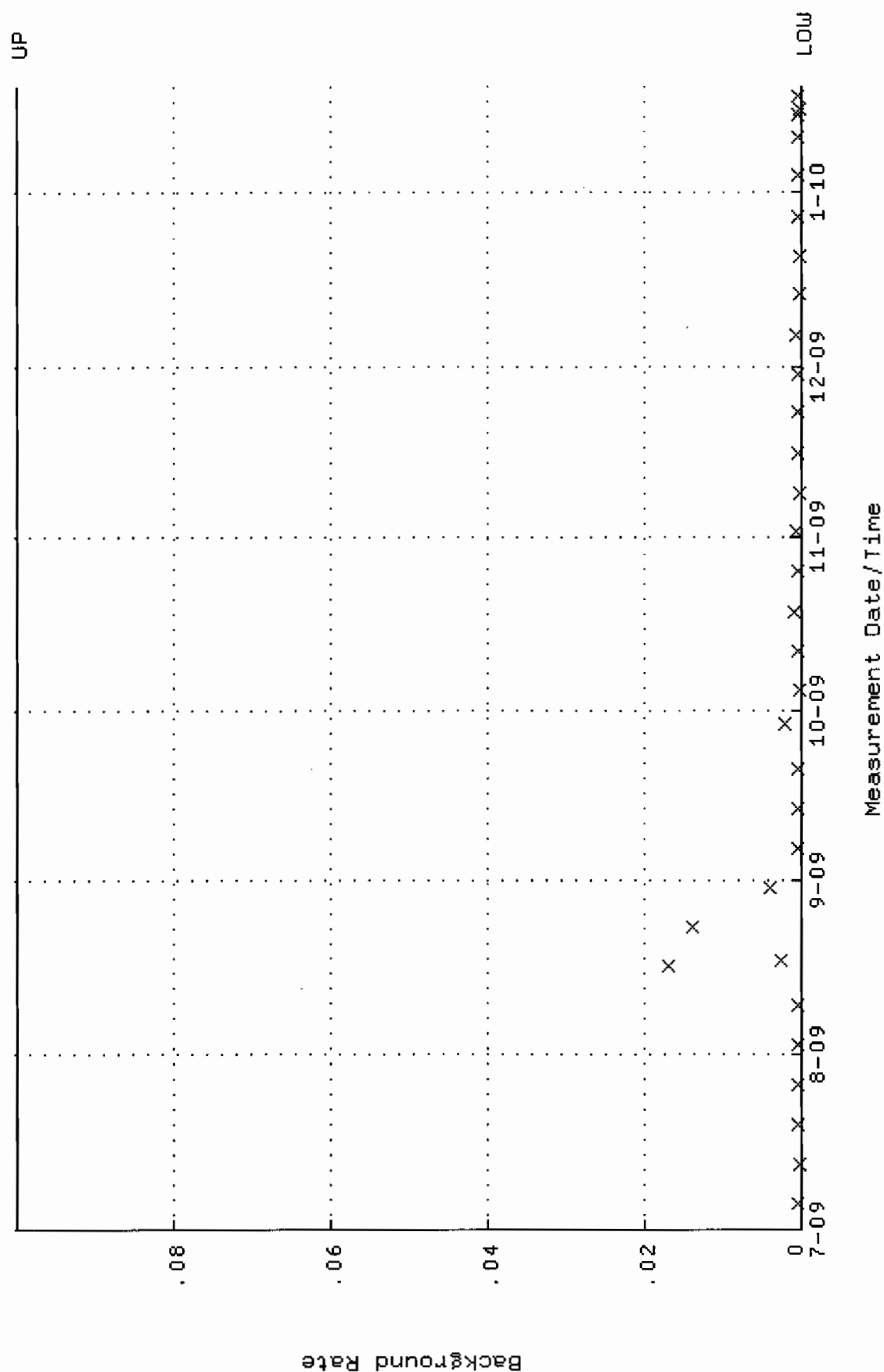


QA filename : DKA100:[ENV\_ALPHA.QA.W]w128.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:58 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.1964 through 95.2697

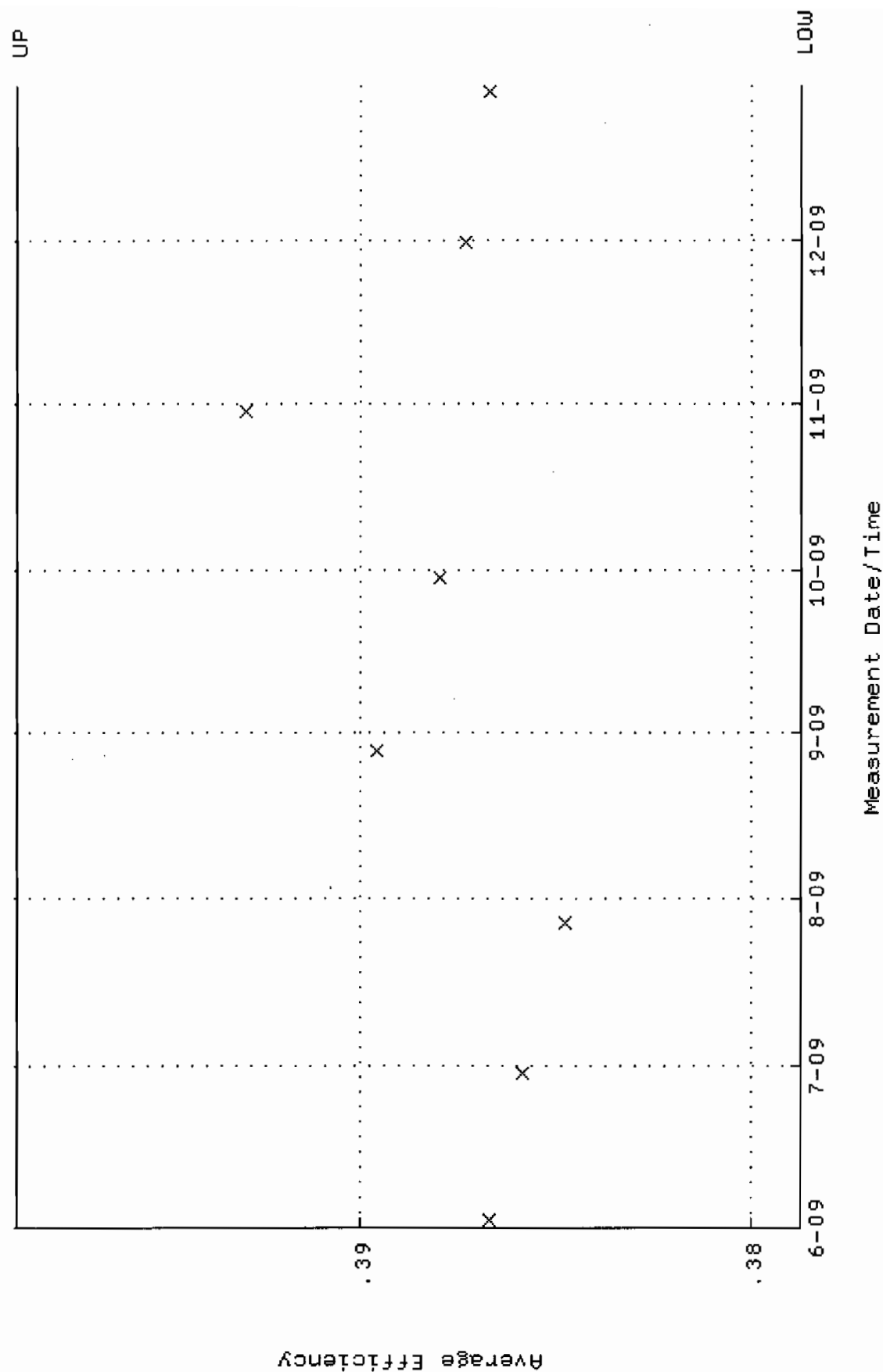




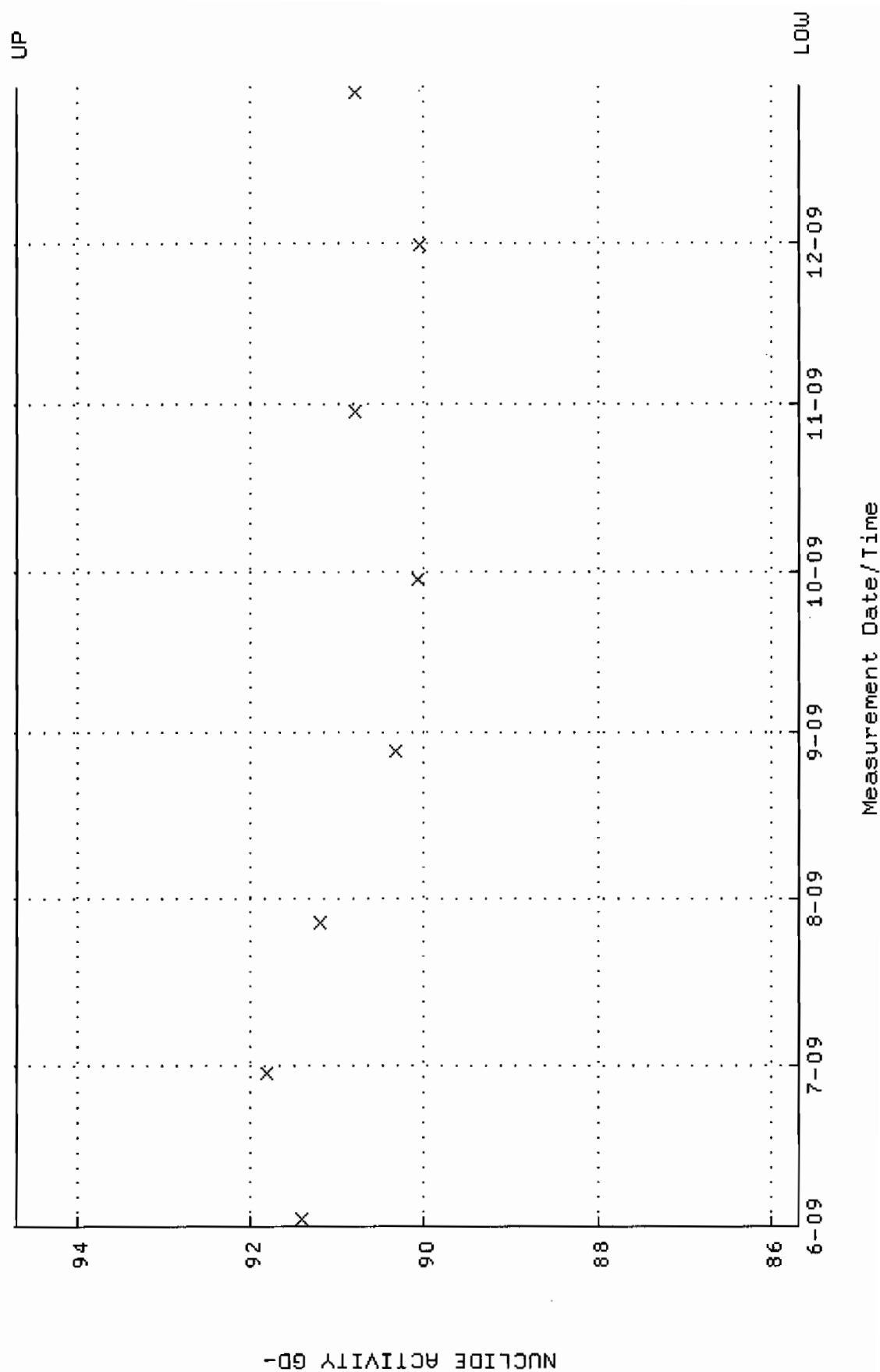
QA filename : DKA100:[ENV\_ALPHA.QA.B]B128.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:00 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



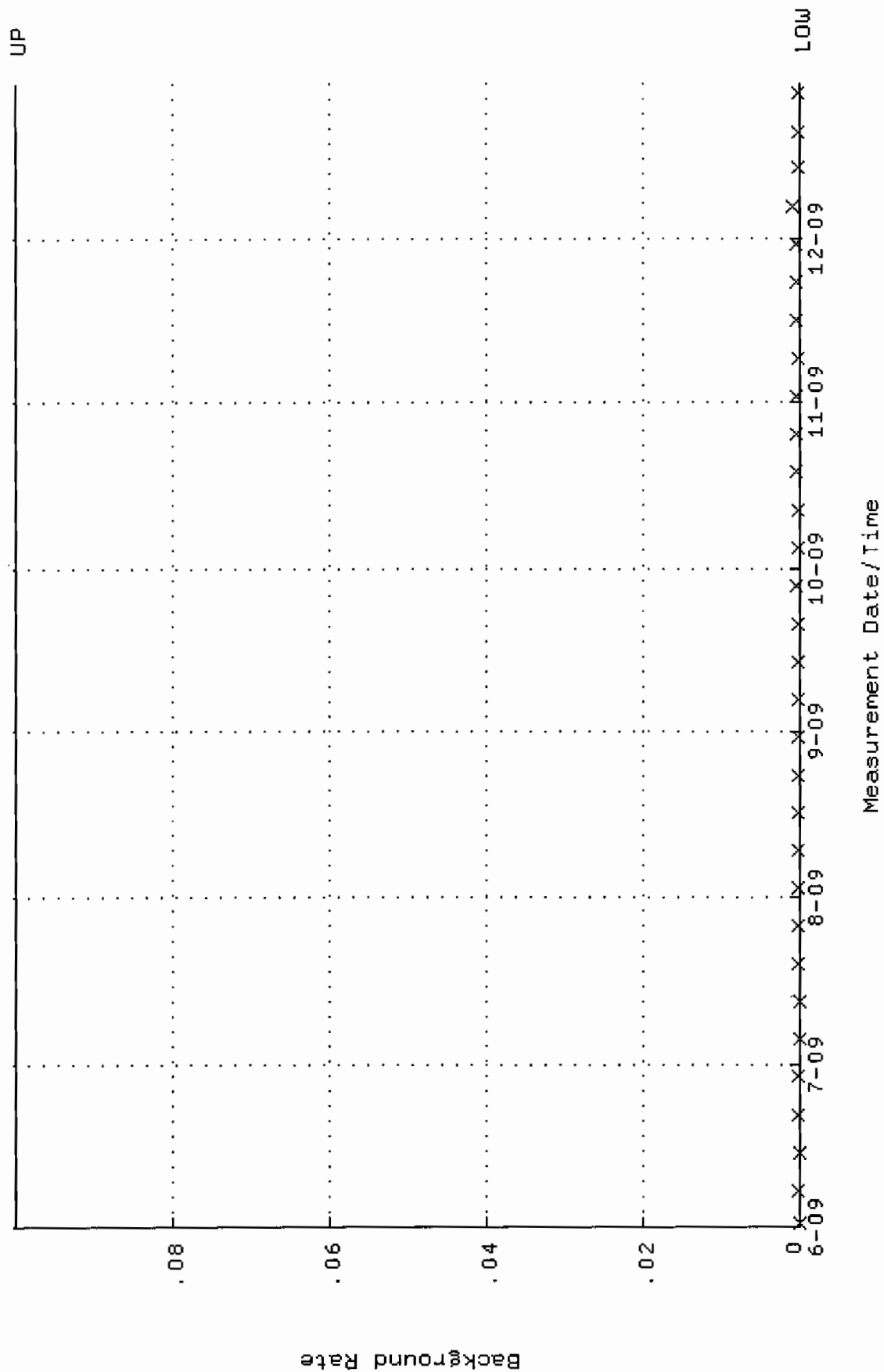
QA filename : DKA100: [ENV\_ALPHA.QA.W]W231.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUN-2009 11:19:04 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.378748 through 0.398748



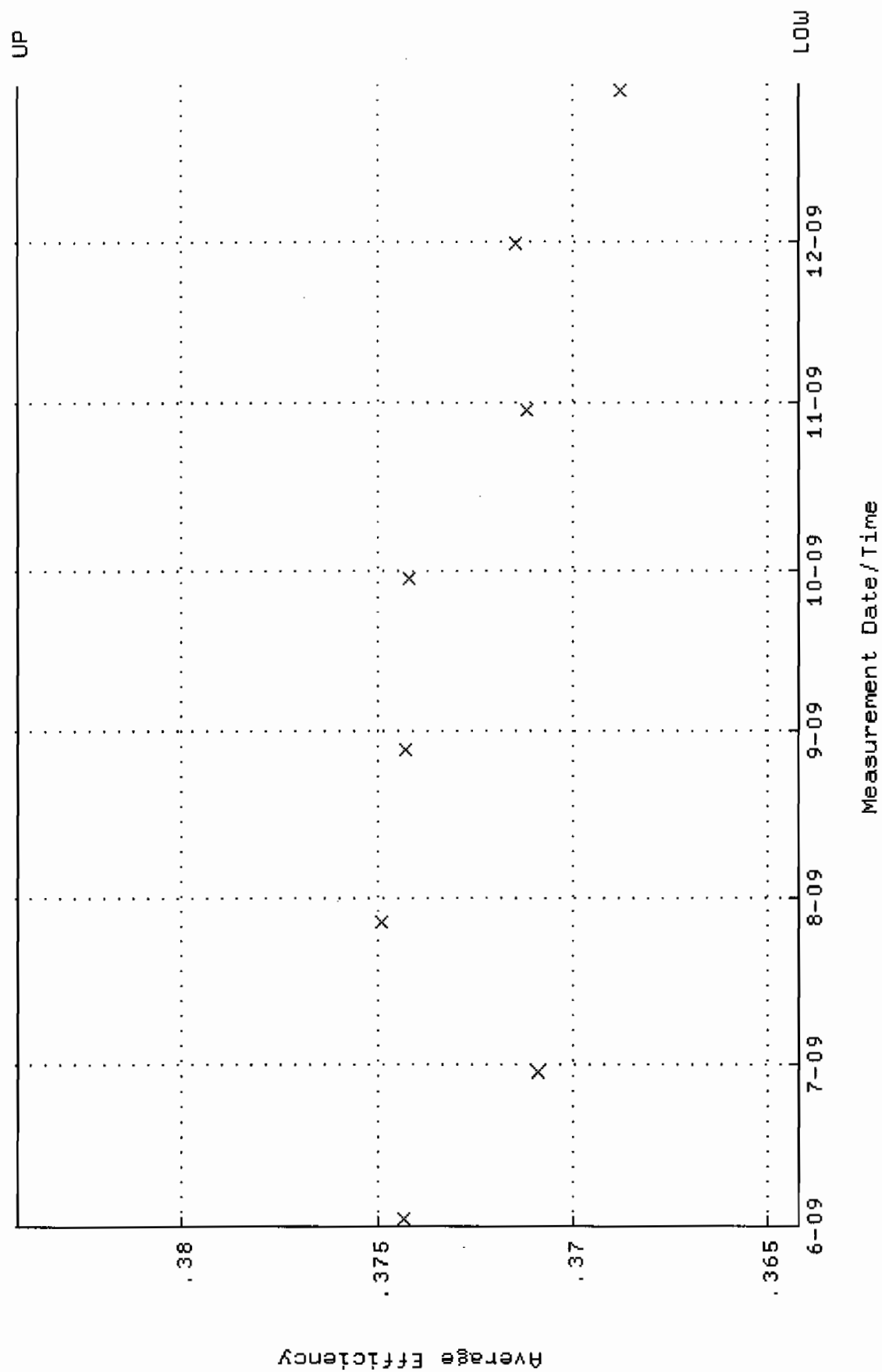
QA filename : DKA100:[ENV\_ALPHA.QA.W]W231.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUN-2009 11:19:04 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 85.6783 through 94.6971



QA filename : DKA100:[ENV\_ALPHA.QA.B]B231.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUN-2009 17:45:10 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

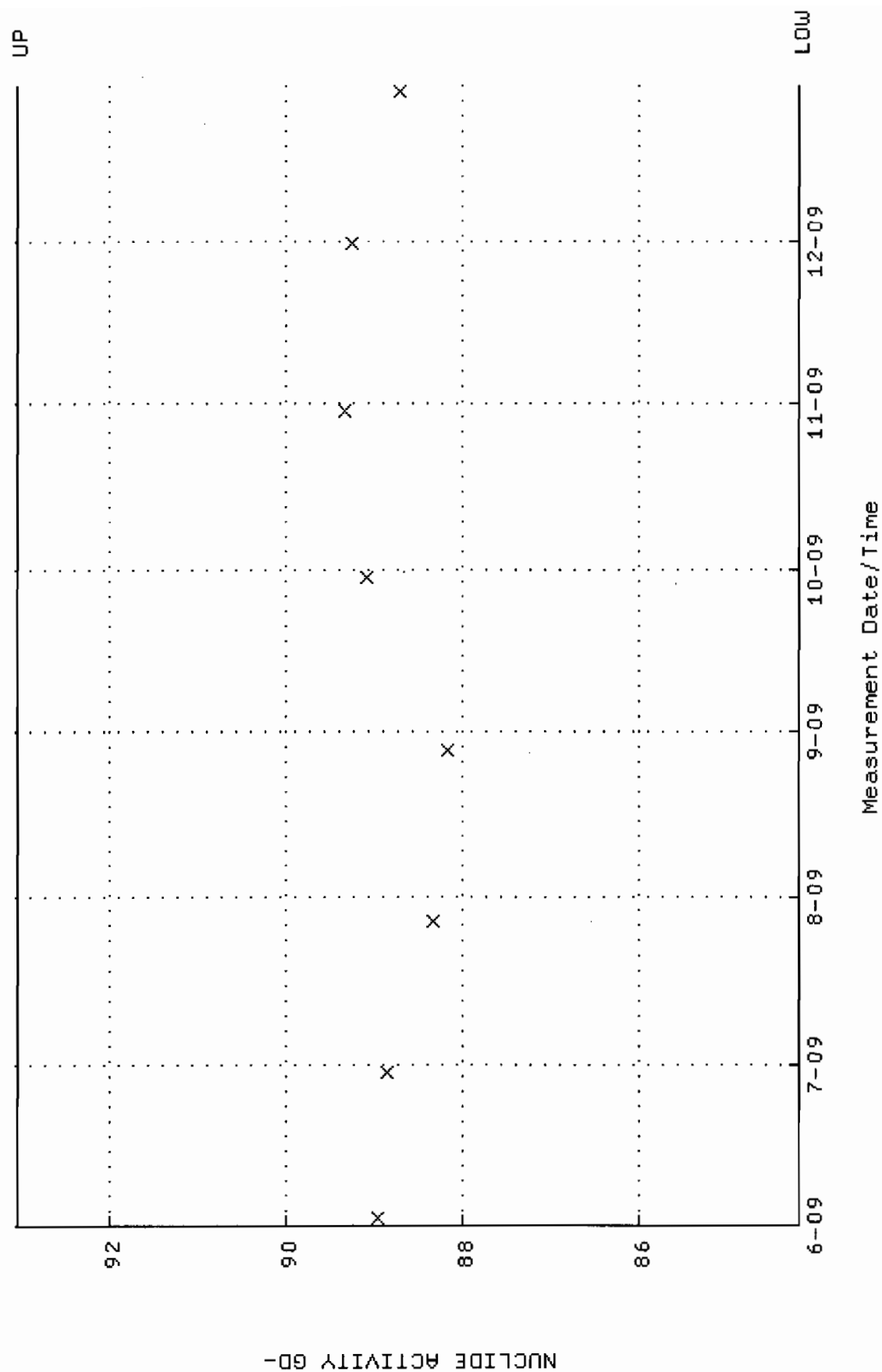


QA filename : DKA100:[ENV\_ALPHA.QA.W]W232.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUN-2009 11:19:09 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.364210 through 0.384210

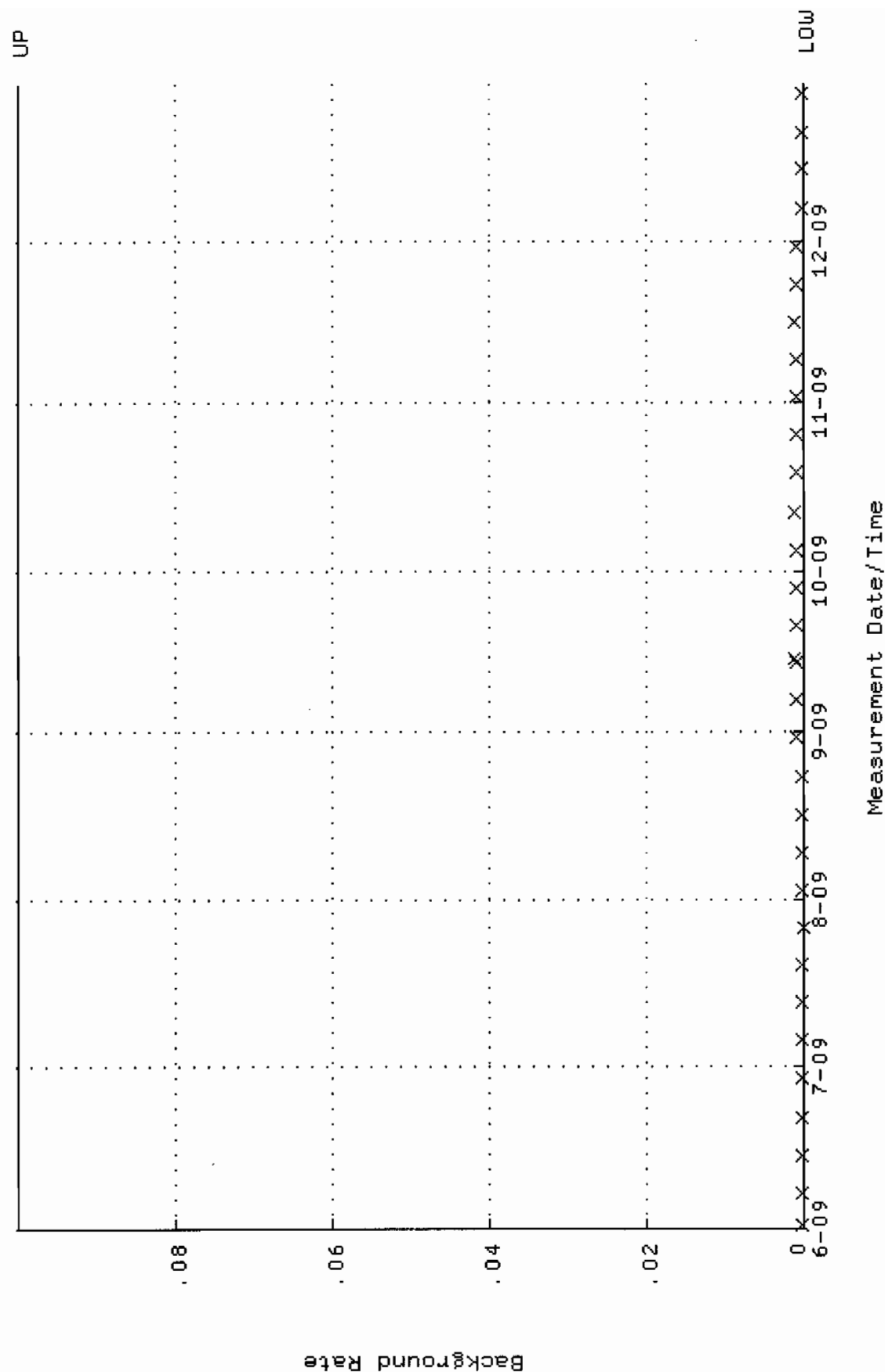




QA filename : DKA100:[ENV\_ALPHA.QA.W]W232.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUN-2009 11:19:09 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 84.1819 through 93.0431

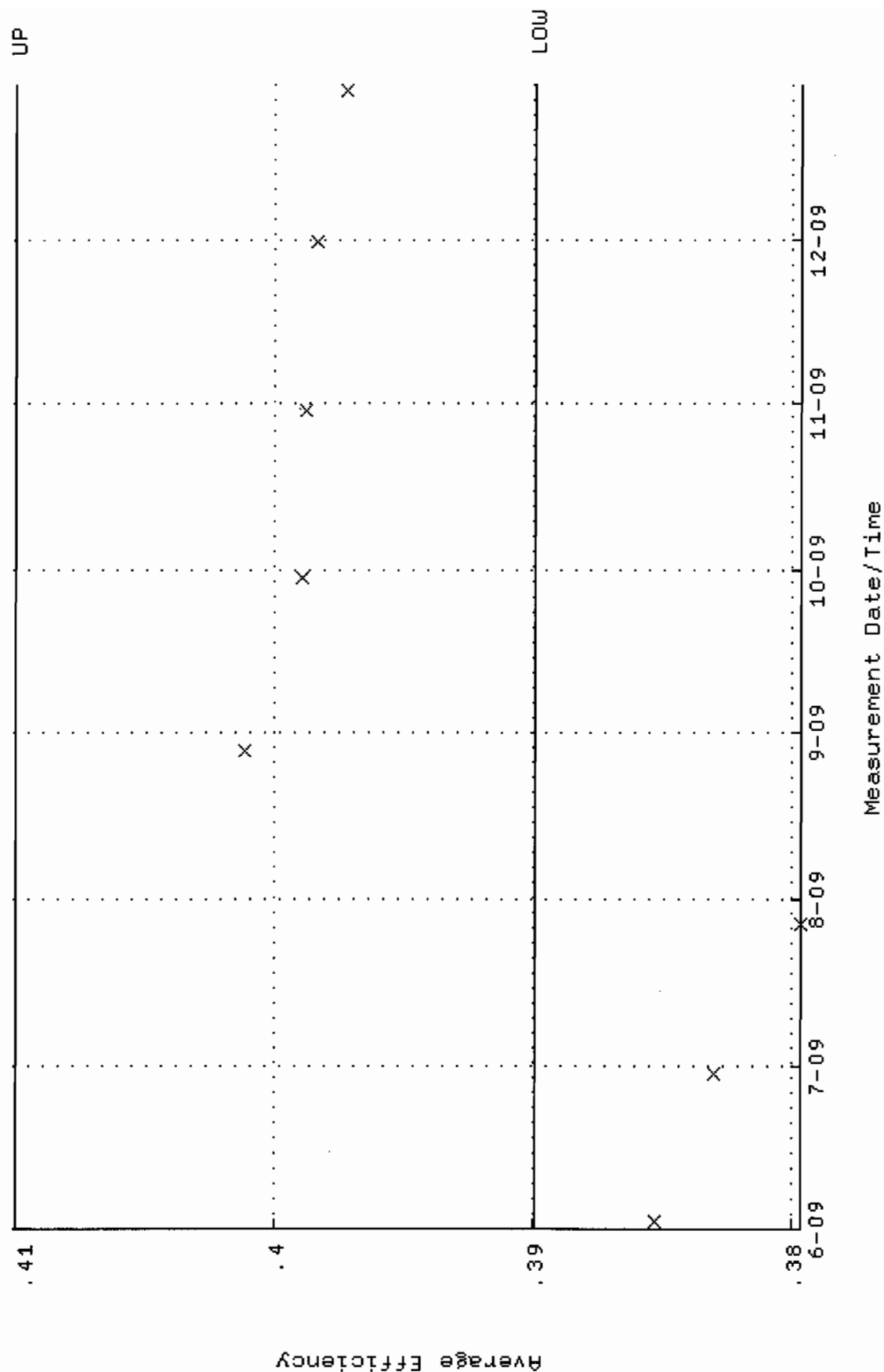


QA filename : OKA100:[ENV\_ALPHA.QA.B]B232.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUN-2009 17:45:14 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

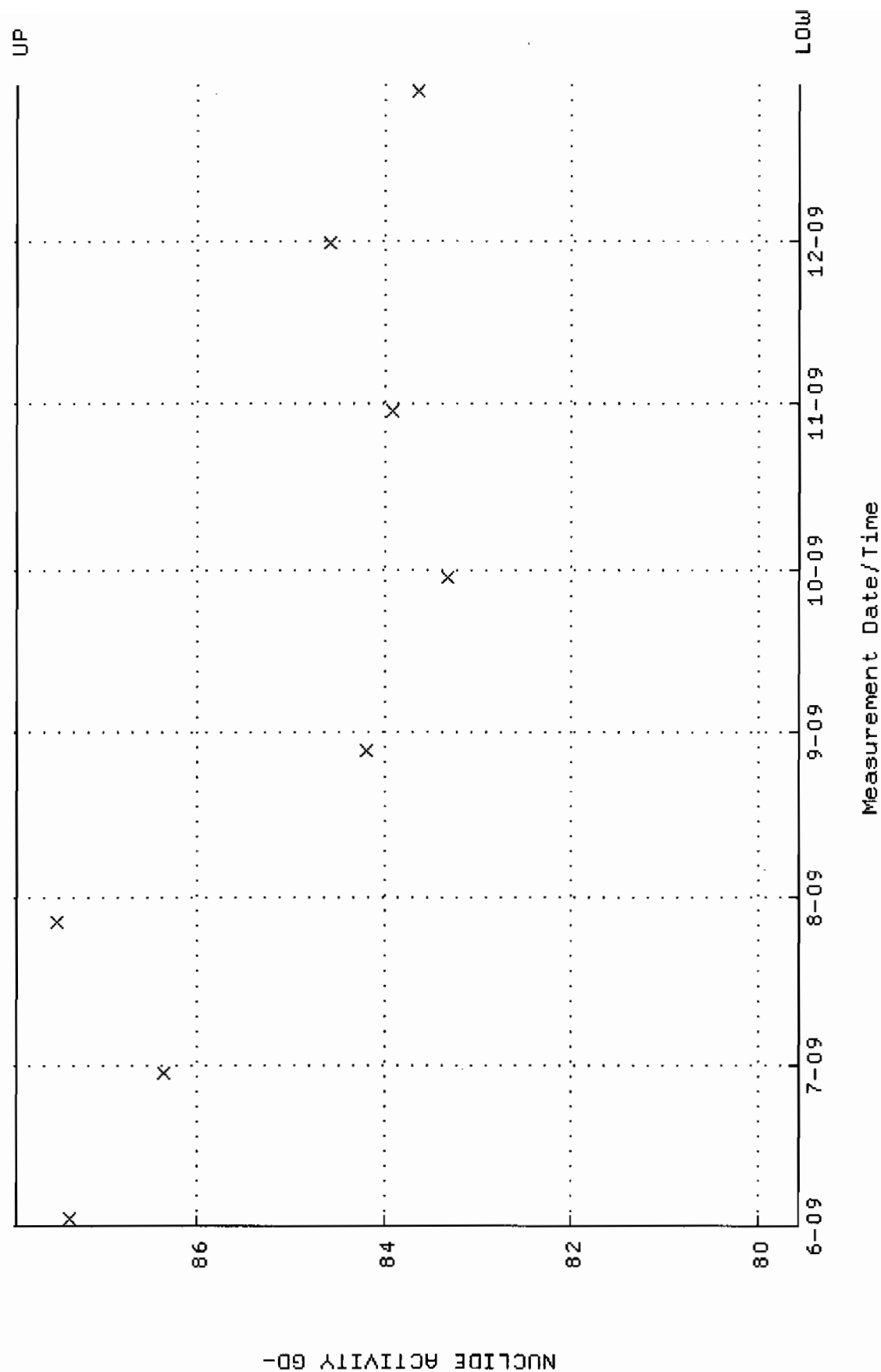




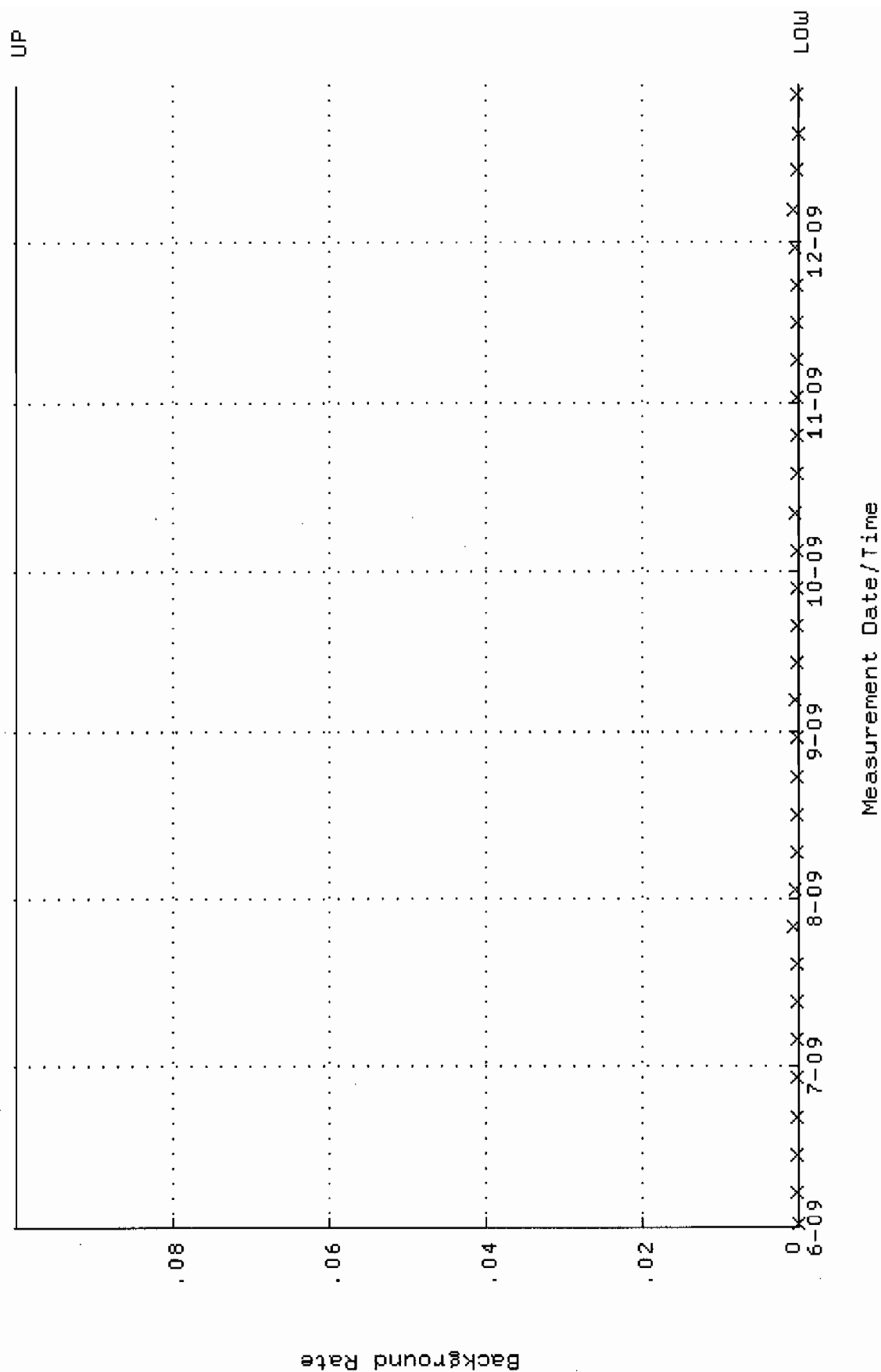
QA filename : DKA100:[ENV\_ALPHA.QA.W]W237.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUN-2009 11:19:34 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.390000 through 0.410000



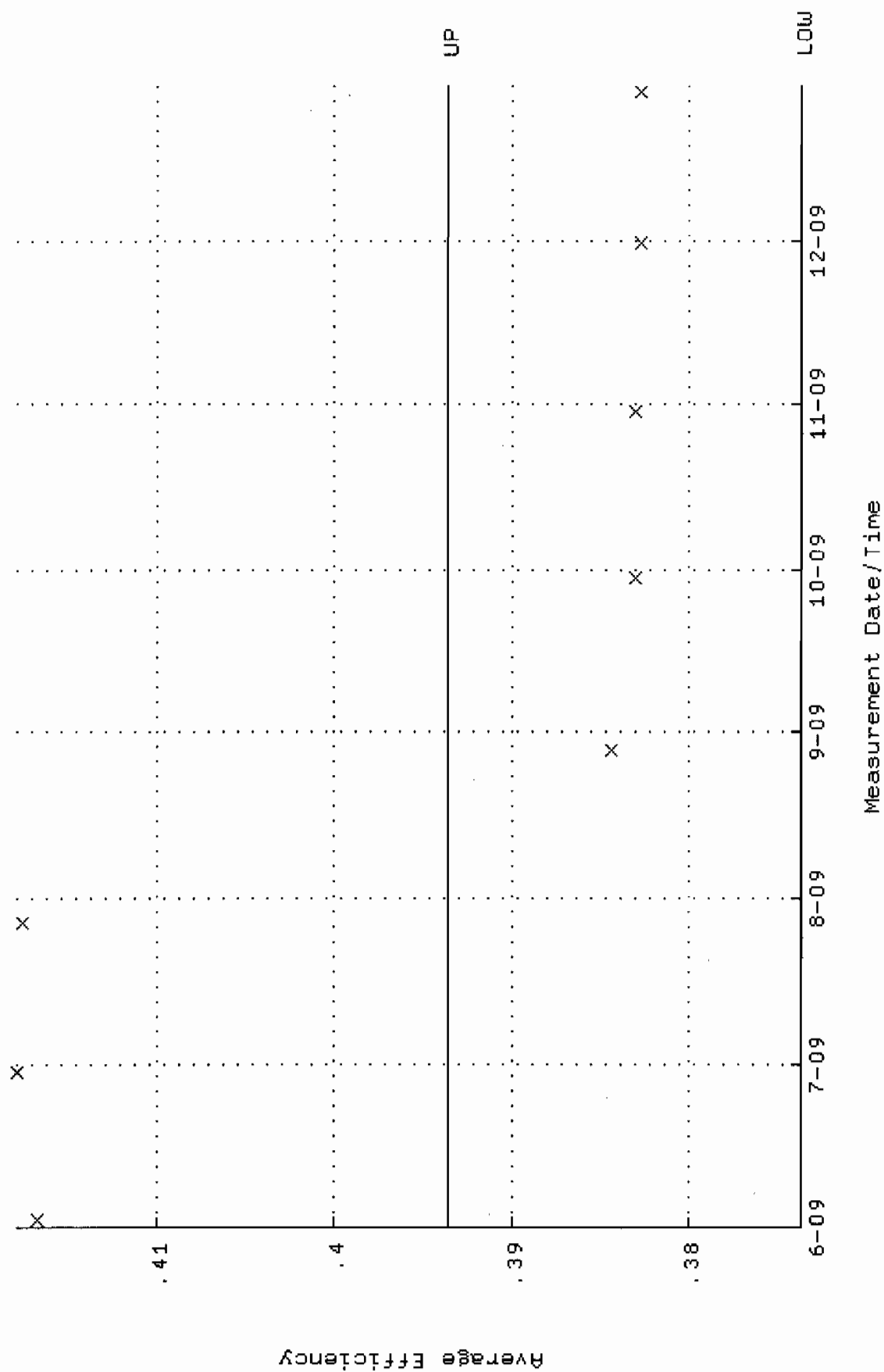
QA filename : DKA100:[ENV\_ALPHA.QA.W]w237.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUN-2009 11:19:34 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 79.5642 through 87.9394



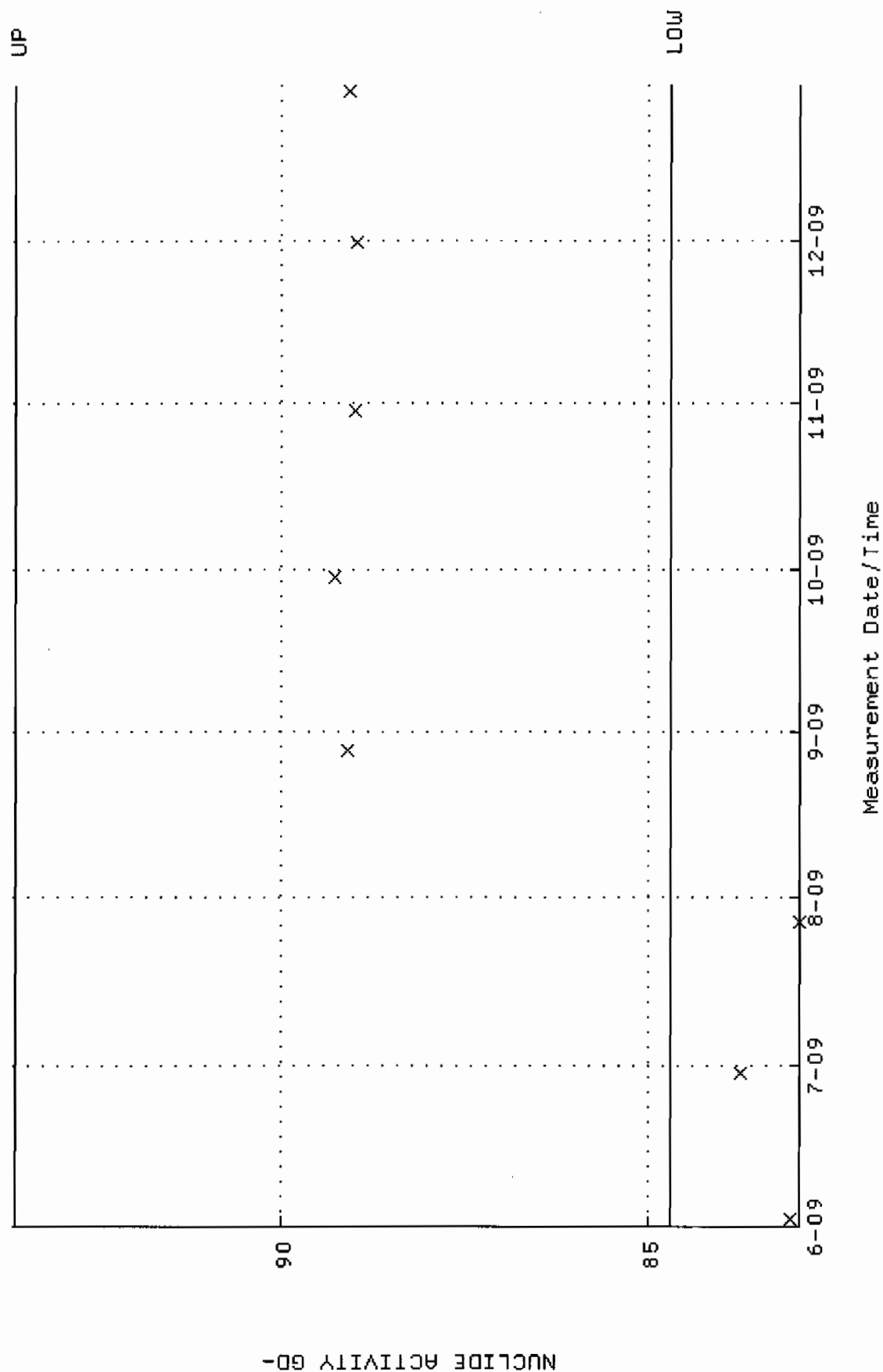
QA filename : DKA100:[ENV\_ALPHA.QA.B]B237.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUN-2009 17:46:02 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



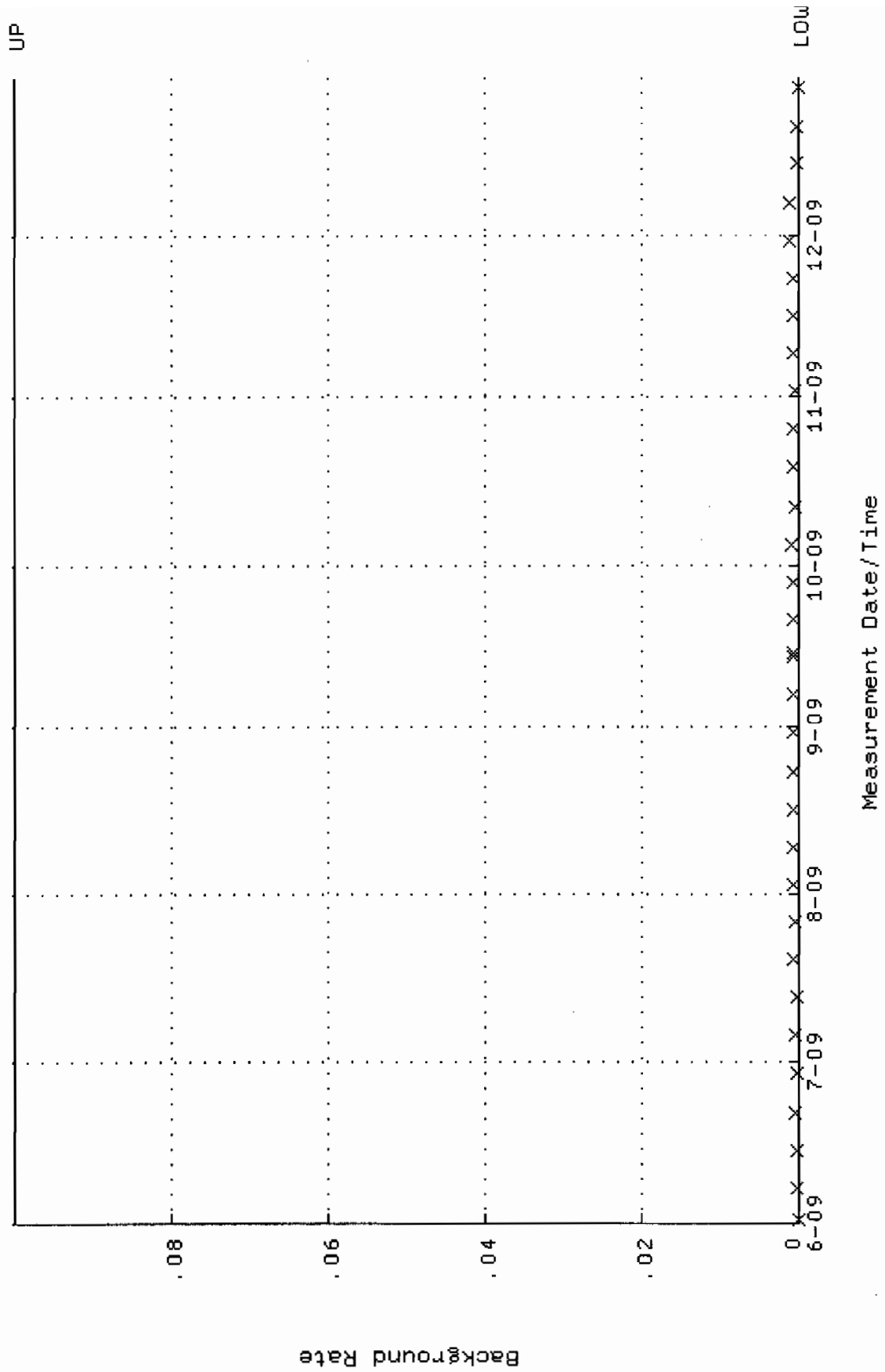
QA filename : DKA100:[ENV\_ALPHA.QA.W]W253.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUN-2009 11:20:48 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.373633 through 0.393633



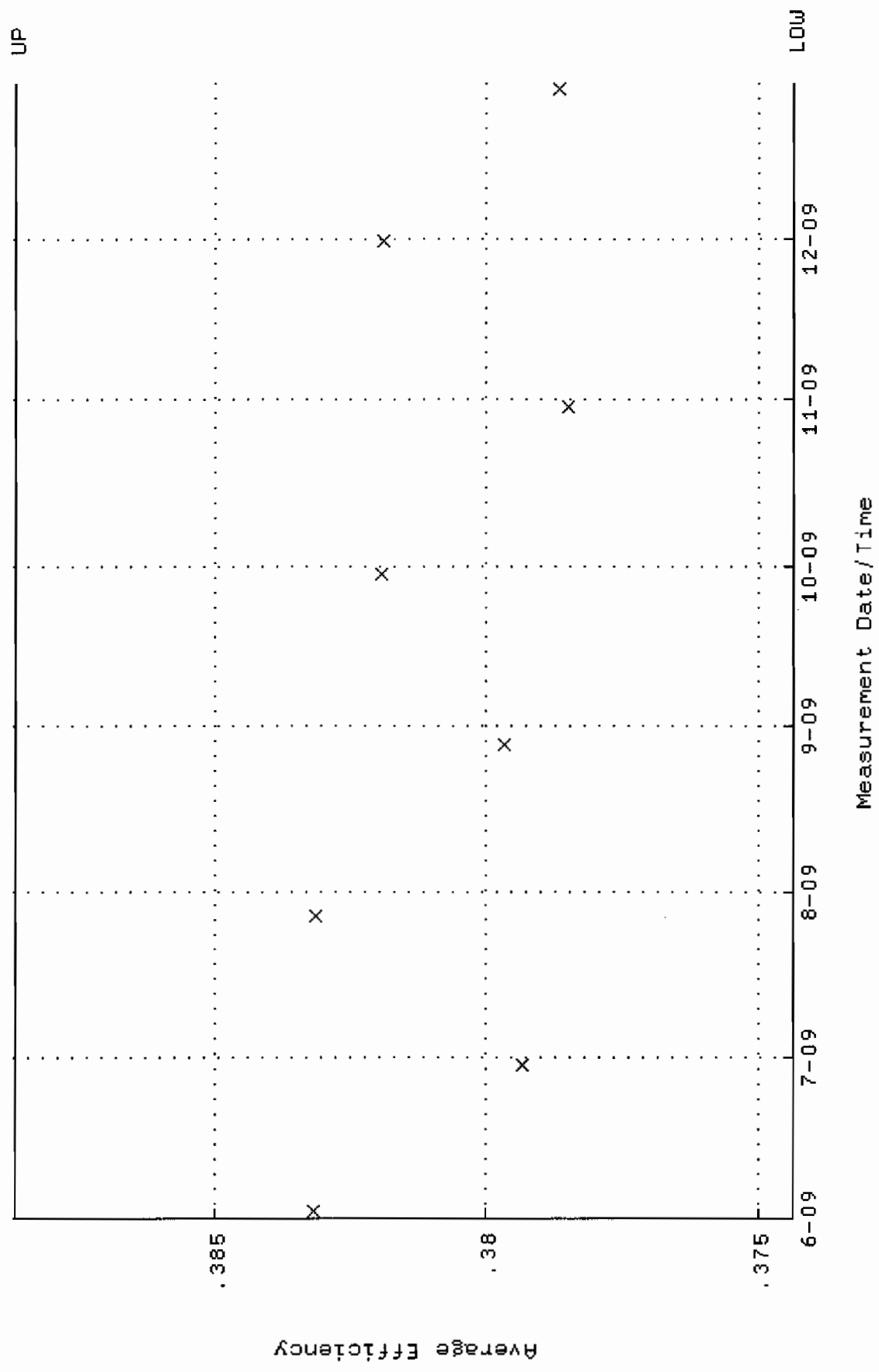
QA filename : DKA100:[ENV\_ALPHA.QA.W]W253.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUN-2009 11:20:48 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 84.7115 through 93.6285



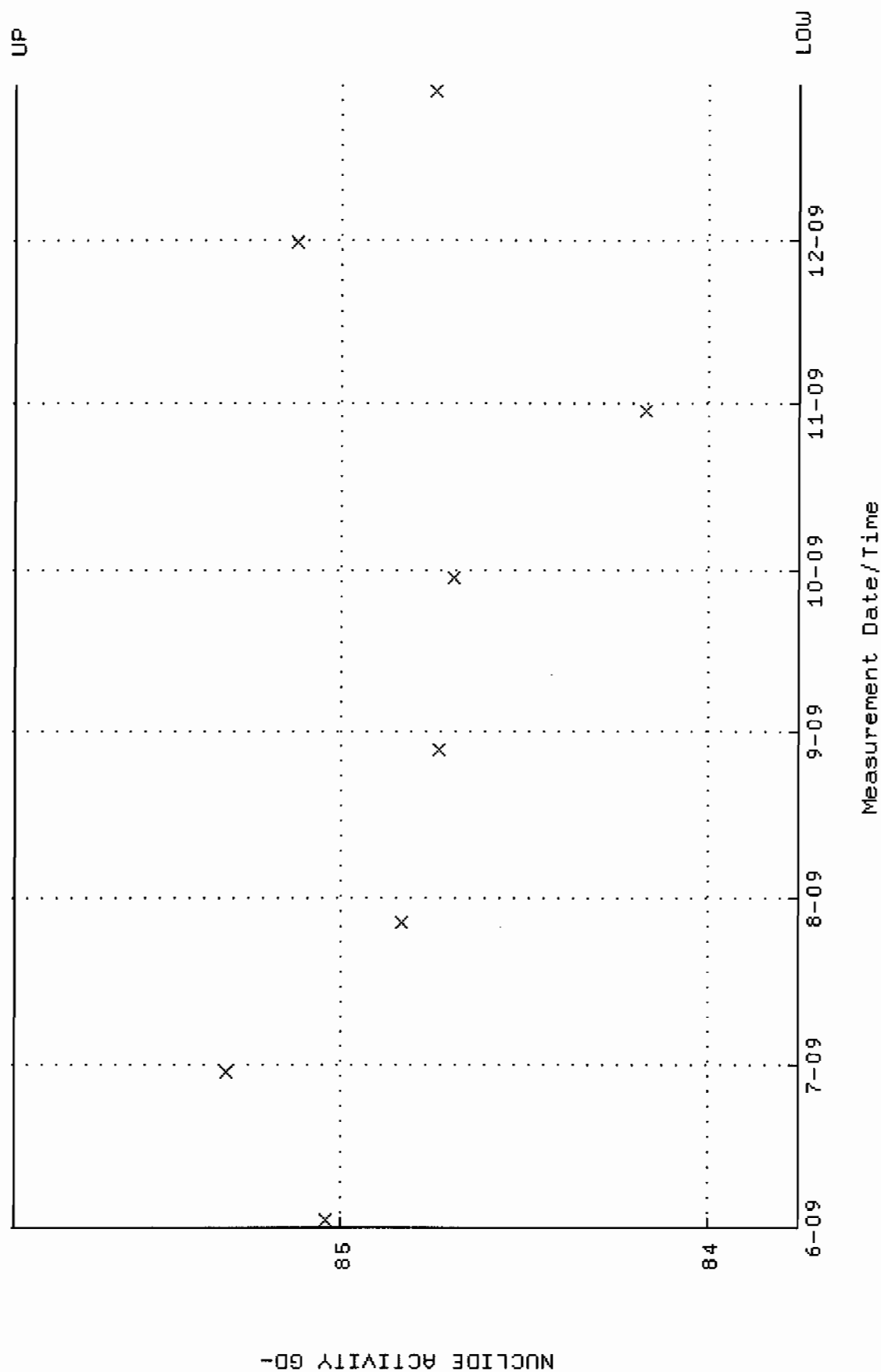
QA filename : DKA100:[ENV\_ALPHA.QA.B]B253.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUN-2009 17:47:34 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W256.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUN-2009 11:21:01 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 0.374371 through 0.388647



QA filename : DKA100:[ENV\_ALPHA.QA.W]U256.QAF;1  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUN-2009 11:21:01 through 29-DEC-2009 12:00:00  
 Lower/Upper Lmts: 83.7553 through 85.8901

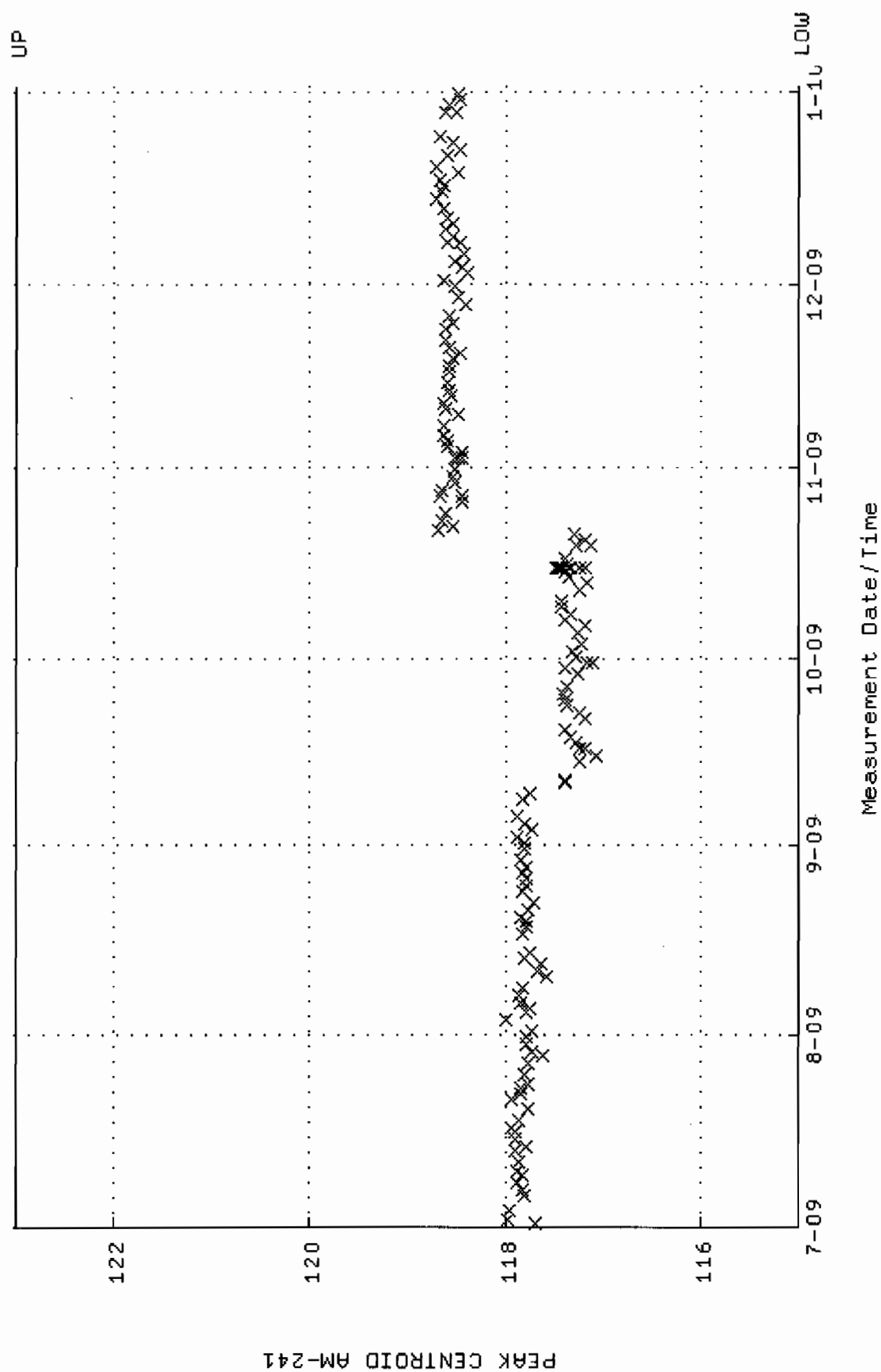




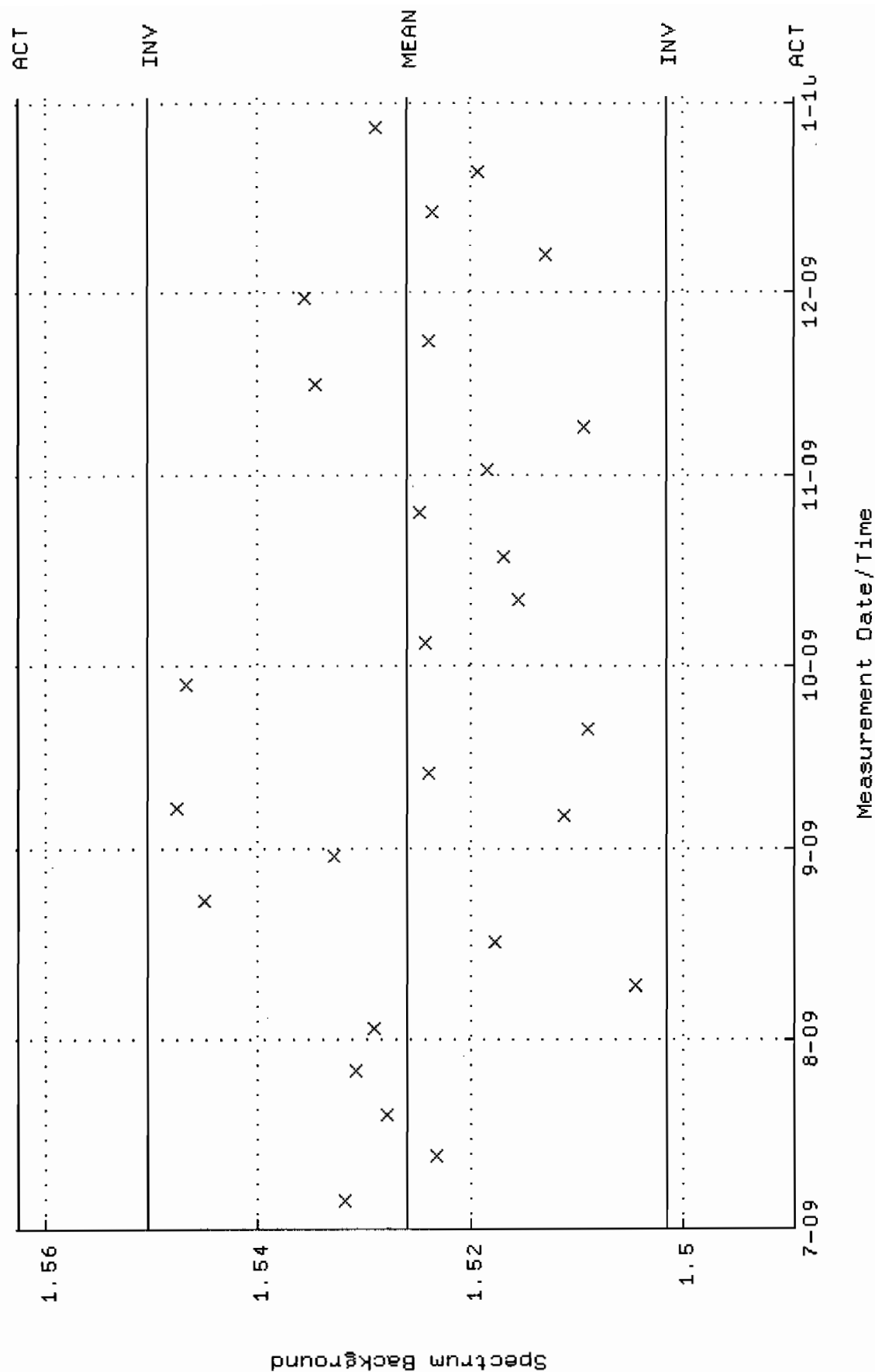
Lower/Upper Lmts: 0.000000E+00 through 0.100000



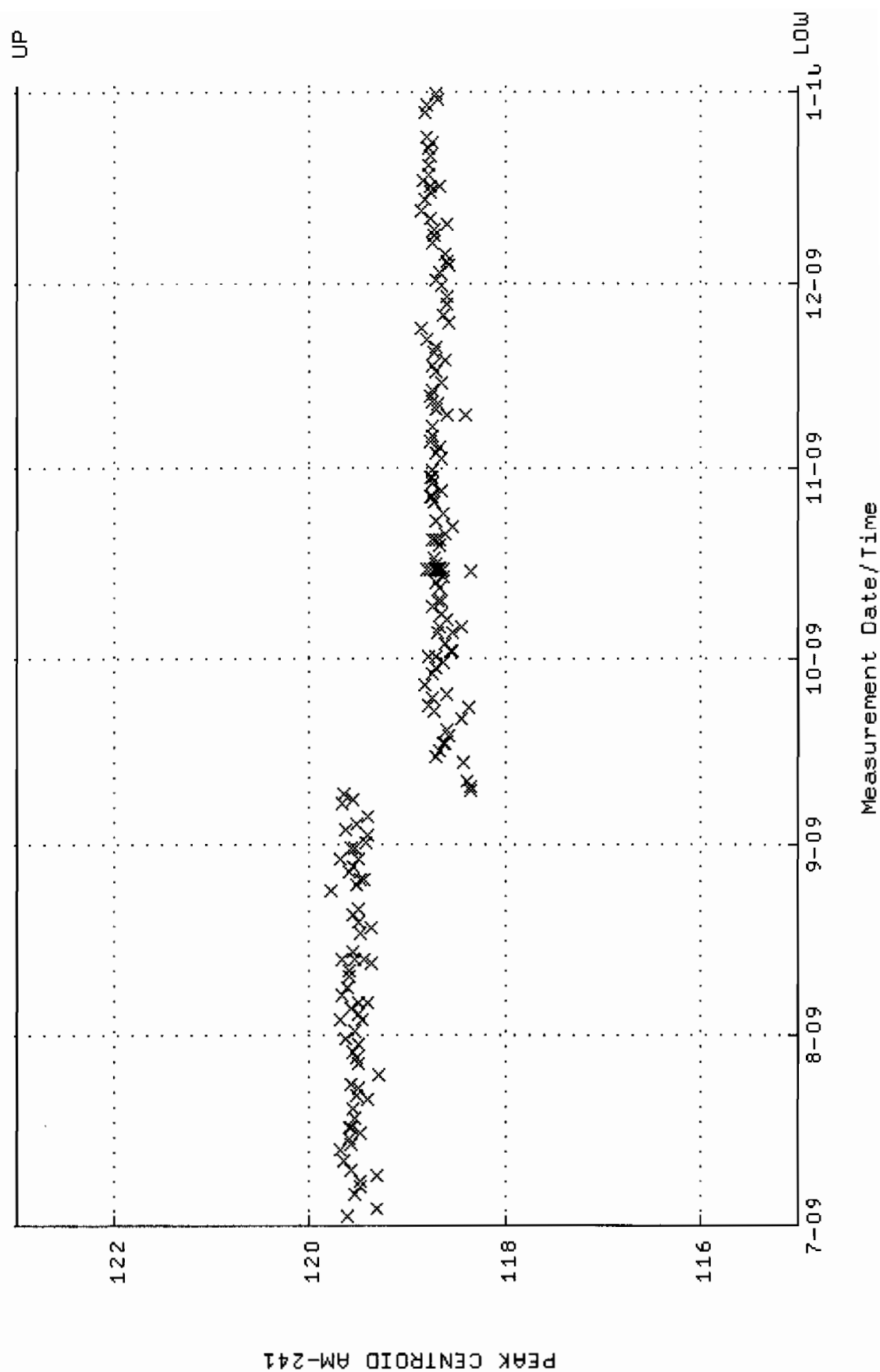
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM06\_500MLMB.QAF;1  
Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)  
Start/End Dates : 1-JUL-2009 14:30:59 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



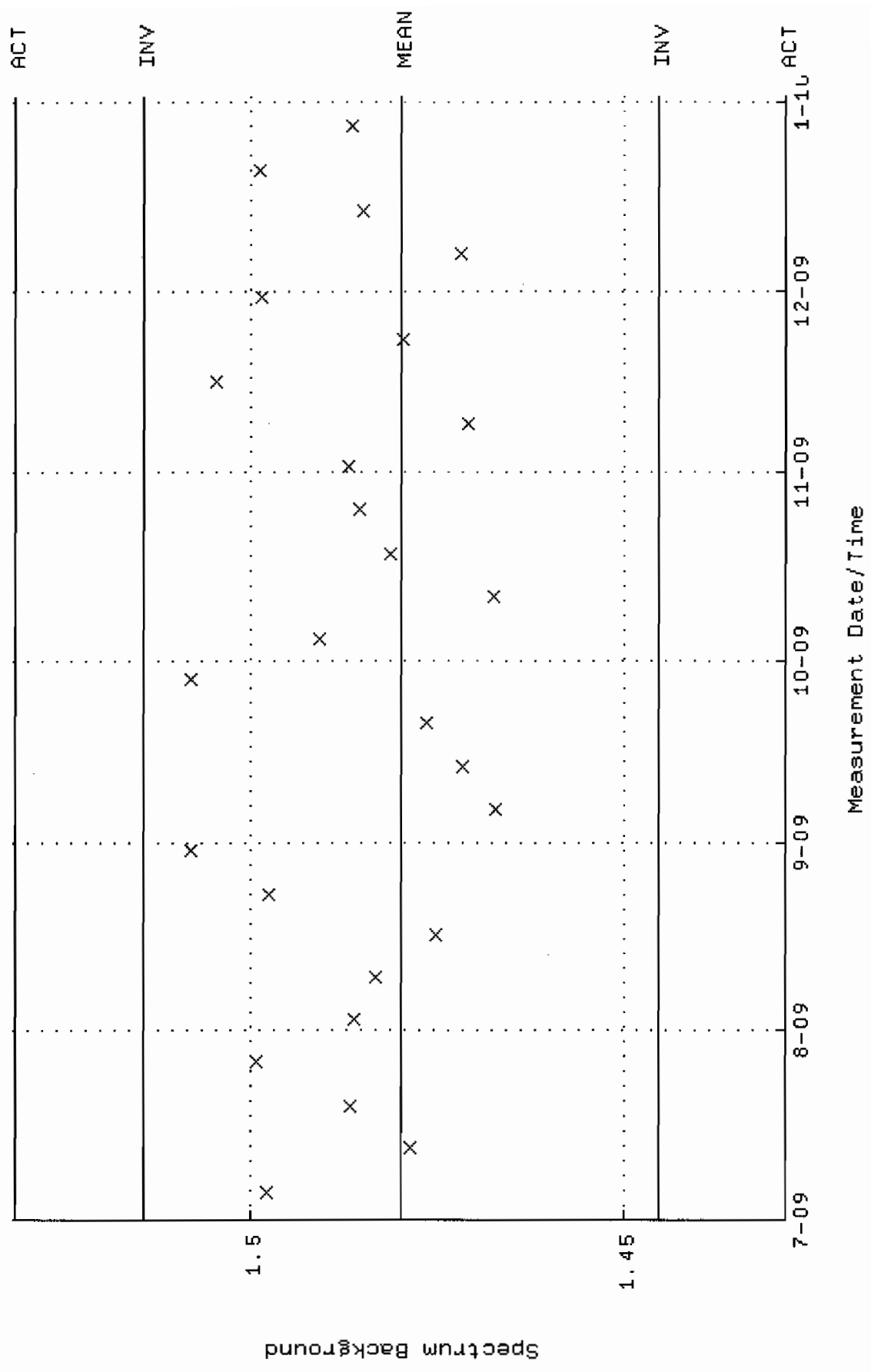
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM06.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:50:15 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.52603 +- 1.215987E-02 (0.80 %)



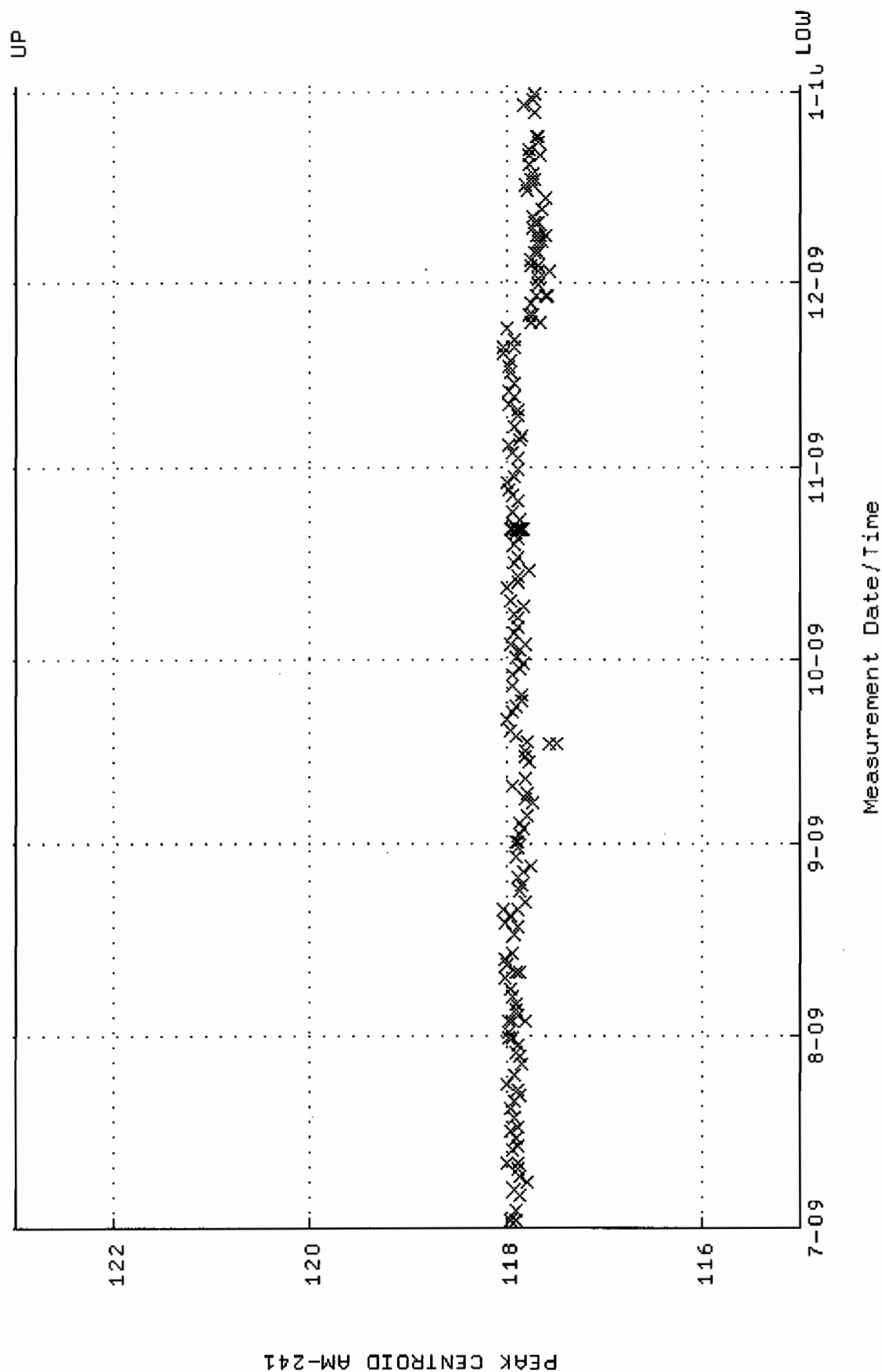
QA filename : OKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM10\_500MLMB.QAF;1  
Parameter Name : PSCENTRO-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 10:47:17 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



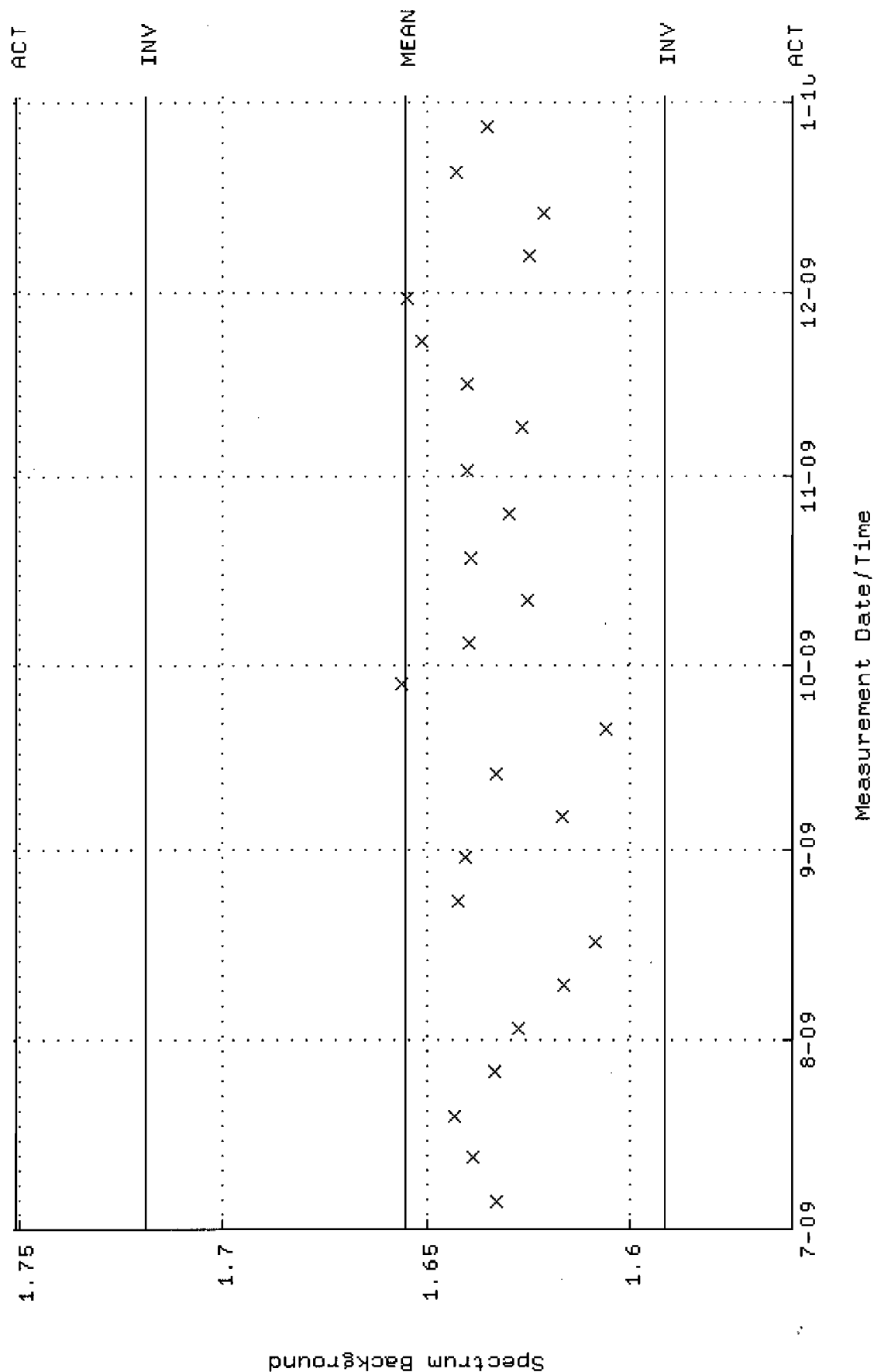
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM10.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:14 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48000 +- 1.723892E-02 (1.16 %)



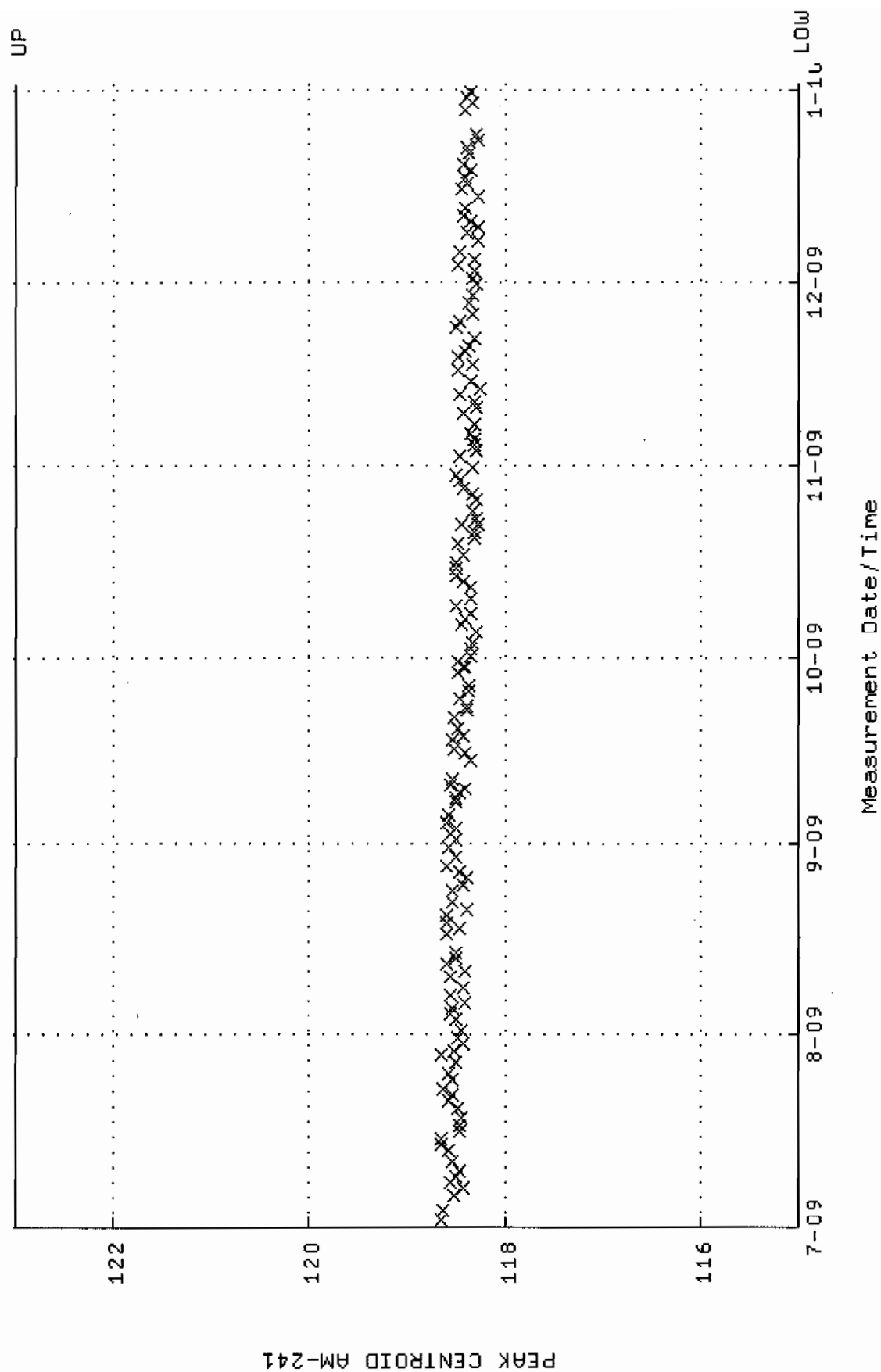
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM11-JAR.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:04 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM11.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:39 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.65552 +- 3.175806E-02 (1.92 %)

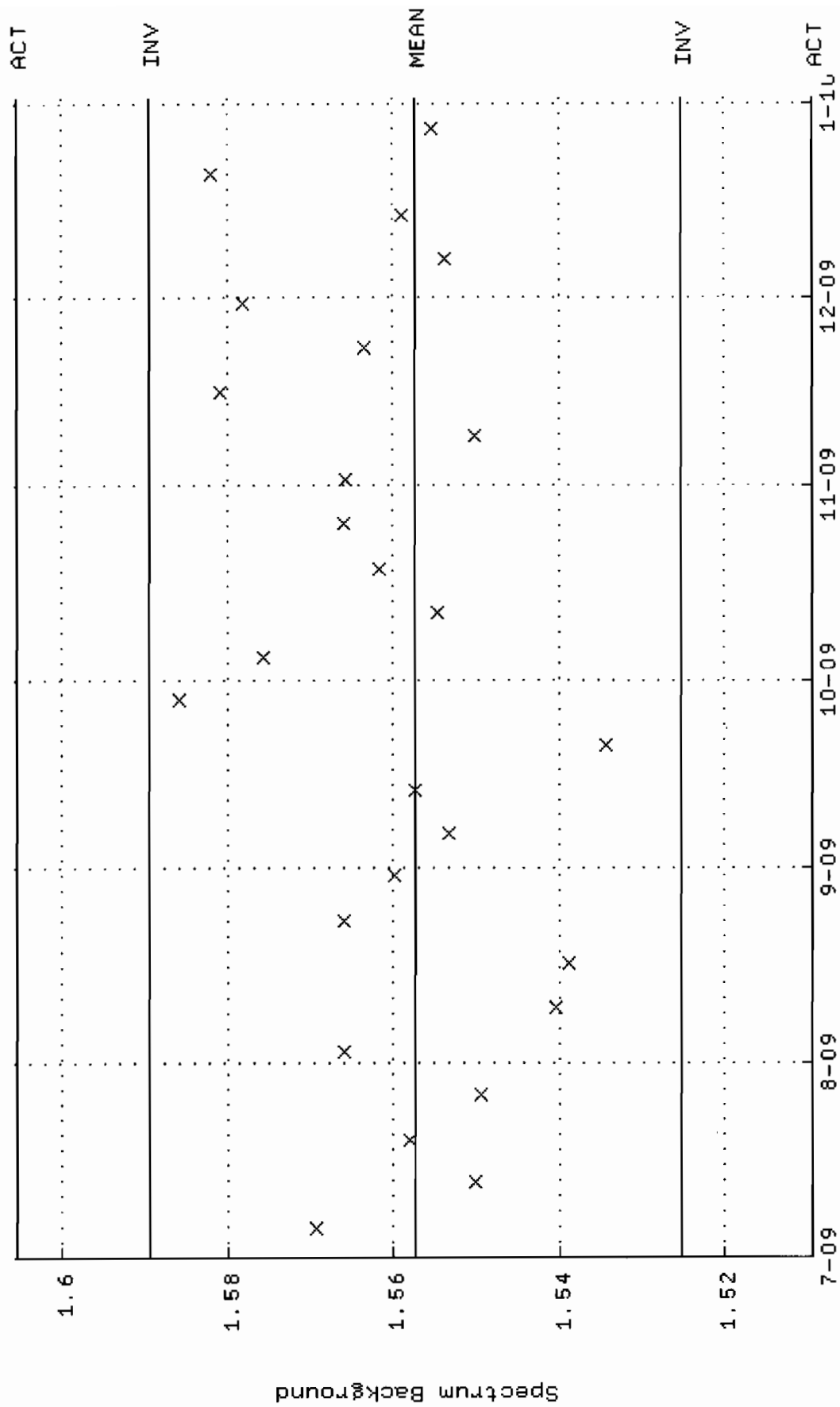


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM12-CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 05:29:11 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000

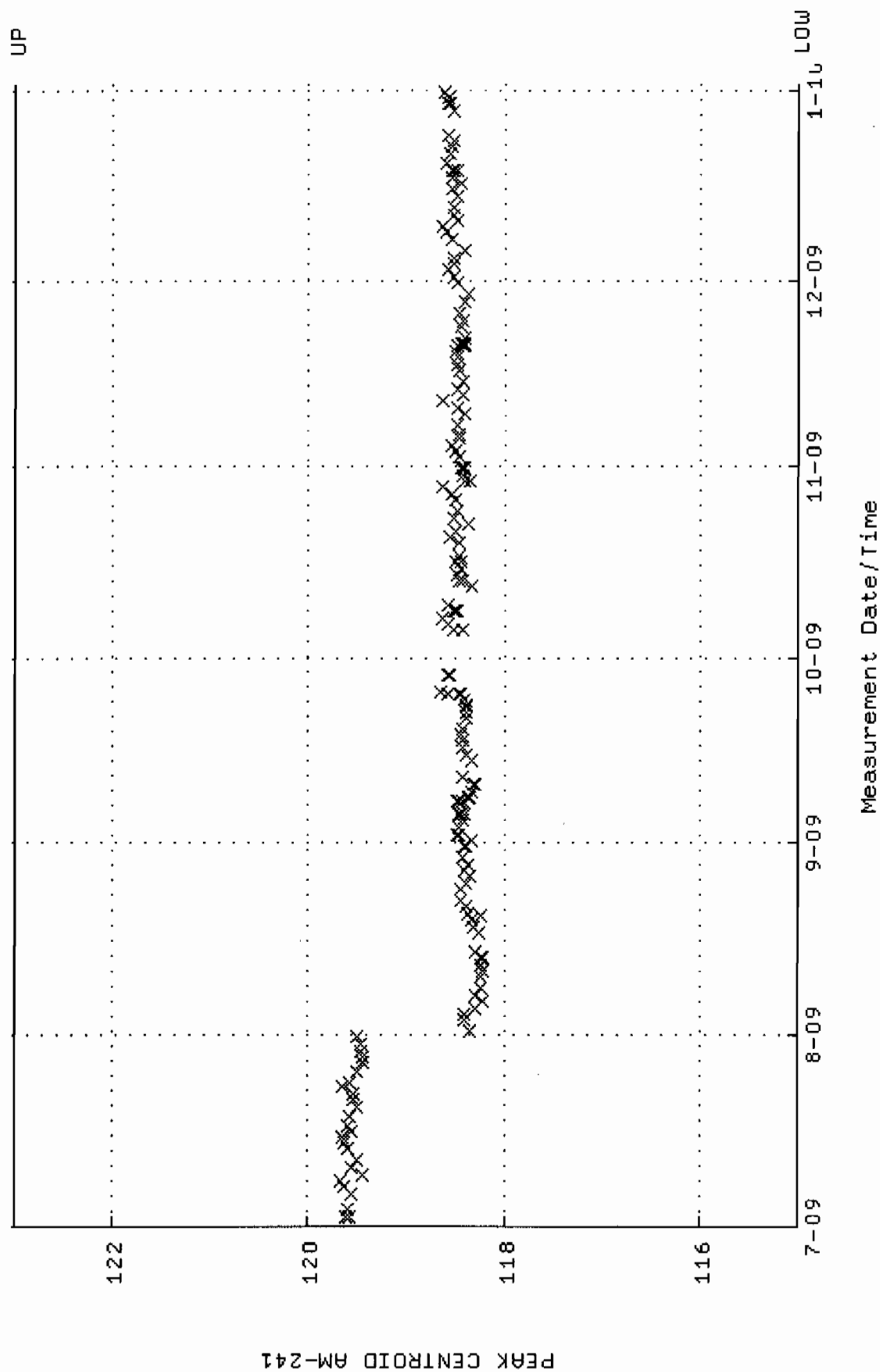




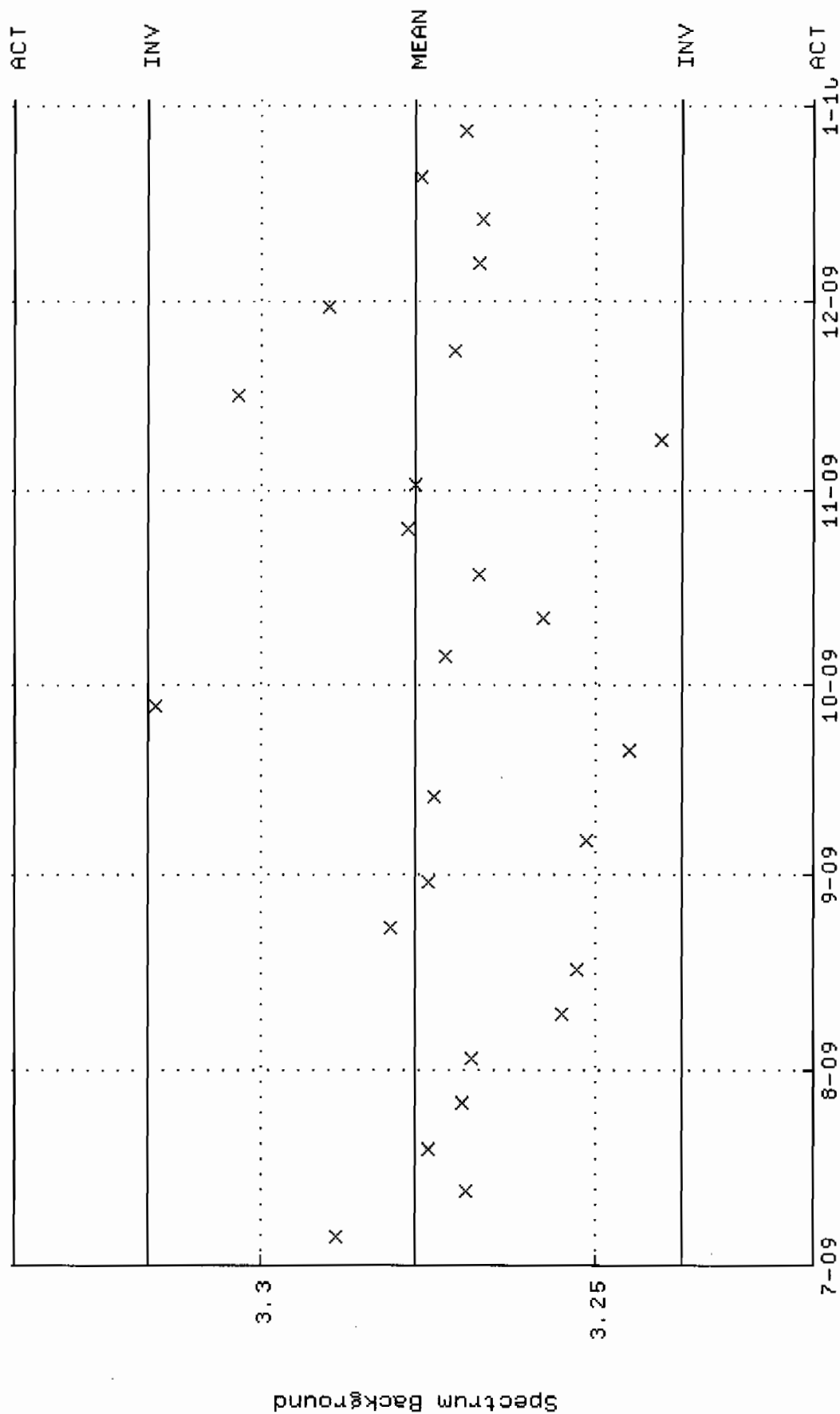
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM12.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:04 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.55746 +- 1.601675E-02 (1.03 %)



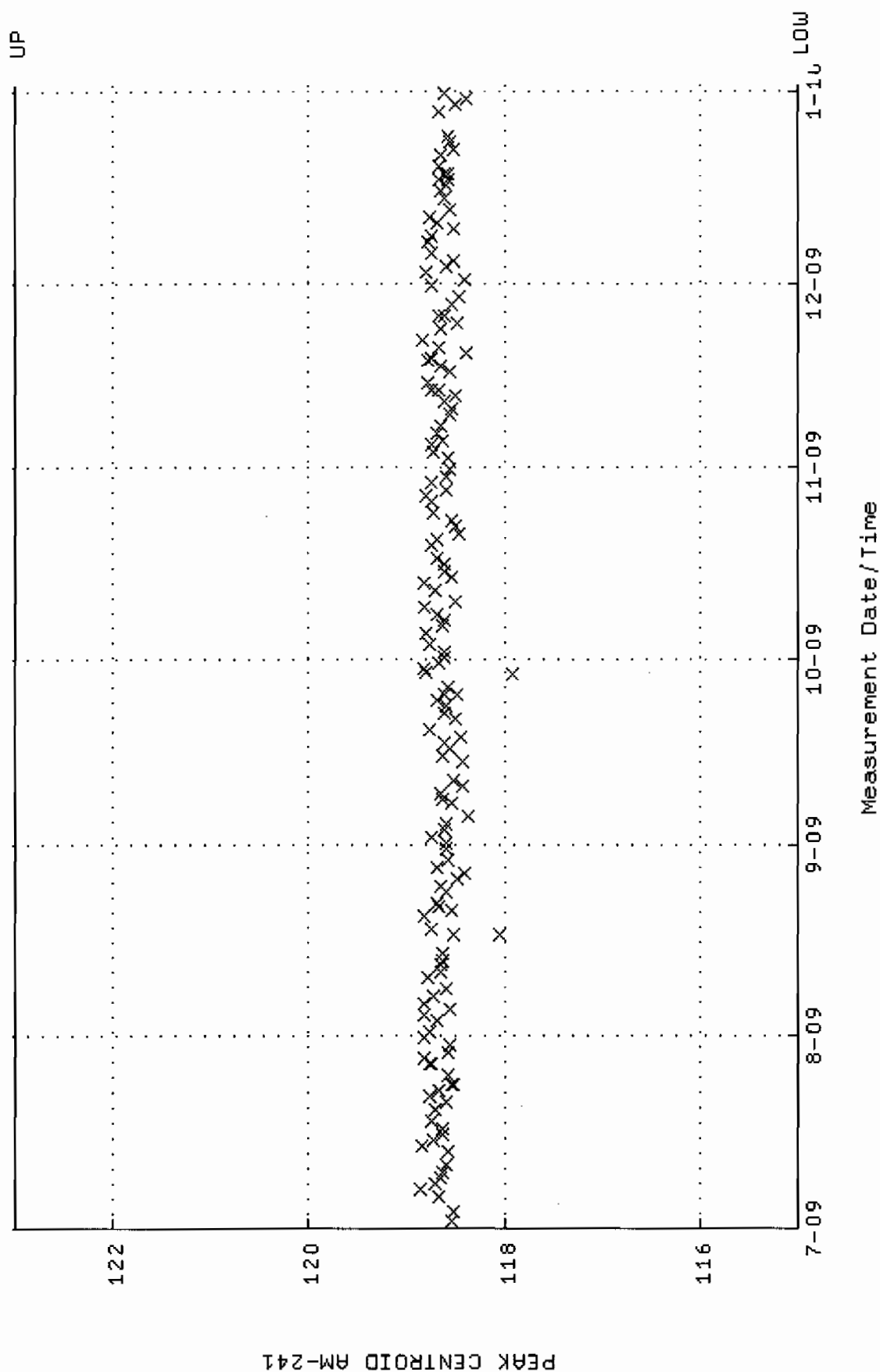
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM13\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:30 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



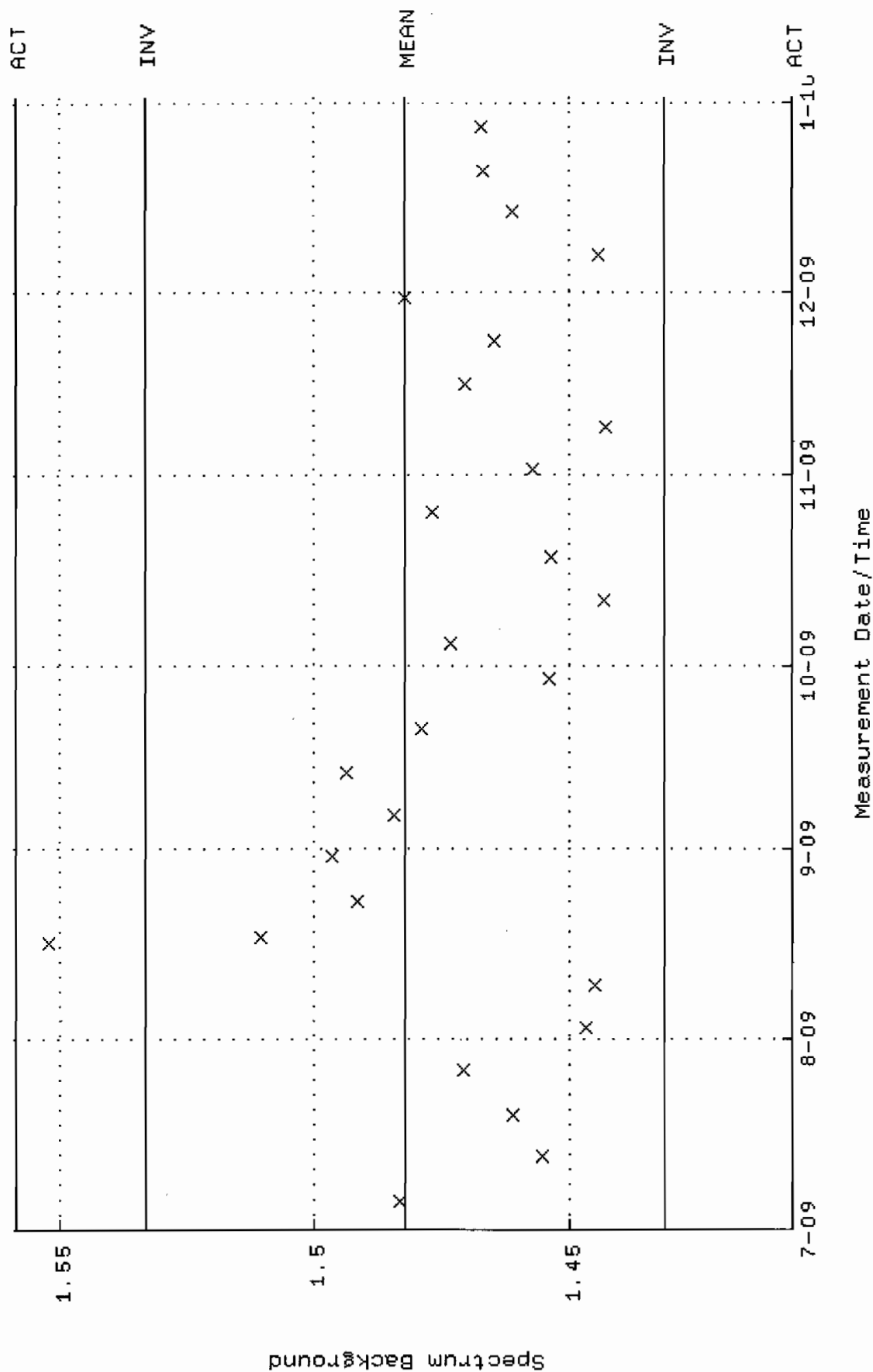
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM13.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:16 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 3.27712 +- 1.999120E-02 (0.61 %)



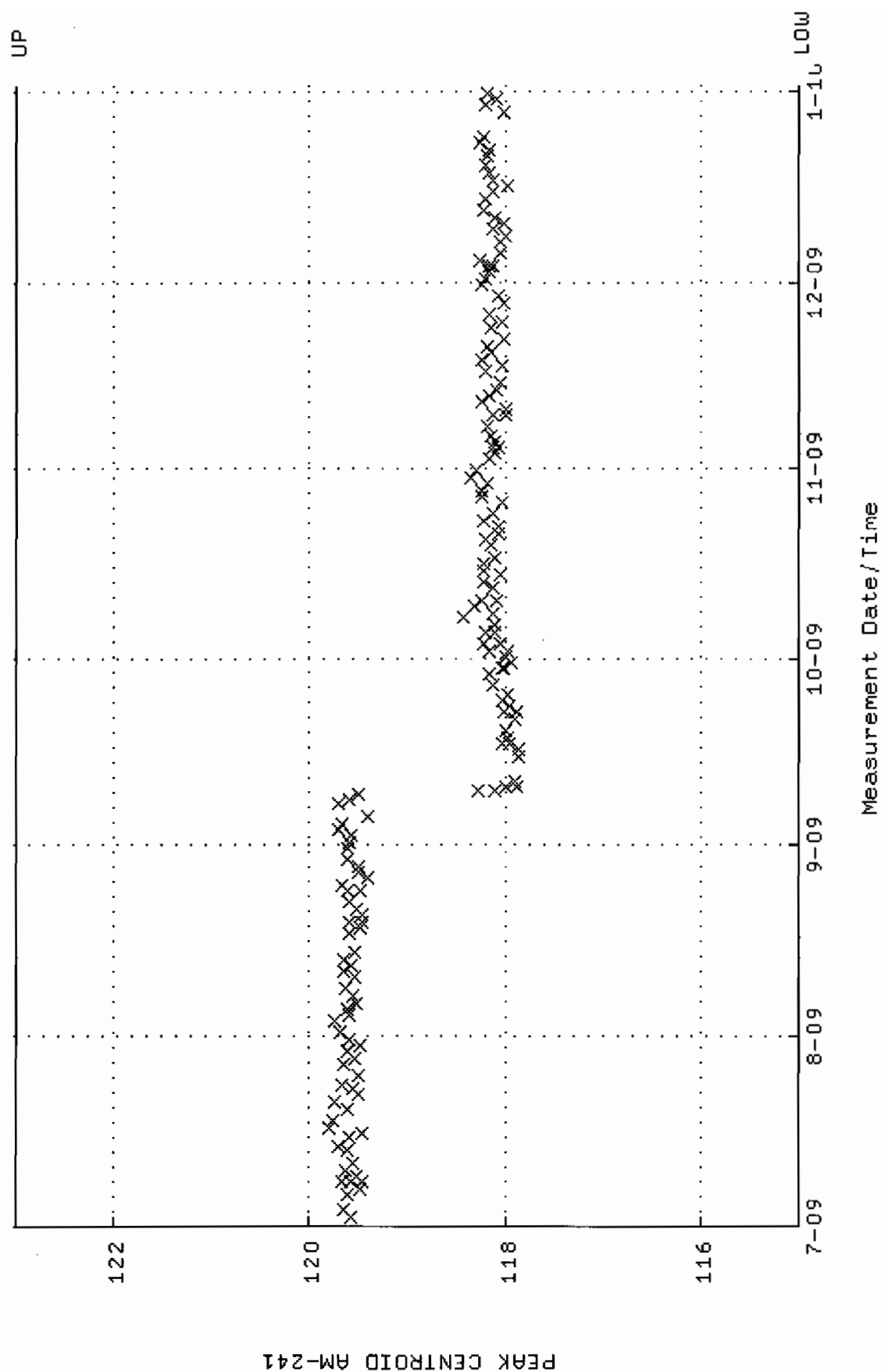
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM14\_2LMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 04:59:23 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



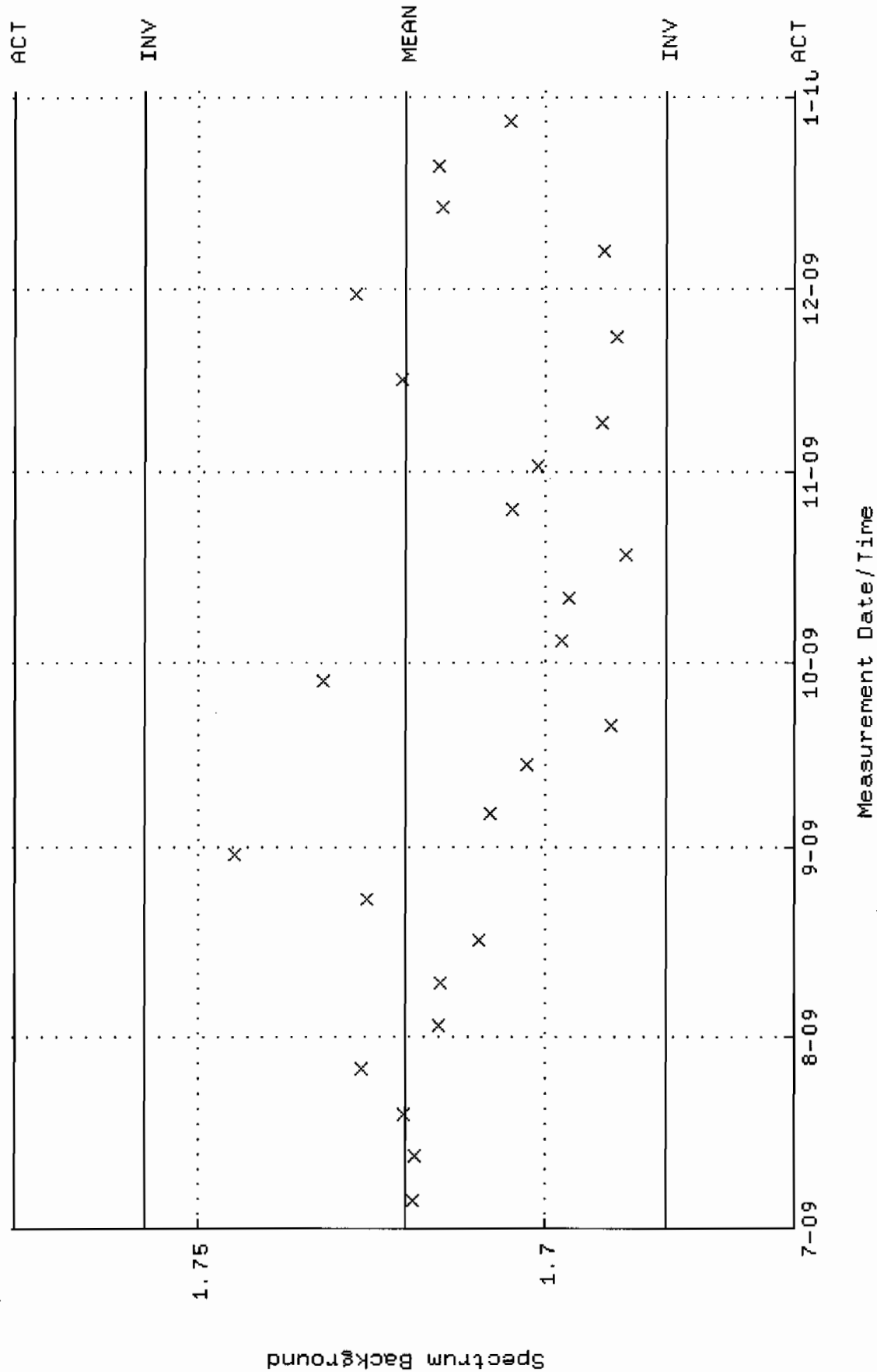
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM14.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:31 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48240 +- 2.535500E-02 (1.71 %)



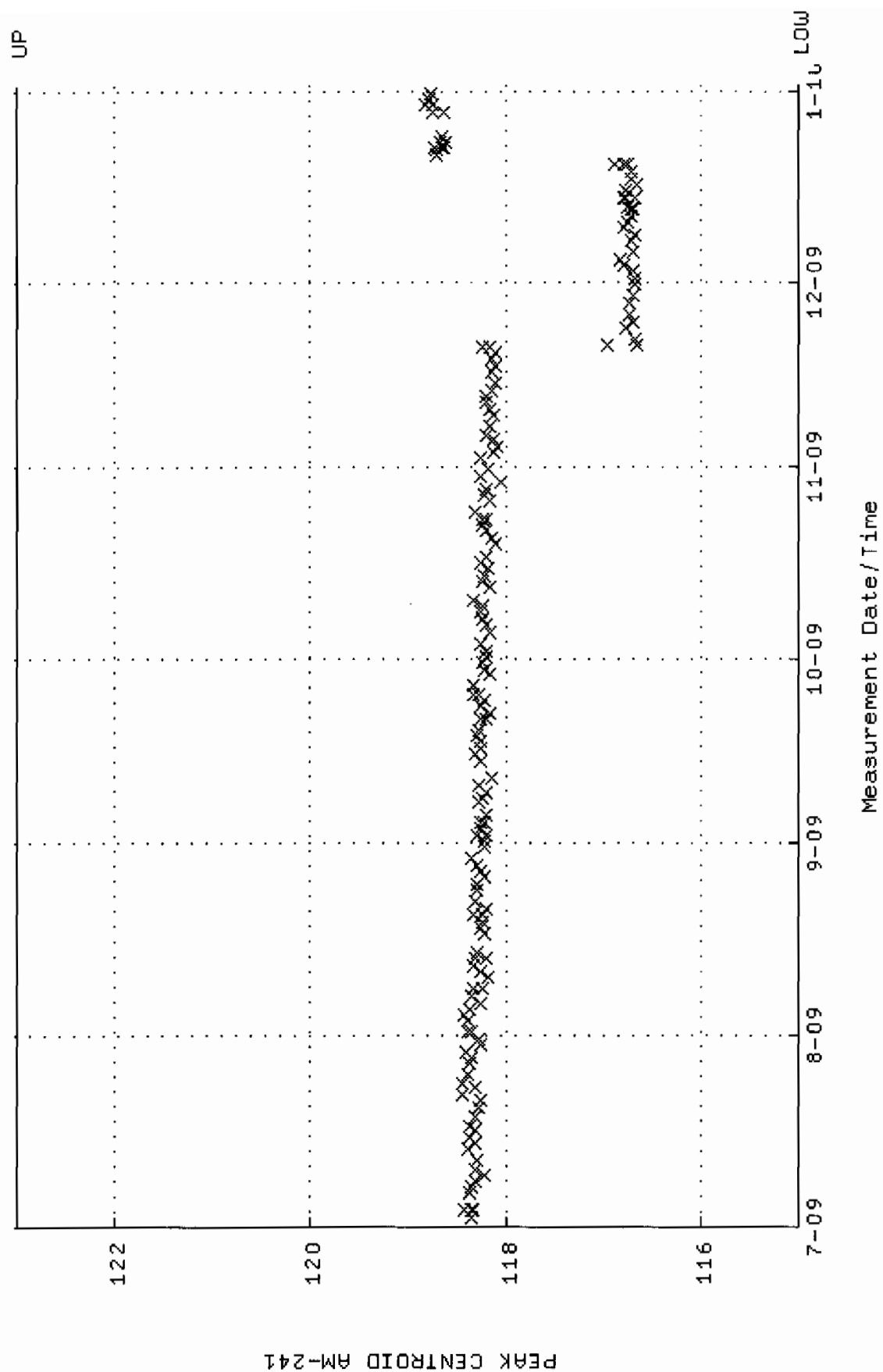
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM15-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:40 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100: [CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM15.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:45 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)

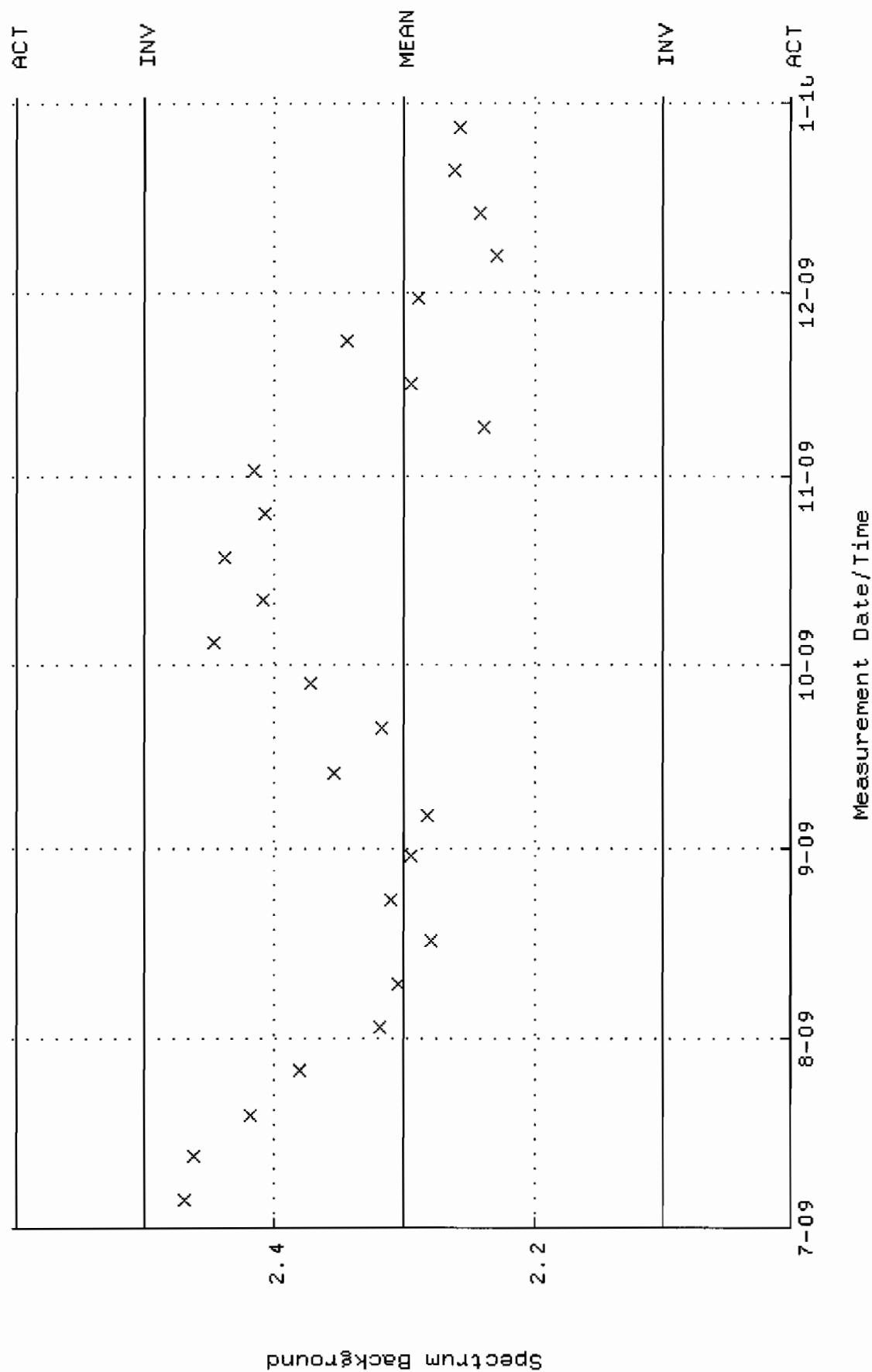


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM18\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 11:04:02 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

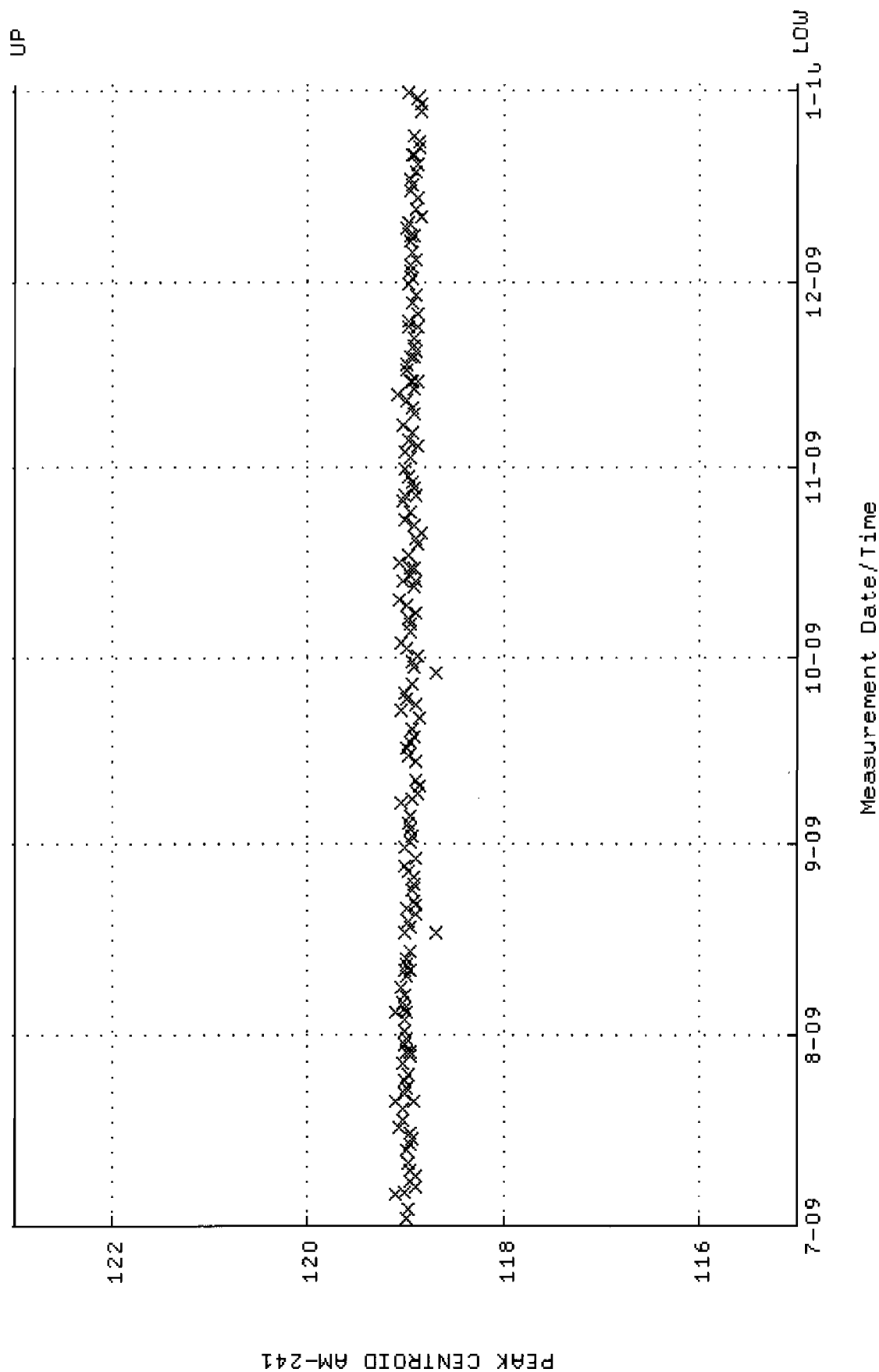




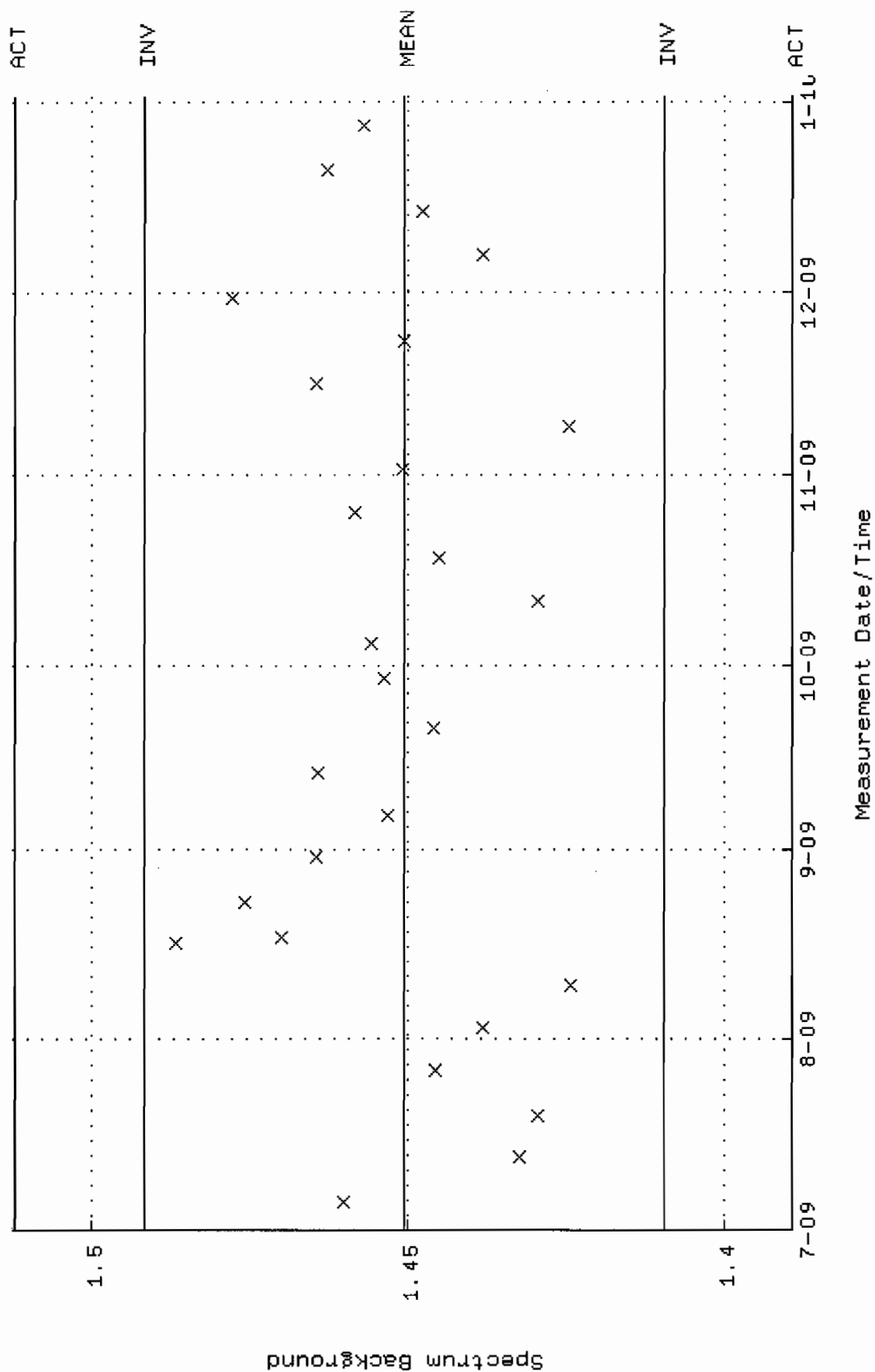
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM18.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:23 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 2.30164 +- 9.930626E-02 (4.31 %)



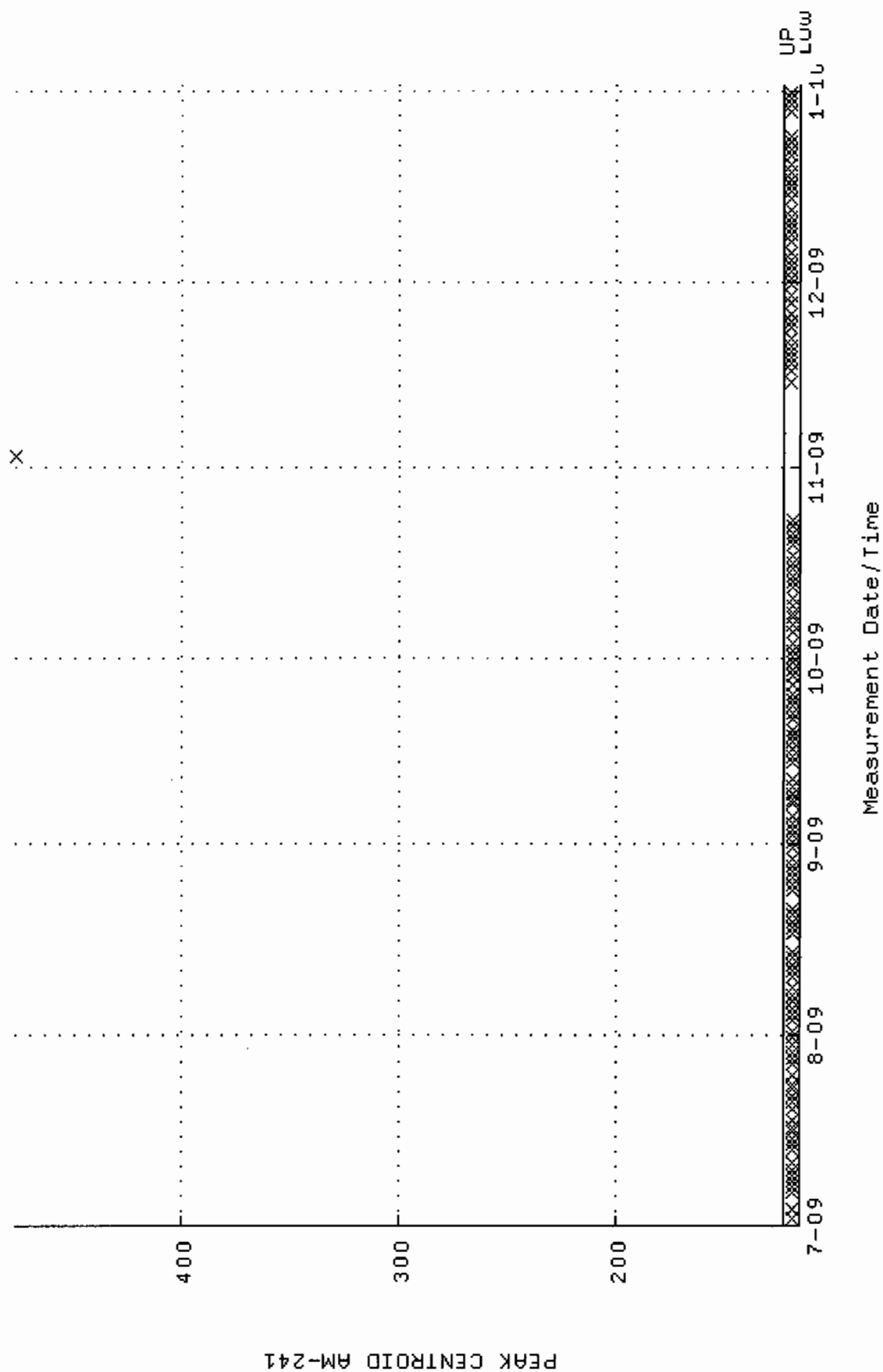
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM19-CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 05:41:19 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



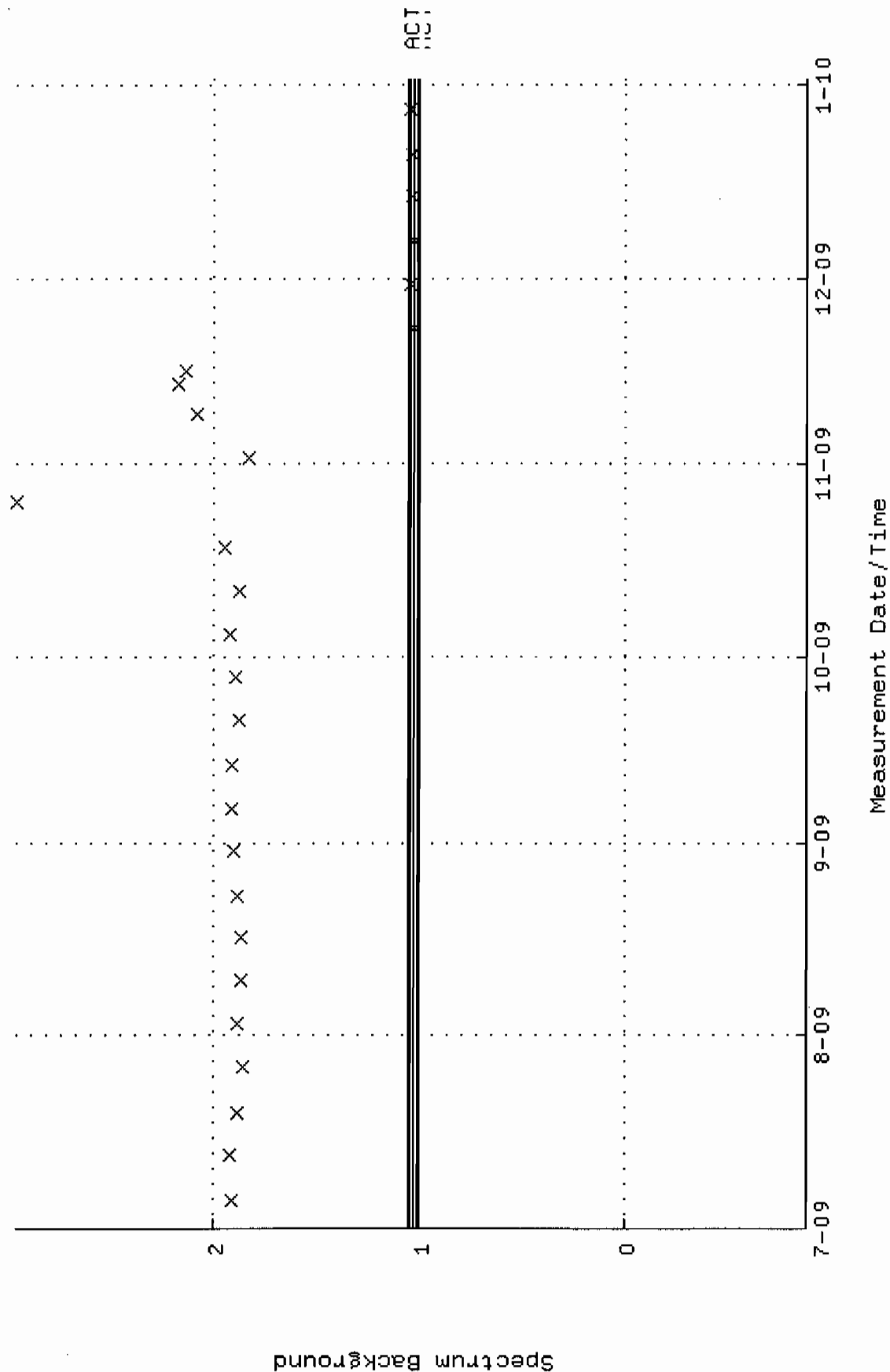
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM19.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:35 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.45067 +- 2.046038E-02 (1.41 %)



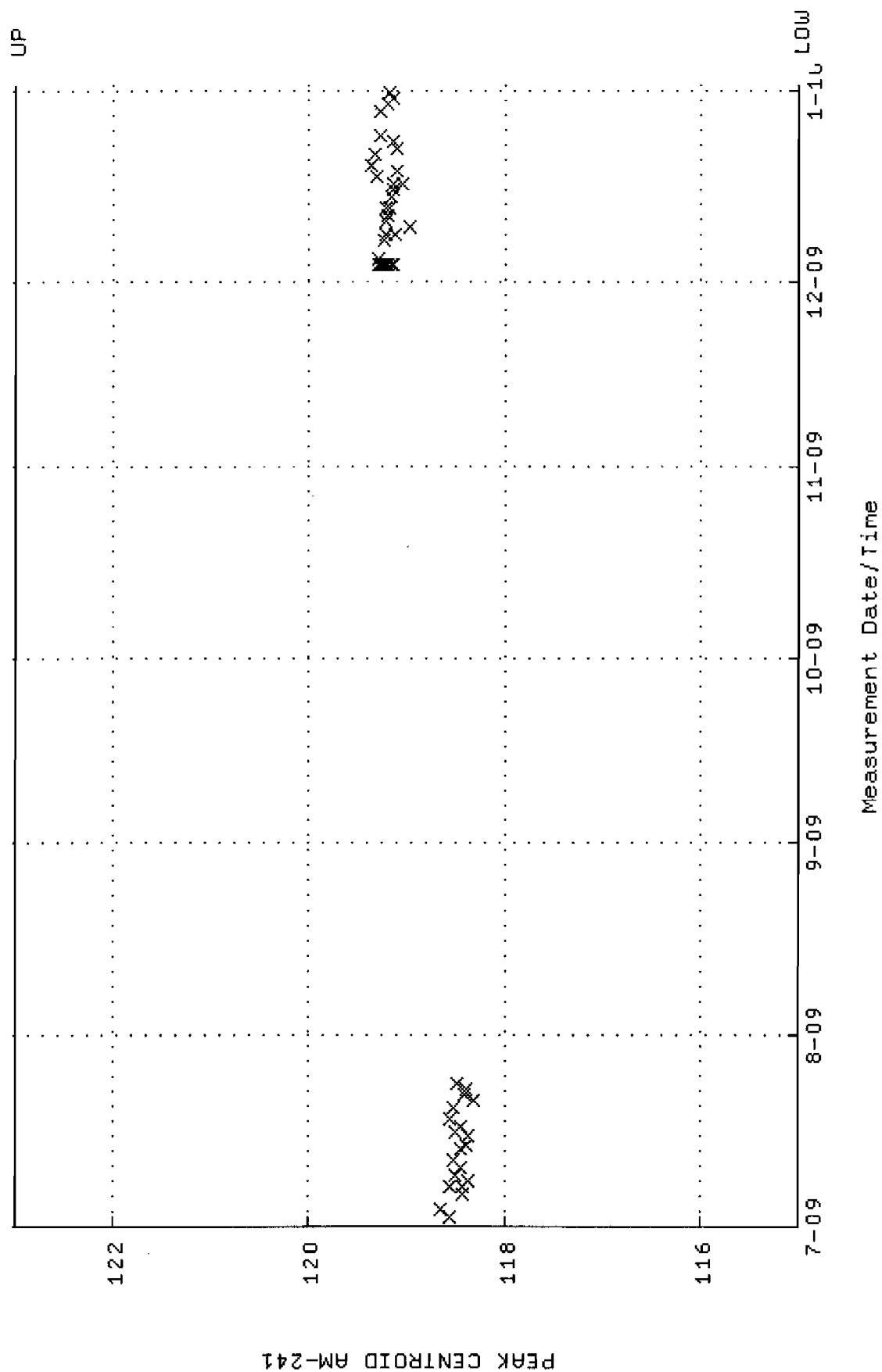
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM21-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:49:13 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



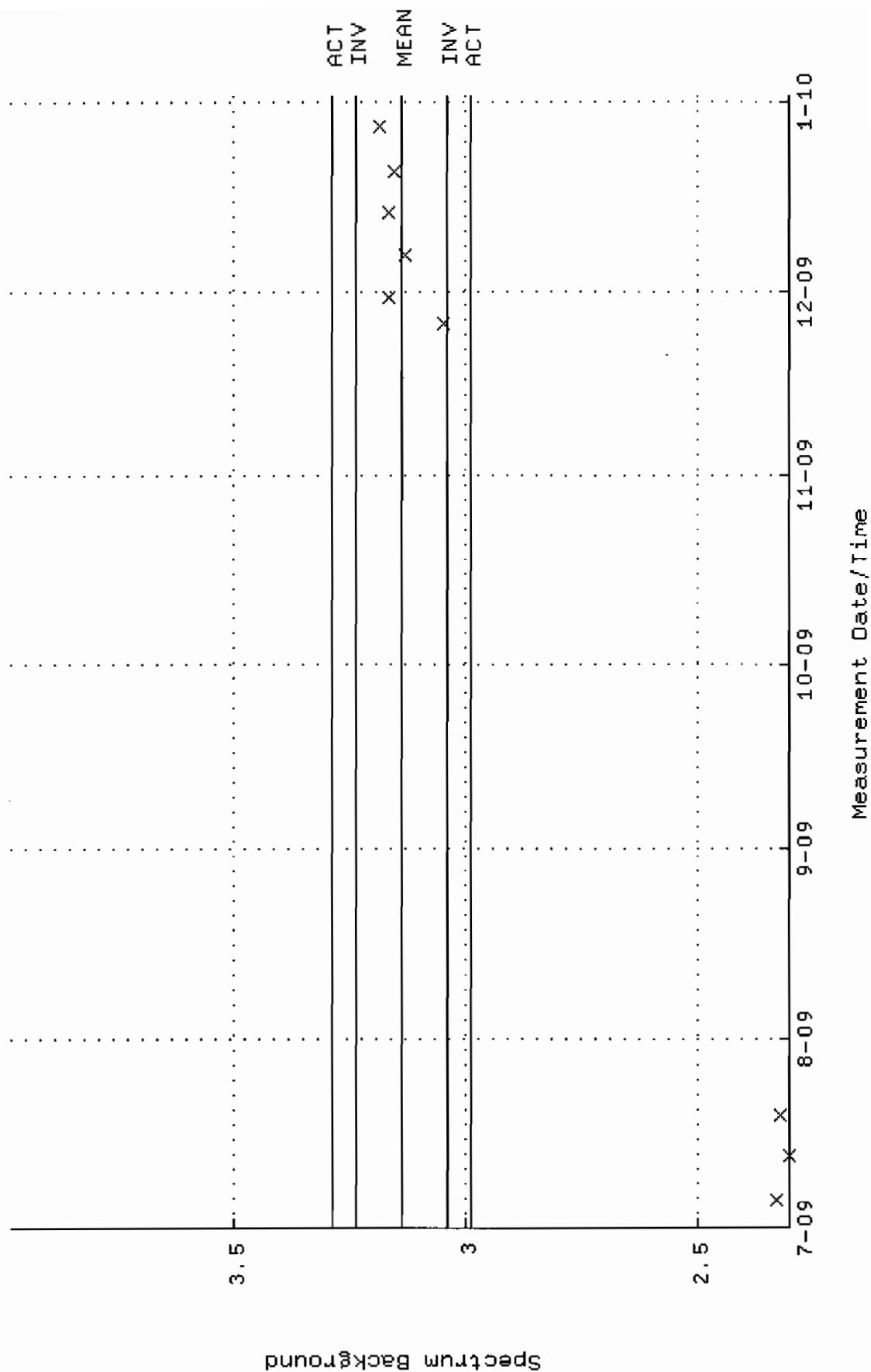
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM21.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:54:04 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.03312 +- 8.784250E-03 (0.85 %)



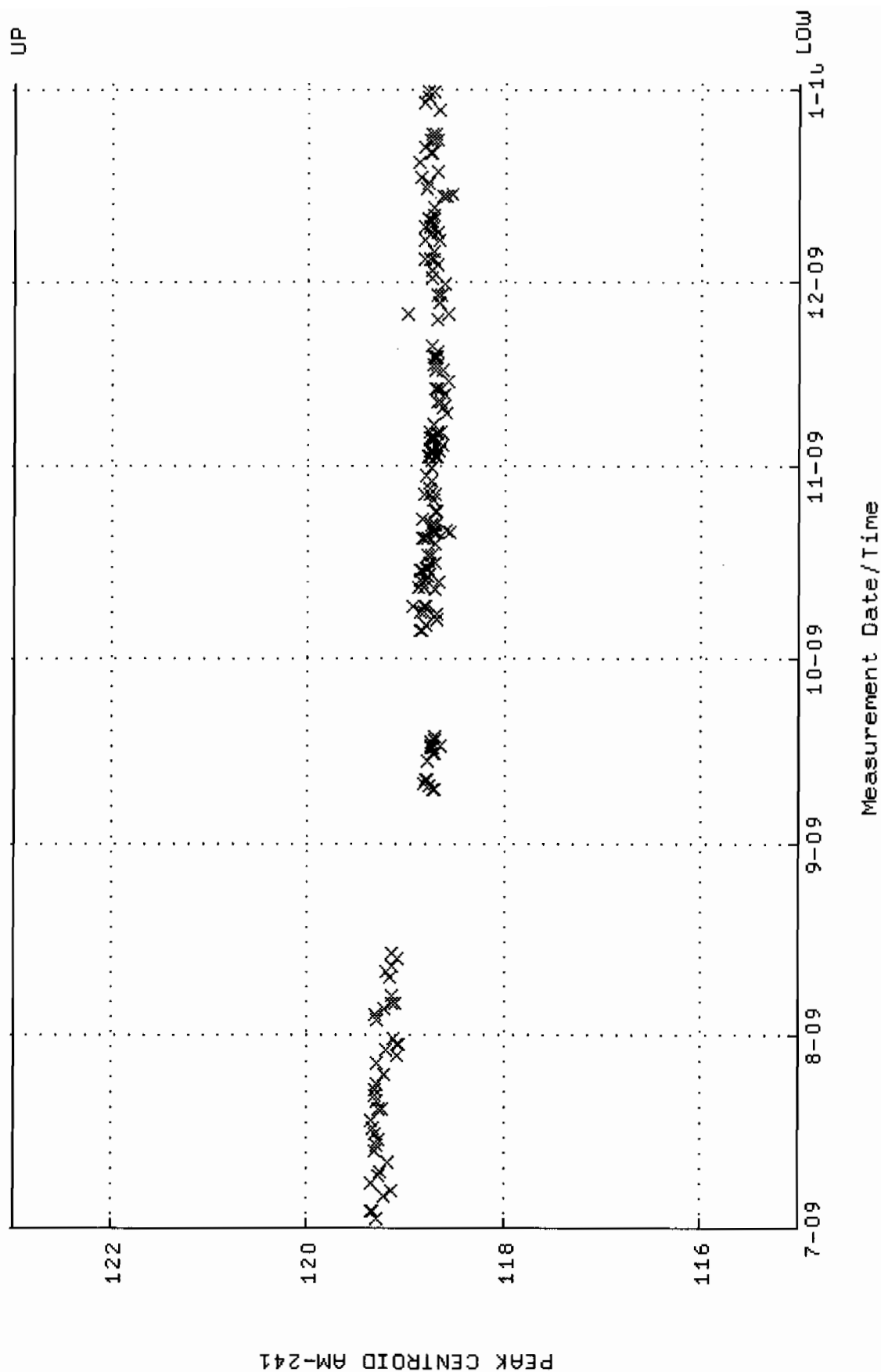
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM22-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:50 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM22.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:54:18 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 3.13961 +- 4.985064E-02 (1.59 %)



QA filename : DKA100:[CANSBERRA.GAMMA.SCUSR.QA]QCC-GAM23-CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 11:00:38 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000

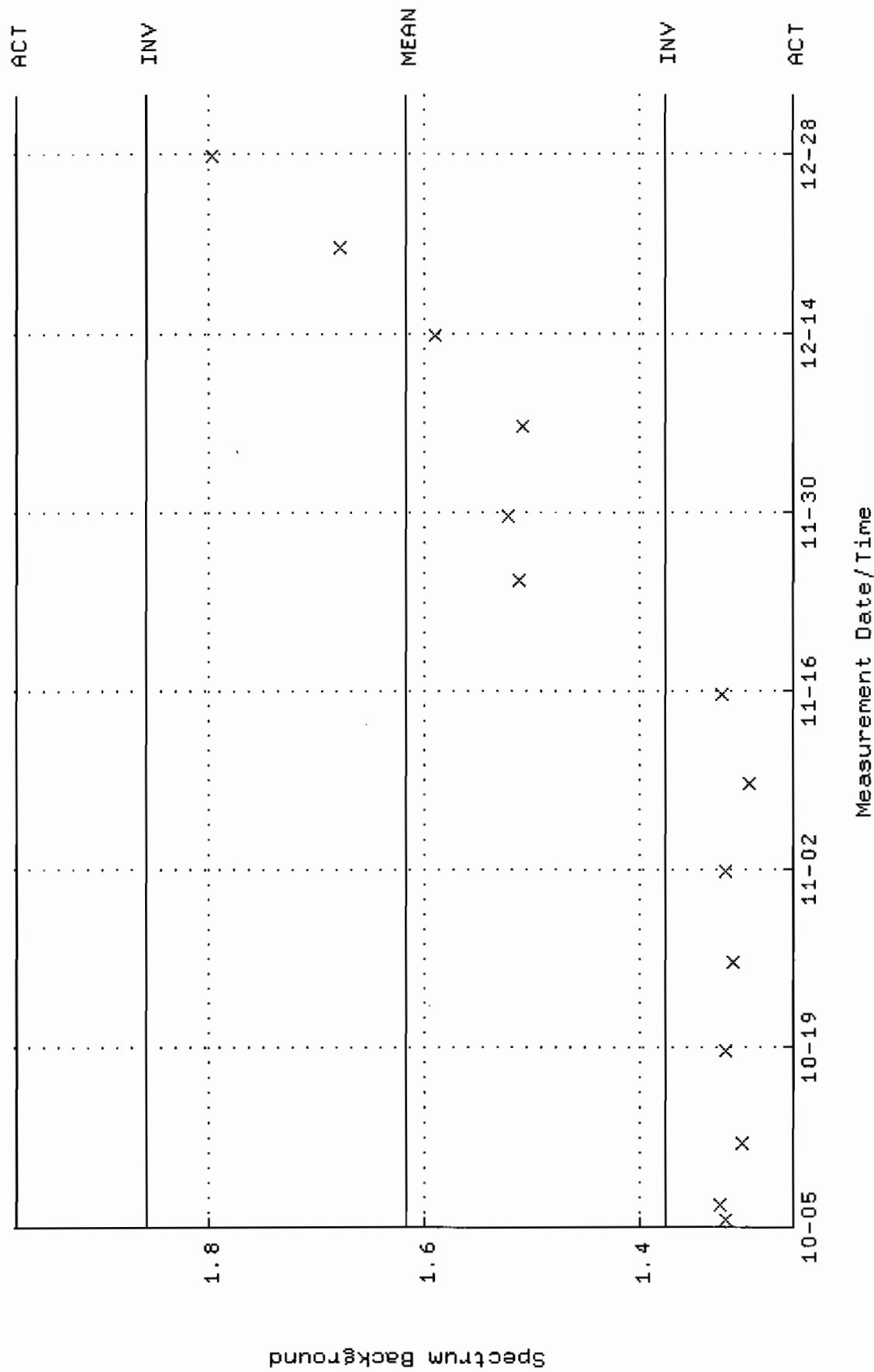




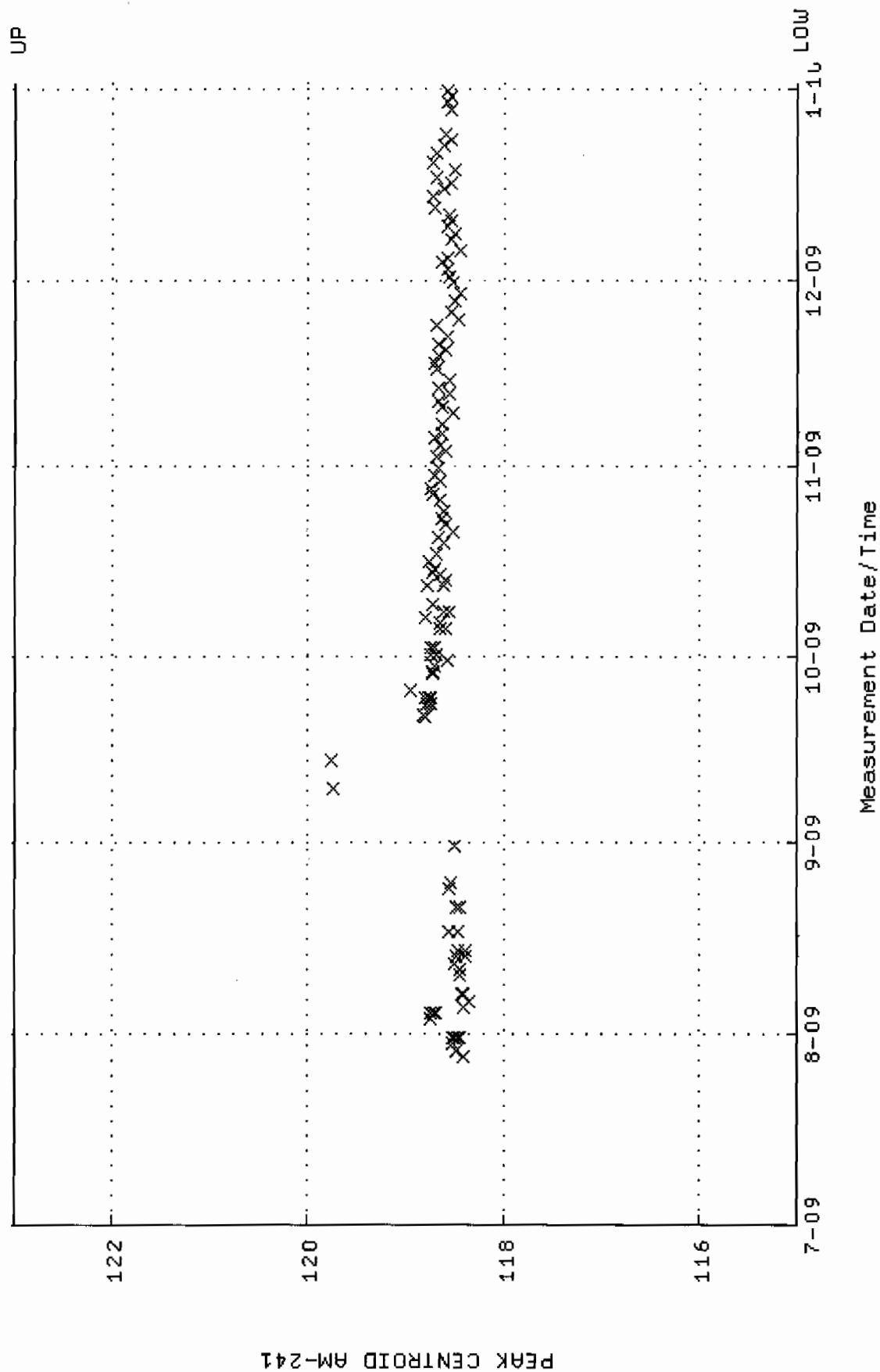
```

: DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC_GAM23.QAF;1
: BACKRATE (Spectrum Background Rate)
: 5-OCT-2009 15:13:53 through 1-JAN-2010 12:00:00
: 1.61827 +- 0.119991 (7.41 %)
Mean +- Std Dev

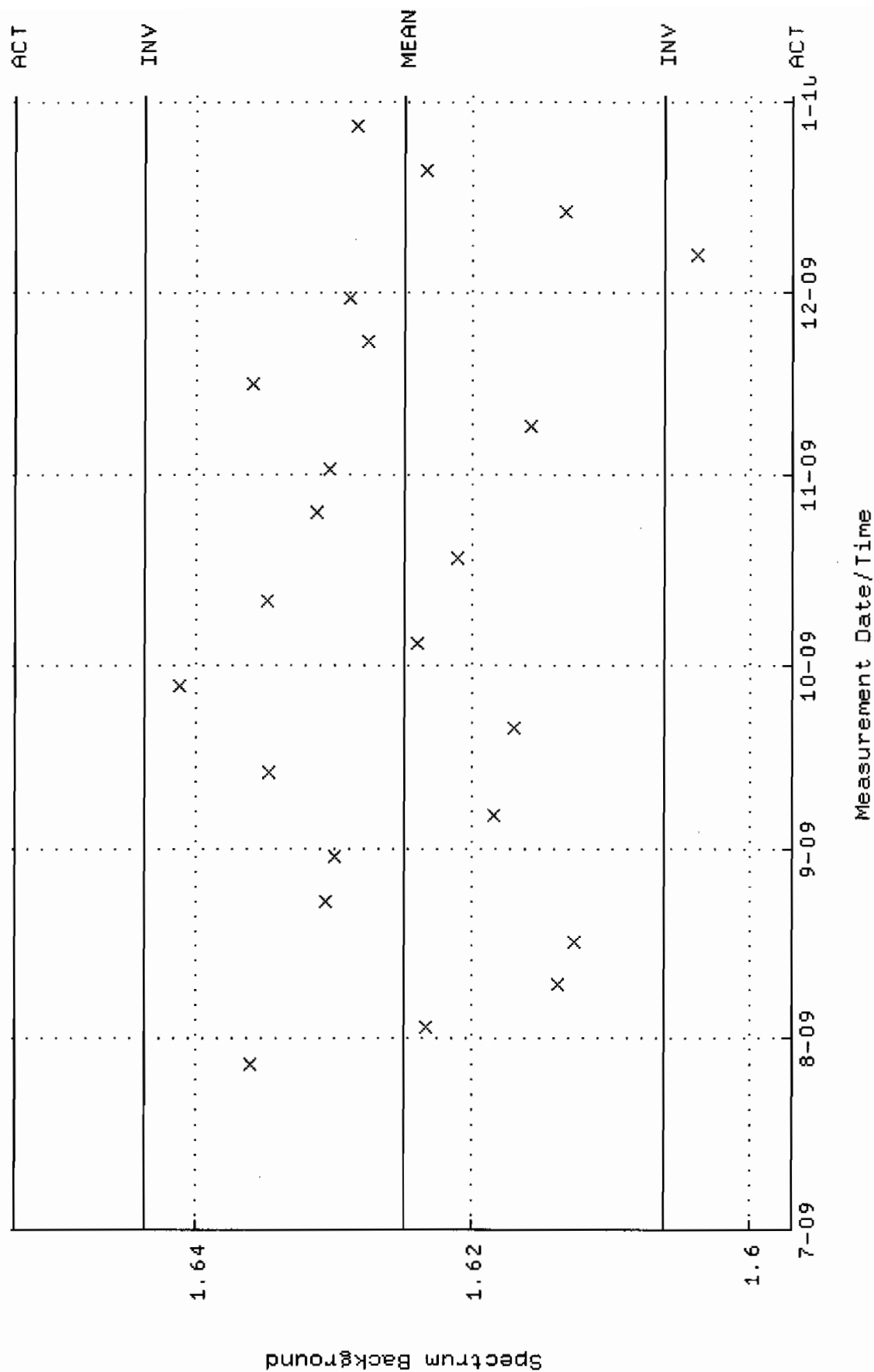
```



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR,QA]QCC\_GAM25\_2LMB.QAF;1  
 Parameter Name : PSCENTRD-59 (PEAK CENTROID AM-241)  
 Start/End Dates : 28-JUL-2009 10:32:53 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100: [CANBERRA.GAMMA.SCUSR.QA] LBC\_GAM25.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 27-JUL-2009 17:25:45 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.62502 +- 9.370414E-03 (0.58 %)



# STANDARDS DATA

1032

## CERTIFICATE OF CALIBRATION

### Standard Radionuclide Source

74047-278

.5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 was calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. AnalytICS maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: October 1, 2006 12:00 EST

ISOTOPE	GAMMA-RAY ENERGY	HALF-LIFE		GAMMA-RAYS PER SECOND	TOTAL UNCERTAINTY %
Am-241	59.5	432	y	3339	3.0
Cd-109	88	462.6	d	4815	3.3
Co-57	122	271.79	d	2409	3.0
Ce-139	166	137.6	d	3408	2.8
Hg-203	279	46.61	d	7522	2.7
Sn-113	392	115.1	d	4728	2.6
Cs-137	662	30.07	y	2973	3.0
Y-88	898	106.6	d	11600	2.6
Co-60	1173	5.2714	y	5780	2.7
Co-60	1332	5.2714	y	5783	2.6
Y-88	1836	106.6	d	12260	2.6

5.31725 grams 4M HCl solution.

P O NUMBER 2734RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova  
M. Dimitrova, Radiochemist

Q A APPROVED:

W.M. [Signature] 11-28-06

This standard will expire one year after the calibration date.

rec'd 11/30/06  
RC-S-045-073-0

1380 Seaboard Industrial Blvd.  
 Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analyticinc.com

## ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS BATCH 127

### CALIBRATION DATE: October 1, 2006 12:00 EST

Isotope	Energy (keV)	Calibration Method <sup>1</sup>	Statistics <sup>2</sup>	Calibration <sup>2</sup>	Peak Fitting <sup>2</sup>	Geometry <sup>2</sup>	Impurities <sup>2</sup>	Weighing	Combined Standard Uncertainty	Relative Expanded Uncertainty (k=2)
Cd-109	88	HPGe	0.16	1.1	0.88	0.8	0	0.2	1.64	3.3
Co-57	122	HPGe	0.23	1.1	0.71	0.7	0	0.2	1.52	3.0
Ce-139	166	HPGe	0.17	1.0	0.58	0.7	0	0.2	1.38	2.8
Hg-203	279	HPGe	0.11	1.1	0.34	0.7	0	0.2	1.37	2.7
Sn-113	392	HPGe	0.21	1.0	0.35	0.7	0	0.2	1.30	2.6
Cs-137	662	HPGe	0.36	1.1	0.60	0.7	0	0.2	1.49	3.0
Y-88	898	HPGe	0.19	1.0	0.33	0.7	0	0.2	1.29	2.6
Co-60	1173	HPGe	0.31	.97	0.45	0.7	0	0.2	1.33	2.7
Co-60	1332	HPGe	0.33	.93	0.48	0.7	0	0.2	1.32	2.6
Y-88	1836	HPGe	0.24	1.0	0.35	0.7	0	0.2	1.31	2.6

#### Optional Additional Isotopes

Pb-210	46.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Am-241	59.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Sr-85	514	IC	0.30	1.1	0	0.7	0.17	0.2	1.36	2.7
Cs-134	605	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Cs-134	796	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Mn-54	835	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Zn-65	1116	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7

#### Calibration Methods:

4π LS (4 pi Liquid Scintillation Counting)

HPGe (High Purity Germanium Gamma Ray Spectrometer)

IC (Gamma Ray Ionization Chamber)

<sup>2</sup>As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1032
Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL
Reference Date:	10/01/2006
Ampoule Mass (g):	5.31725 g
Uncertainty:	+/- 2.81 %
LogBook No:	RC-S-045-073

A Solution Material Info	
Isotope:	Mixed Gamma
Prepared By:	Daniel Roy
Prep Date:	11/30/2006
Verification Date:	12/02/2009
Expiration Date:	12/02/2010
Primary Code:	1032-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.2579 g
Density(g/mL):	1.0611
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$

$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$

$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
-----------	----------	--------------	---------------	------	-------------	-------------------	-----------------

GEL Laboratories LLC  
Version 1.0 9/18/2000

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Am-241

Isotope	Result	pCi/L - Ver. Int. - 1
Mixed Gamma N1	2534	pCi/L
Mixed Gamma N2	2510	pCi/L
Mixed Gamma N3	2413	pCi/L

Mean Value (Counting) = 2485.67  
Stdev = 64.065  
Pass  
Rule 3 (Pass/Fail)

Certificate Value = 2485.68018  
Lower Limit = 2357.536524  
Upper Limit = 2613.796809  
Rule 1 (Pass/Fail) Pass  
Two sigma = 128.1301422  
10 % of Mean = 248.56866667  
Rule 2 (Pass/Fail) Pass

pCi/L  
pCi/L  
pCi/L

M. Stamps  
12/2/09  
independent  
12/2/09

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.



# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Cs-137

Isotope	Result	pCi/L - Ver. Jar. 1
Mixed Gamma N1	854.2	pCi/L
Mixed Gamma N2	907.6	pCi/L
Mixed Gamma N3	898.9	pCi/L

Mean Value (Counting) = 886.90  
Stdev = 28.651  
Rule 3 (Pass/Fail) Pass

Certificate Value = 933.44144  
Lower Limit = 829.587644  
Upper Limit = 944.202356  
Rule 1 (Pass/Fail) Pass  
Two sigma = 57.30235597  
10 % of Mean = 88.69000000  
Rule 2 (Pass/Fail) Pass

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

*12/2/09*  
*12/2/09*  
*12/2/09*

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Co-60 (1332.5)

Isotope	Result	pCi/L - Ver-Jae-5
Mixed Gamma N1	1572	pCi/L - Ver-Jae-2
Mixed Gamma N2	1495	pCi/L - Ver-Jae-3
Mixed Gamma N3	1501	

Mean Value (Counting) = 1522.67  
Stdev = 42.829  
Rule 3 (Pass/Fail) Pass

Certificate Value = 1545.8378  
Lower Limit = 1437.008431  
Upper Limit = 1608.324902  
Rule 1 (Pass/Fail) Pass  
Two sigma = 85.65823564  
10 % of Mean = 152.26666667  
Rule 2 (Pass/Fail) Pass

pCi/L  
pCi/L  
pCi/L

*M. Stamps issued 12/2/09*  
*12/2/09*

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# 0244-A Characterization

Sample #	Uranium-233/234 Result (pCi/g)	Uranium-238 Result (pCi/g)	Thorium-230 Result (pCi/g)
0244-A 1	6.59	6.12	25.3
0244-A 2	6.36	6.07	28.5
0244-A 3	5.78	5.53	26.5
0244-A 4	6.48	5.97	25.5
0244-A 5	5.65	5.59	26.2
0244-A 6	6.96	5.78	27.0
0244-A 7	5.95	5.75	24.2
0244-A 8	5.29	5.67	27.2
0244-A 9	5.51	6.05	24.3
0244-A 10	6.37	5.57	25.6
0244-A 11	6.50	5.80	25.8
0244-A 12	6.13	5.42	22.4
0244-A 13	5.49	5.24	24.7
0244-A 14	6.19	5.21	26.9
0244-A 15	6.50	6.27	27.6
0244-A 16	6.50	5.24	24.9
0244-A 17	6.25	6.05	24.7
0244-A 18	6.14	6.00	25.4
0244-A 19	6.19	6.14	26.4
0244-A 20	5.67	5.61	23.2
Mean Value	6.13	5.75	25.62
1 sigma	0.439	0.325	1.493
2 sigma	0.878	0.650	2.986
75% Limit	4.60	4.31	19.22
125% Limit	7.66	7.19	32.03
Expected Result	6.2 +/- 4.0	6.0 +/- 4.0	24.5 +/- 0.6
Achieved Results	6.13 +/- 0.439	5.75 +/- 0.325	25.62 +/- 1.493

REFERENCE DATA 4/11/2000 *lett c hall 12/1/04*

*angela d. johnson 12/13/04*

TRM

Invoice:

5 boxes of TRM-1  
 10 " " TRM-2 and 3  
 5 " each of NRM-1 through 6  
 7 " baghouse dirt

use 1/4 gm x 10 samples WITH together  
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
Th-230	471 ± 11	24.5 ± 0.6	58.5 ± 2.1	44.0 ± 1.6
Ra-225	489 ± 17	25.4 ± 0.9	60.3 ± 2.3	42.9 ± 1.2
Pb-210	425 ± 24	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0

Attention Nancy Slater At GFL  
Not For Loan

SF 2001-COC (10-97)

Supervisors (5-07) leave

Internal Lab  
Batch No.

SARAWR No. N/A

**Press F1 for instructions for each field.**

## ANALYSIS REQUEST AND CHAIN OF CUSTODY

AR/COC-

Page 1 of 1

**602945**

Dept. No./Mail Stop: 7132 / 1042 Project/Task Manager: PAM PUSSANT Project Name: Record Center Code: N/A Logbook Ref. No.: N/A Service Order No.:						Date Samples Shipped: 11-16-98 SMO USE Carrier/Warrior No: 12-16-98 Lab Contact: EDIE KENT Lab Destination: G.E.L. SMO Contact/Phone: Doug Salimi / 844-3110 Send Report to SMO: Suzl Jensen/844-3184						Contract No.: AJ-2480A Case No.: 10204 13 SMO Authorization: [Signature] Bill to: Sandia National Laboratories Supplier Services, Dept. P.O. Box 5800 MS 0154					
Location			Tech Area VI	Reference LOV (available at SMO)			LAB USE										
Building N/A	Sample No. - Fraction	ER Sample ID or Sample Location Detail	Room N/A	Sample Matrix	Type	Volume	Preservative	Sample Collection Method	Sample Type	Parameter & Method Requested	Lab Sample ID						
	050484 - 001	PEM-1	N/A	S	P	1 L	4 C	G	SA	<i>See Special Instructions</i>							
	050485 - 001	TRIM-2	N/A	S	G	1 L	4 C	G	SA	<i>Instructions</i>							
	050486 - 001	-NRMZ NBHD	N/A	S	G	1 L	4 C	G	SA	<i>Boken?</i>							
	-																
	-																
	-																
	-																
	-																
	-																
	-																
	-																
RMMA <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ref. No.																	
Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab																	
Turnaround Time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush Required Report Date				Sample Tracking <input type="checkbox"/> In-house <input type="checkbox"/> Out-of-house				Special Instructions/QC Requirements									
Name Douglas E. Perry		Signature [Signature]		Init [Initials]		Company/Organization/Phone Western / 757 / 845-0867		EDD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Raw data package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Abnormal Conditions on Receipt Lab Use							
Sample Team										<i>These samples are will characterizing materials being sent to GEL for be better to track history.</i>							
Members										Please list as separate report.							
1. Relinquished by [Signature]		Date 11-16-98		Time 0900		4. Relinquished by		Org.		Date							
1. Received by		Date		Time		4. Received by		Org.		Date							
2. Relinquished by		Date		Time		5. Relinquished by		Org.		Date							
2. Received by		Date		Time		5. Received by		Org.		Date							
3. Relinquished by		Date		Time		6. Relinquished by		Org.		Date							
3. Received by		Date		Time		6. Received by		Org.		Date							

Original To Accompany Samples,  
(Laboratory Copy (White))

**1<sup>st</sup> Copy** To Accompany Samples,  
Return to SMO (Blue)

2<sup>nd</sup> Copy SMO Suspense Copy (Yellow)

3<sup>rd</sup> Copy Field Copy (Pink)

### 0244-B Characterization

Sample #	Plutonium-239 Result (pCi/g)	Plutonium-238 Result (pCi/g)	Americium-241 Result (pCi/g)
0244-B 1	39.9	7.88	38.4
0244-B 2	44.1	7.97	40.6
0244-B 3	45.8	6.56	31.8
0244-B 4	43.6	7.69	31.5
0244-B 5	43	7.9	40.2
0244-B 6	43.5	7.84	29.4
0244-B 7	41.3	7.67	36
0244-B 8	44.3	6.95	33.2
0244-B 9	42.7	7.2	29.2
0244-B 10	44.9	7.69	30
0244-B 11	41.4	7.22	30.2
0244-B 12	41.3	7.74	36
0244-B 13	39.2	6.65	33.8
0244-B 14	39.6	7.78	31.1
0244-B 15	45.3	8.41	37.3
0244-B 16	38.1	6.74	33.6
0244-B 17	48.5	8.51	30.5
0244-B 18	36.5	7.23	38.6
0244-B 19	35.3	6.98	30.9
0244-B 20	37.4	8.55	31.3
Mean Value	41.79	7.56	33.68
1 sigma	3.418	0.596	3.724
2 sigma	6.835	1.193	7.448
75% Limit	30.75	6.02	24.38
125% Limit	51.25	10.04	40.63
Expected Result	41.0 +/- 3.0	8.03 +/- 0.37	32.5 +/- 1.1
Achieved Results	41.79 +/- 3.418	7.56 +/- .596	33.68 +/- 3.724

REFERENCE DATA 4/14/2000

Amanda L. Lehn 4/30/04  
 Lott & Shale 5/1/04

## PREPARATION AND CHARACTERIZATION OF THE PERFORMANCE EVALUATION SOIL SAMPLE PEM-1

### INTRODUCTION

Rust Geotech (Rust) was contracted by Los Alamos National Laboratory (LANL) to prepare and characterize a soil performance evaluation sample designated PEM-1. This report describes sample preparation, homogeneity assessment, and determination of the concentrations of 28 elements and radioactive isotopes in the sample.

### SAMPLE PREPARATION

Rust received nine five-gallon buckets of soil from LANL. The soils were dried overnight in ovens at 103 °C. The large pieces of leaves and sticks were removed and the soils were ground with ceramic-plate grinders to a particle size that passed through a 325 mesh screen. The samples were blended at the proportions specified by LANL for 48 hours in a 3-cubic-foot cross-flow blender. The sample identifications and the amounts used are listed in Table 1.

Table 1. Sample Identifications and Amounts Used to Prepare PEM-1

LANL Sample ID	Amount Used (kg)
AAA 1592	1.7
AAA 2505-1	10.9
AAA 2505-2	12.8
AAA 2750-1	8.4
AAA 2750-2	8.4
AAA 3205	12.6
AAA 8581	4.2
AAB 3417	12.8
AAB 3475	12.6

The blended sample was transferred to three five-gallon plastic containers. While the sample was being transferred, 10 samples were taken at pre-determined time intervals to be used for homogeneity assessment and sample characterization. These samples are believed to be representative of the bulk material.

Internal Lab  
Batch No.

SARAWR No. N/A

Date Samples Shipped: 1-16-99 SMO USE  
 Carlin's Wad No. 526794  
 Lab Contact: EDIE KENT  
 Lab Destination: G.E.L.  
 SMO Contact/Phone: Doug Salmi / 844-3110  
 Send Report to SMO: Suzi Jensen/844-3184

Contract No.: AJ-2480A  
Case No.: 10204 1-3  
SMO Authorization: [Signature]  
Bill to: Sandia National Laboratories  
Supplier Services, Dept.  
P.O. Box 5800 MS 0154

**Press F1 for instructions for each field.**

AR/COC-

Page 1 of 1

602945

9911627-01-001

Dept. No./Mail Stop: <b>7132 / 1042</b> Project/Task Manager: <b>PAM PUISSANT</b> Project Name: Record Center Code: <b>N/A</b> Logbook Ref. No.: <b>N/A</b> Service Order No.:		Date Samples Shipped: <b>11-16-98</b> SMO USE Carrier/Vendor No.: <b>206794</b> Lab Contact: <b>EDIE KENT</b> Lab Destination: <b>G.E.L.</b> SMO Contact/Phone: <b>Doug Salmi / 844-3110</b> Send Report to SMO: <b>Suzi Jensen/844-3184</b>		Contract No.: <b>AJ-2480A</b> Case No.: <b>10204 13</b> SMO Authorization: <i>[Signature]</i> Bill to: <b>Sandia National Laboratories</b> Supplier Services, Dept.: P.O. Box <b>5800 MS 0154</b>	
<b>Location</b> Building <b>N/A</b> Room <b>N/A</b> Sample No. - Fraction ER Sample ID or Sample Location Detail		<b>Reference LOV (available at SMO)</b> Container Type Volume Sample Matrix Date/Time Collected		<b>Parameter &amp; Method Requested</b> Preservative Sample Method Sample Type	
050484 - 001 PEM-1 050485 - 001 TRM-2 050486 - 001 -WRM-2 <b>N.B.H.R.</b>		N/A N/A N/A 11/15/9 1100 11/15/9 1100 11/15/9 1100		4C 4C 4C G G G SA SA SA	
RMMA <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ref. No. Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab		Sample Tracking SMO USE Date Entered (mm/dd/yy) Entered by: <i>[Signature]</i>		Special Instructions/QC Requirements EDD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Raw data package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>These samples are well characterized and materials being sent to GEL for help with Hark Harkson.</i>	
Turnaround Time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush Required Report Date Name Douglas E. Perry Signature: <i>[Signature]</i>		Init Company/Organization/Phone West 1577 / 845-0807		Abnormal Conditions on Receipt Lab Use	
Sample Team Members 1. Relinquished by <i>[Signature]</i> Date <b>11-16-98</b> Time <b>0900</b> 1. Received by Date 2. Relinquished by Date 2. Received by Date 3. Relinquished by Date 3. Received by Date		4. Relinquished by Date 4. Received by Date 5. Relinquished by Date 5. Received by Date 6. Relinquished by Date 6. Received by Date		Date Date Date Date Date Date	

Original (To Accompany Samples, Laboratory Copy (White))

**1<sup>st</sup> Copy To Accompany Samples,  
Return to SMO (Blue)**

2<sup>nd</sup> Copy SMO Suspense Copy  
(Yellow)

3<sup>rd</sup> Copy Field Copy (Pink)



# CERTIFICATE OF CALIBRATION

## ALPHA STANDARD SOLUTION

Radionuclide	Am-243	Customer:	GENERAL ENGINEERING LABS
Half Life:	7380 $\pm$ 40 years	P.O.No.:	9290-RAD
Catalog No.:	7243	Reference Date:	January 1 1994 12:00 PST.
Source No.:	445-96-2	Contained Radioactivity:	(Am-243) 101.2 $\mu$ Ci
		Contained Radioactivity:	(Am-243) 3750 kBq

### Description of Solution

a. Mass of solution:	5.3739 g (in a 5 ml Flame Sealed Ampoule)
b. Chemical form:	Am(NO <sub>3</sub> ) <sub>3</sub> in 2N HNO <sub>3</sub>
c. Carrier content:	None added
d. Density:	1.0651 g/ml @ 20°C.

### Radioimpurities

None detected

### Radioactive Daughters

Np-239 (beta active) in equilibrium

### Radionuclide Concentration

(Am-243) 18.84  $\mu$ Ci/g

### Method of Calibration

Weighed aliquots of the solution were assayed using gamma spectrometry for Np-239:

Energy peak(s) intergrated under:	228, 278	keV.
Branching ratio(s) used:	0.108, 0.1420	gamma rays per decay.

### Uncertainty of Measurement

a. Systematic uncertainty in instrument calibration:	$\pm 3.0\%$
b. Random uncertainty in assay:	$\pm 0.4\%$
c. Random uncertainty in weighing(s):	$\pm 0.0\%$
d. Total uncertainty at the 99% confidence level:	$\pm 3.0\%$

### NIST Traceability

This calibration is implicitly traceable to the National Institute of Standards and Technology.

### Leak Test(s)

See reverse side for Leak Test(s) applied to this source.

### Notes

1. Nuclear data were taken from "Table of Radioactive Isotopes", edited by Virginia S. Shirley, 1986.
2. IPL participates in an NIST measurement assurance program to establish and maintain implicit traceability for a number of nuclides, based on the blind assay (and later NIST certification) of Standard Reference Materials (As in NRC Regulatory Guide 4.15).



ISOTOPE PRODUCTS LABORATORIES  
1800 North Keystone Street  
Burbank, California 91504  
(818) 843 - 7000

*Anna H. Khan*  
QUALITY CONTROL

*Jan 3, 1994*  
Date Signed

THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO  
DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE



**1. STANDARD WIPE TEST**

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



**2. SOAK TEST**

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for a minimum of four hours. After removal of the source, the liquid is a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



**3. SOAK TEST -- BERYLLIUM WINDOW**

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for 20 minutes. The entire surface of the source is then wiped with a moistened cotton swab or filter paper disk. After drying, the swab or disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



**4. GAS SOURCE TEST (Radioactive Gas)**

The source is placed in a vacuum desiccator and maintained at a pressure of less than 1 mm Hg for not less than 12 hours. The activity is checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube. Activity levels exceeding 1000 cpm are cause for rejection of the source.



**5. OTHER LEAK TEST**

The ampoule is kept in an inverted position on a filter paper disk for a minimum of 16 hours. The filter paper disk is then checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.



**6. LEAK TEST NOT APPLICABLE**

The active area of this source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test. Levels of removable activity did not exceed 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha at the time of shipment.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	445-96-2
Prepared By:	Genie Bost
Carrier Conc:	2M HNO3
Reference Date:	01/01/1994
Ampoule Mass (g):	5.3739 g
Uncertainty:	+/- 3 %
LogBook No:	RC S 005 032

A Solution Material Info	
Isotope:	Americium-243
Prepared By:	Angela Johnson
Prep Date:	01/05/1994
Verification Date:	05/11/2009
Expiration Date:	05/11/2010
Primary Code:	445-96-2-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.3419 g
Density(g/mL):	1.0785
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/ml	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/ml	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/ml	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/ml	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/ml	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/ml	01/05/1995	01/05/1996
05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009

09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009
01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Julie Strock	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/30/2008	09/29/2009
04/18/2000	Robert Timm	.429	250	445-96-2-R	3553.34 dpm/mL	04/18/2000	04/18/2001
04/23/2009	Tina Schoneman	.001251	500	445-96-2-RR	4.8075 dpm/mL	04/23/2009	04/23/2010
04/13/2001	Angela Johnson	.1869	100	445-96-2-S	3870.16 dpm/mL	04/13/2001	04/13/2002
05/08/2009	Mary Aders	.0141	1000	445-96-2-SS	29.2098 dpm/ml	05/11/2009	05/11/2010
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-103	4153.225 dpm/mL	07/03/2002	07/03/2003
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-203	4153.225 dpm/mL	07/03/2002	07/03/2003

07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-303	4153.225 dpm/mL	07/03/2002	07/03/2003
06/03/2009	Julie Strock	.00000927	100	445-96-2-TT	.1923 dpm/mL	06/05/2009	06/03/2010
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-103	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-203	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-303	80.34 dpm/ml	08/23/2001	08/23/2002
06/02/2009	Mary Aders	2.1177	1000	445-96-2-UU	4385.1449 dpm/ml	06/04/2009	06/04/2010
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-103	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-203	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-303	81.586 dpm/mL	08/27/2002	08/27/2003
03/17/2003	Angela Johnson	2.1108	1000	445-96-2-W	4370.857 dpm/mL	03/14/2006	03/14/2007
04/14/2003	Lonnie Morris	.0315	1000	445-96-2-X	65.2559 dpm/mL	04/14/2004	04/14/2005
05/03/2003	Tim Chandler	.0103	1000	445-96-2-Y	21.3376 dpm/mL	05/05/2003	05/05/2004
05/05/2003	Eric Williamson	.011	1000	445-96-2-Z	22.7877 dpm/mL	04/03/2007	04/03/2008

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Am-243 Standard 445-96-2-SS

M. Aders 5/15/2009	Isotope	Value	Uncertainty
	445-96-2-SS #1	1.360	0.1690
	445-96-2-SS #2	1.370	0.1690
	445-96-2-SS #3	1.290	0.1590
Mean Value (Counting) =	1.340	101.99	Pass
Stdev =	0.043588989		Rule 3 (Pass/Fail)
Target =	1.314		
Lower Limit =	1.252822021		
Upper Limit =	1.427177979		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.087177979		
10 % of Mean =	0.134		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard ~~445-96-2-SS~~ using 0.1 mL for each source. Each standard was combined with 0.1 mL of ~~Cm-244~~ standard ~~0533-O~~ and 50 micrograms of neodymium carrier in a disposable centrifuge tube. Each standard was diluted with 4 mL of 2 M HCl and 6 mL of DI Water. Two mL of 48% HF was added to precipitate Nd (and Americium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Am-243 were calculated by comparison to Am-241 certified values.

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

Mary G. Aders 5/15/09  
Tahira  
07509

1374



# National Institute of Standards & Technology Certificate

## Standard Reference Material 4334H Plutonium-242 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive plutonium-242 nitrate and nitric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of alpha-particle counting instruments and for the monitoring of radiochemical procedures.

**Radiological Hazard:** The SRM ampoule contains plutonium-242 with a total activity of approximately 150 Bq. Plutonium-242 decays by alpha-particle emission. None of the alpha particles escape from the SRM ampoule. During the decay process, X-rays and gamma rays with energies from 10 keV to 160 keV are also emitted. Most of these photons escape from the SRM ampoule but their intensities are so small that they do not represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]\*. The SRM should be used only by persons qualified to handle radioactive material.

**Chemical Hazard:** The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) with a concentration of 3 moles per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

**Storage and Handling:** The SRM should be stored and used at a temperature between 5 °C and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least January 2015. The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

**Preparation:** This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, M.P. Unterwieser, Acting Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group. The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program.

RECEIVED  
21/01/05

Lisa R. Karam, Acting Chief  
Ionizing Radiation Division

Gaithersburg, Maryland 20899  
January 2005

Robert L. Watters, Jr., Chief  
Measurement Services Division



### **Recommended Procedure for Opening the SRM Ampoule**

- 1) If the SRM solution is to be diluted, it is recommended that the diluting solution have a composition comparable to that of the SRM solution.
- 2) Wear eye protection, gloves, and protective clothing and work over a tray with absorbent paper in it. Work in a fume hood. In addition to the radioactive material, the solution contains strong acid and is corrosive.
- 3) Shake the ampoule to wet all of the inside surface of the ampoule. Return the ampoule to the upright position.
- 4) Check that all of the liquid has drained out of the neck of the ampoule. If necessary, gently tap the neck to speed the process.
- 5) Holding the ampoule upright, score the narrowest part of the neck with a scribe or diamond pencil.
- 6) Lightly wet the scored line. This reduces the crack propagation velocity and makes for a cleaner break.
- 7) Hold the ampoule upright with a paper towel, a wiper, or a support jig. Position the scored line away from you. Using a paper towel or wiper to avoid contamination, snap off the top of the ampoule by pressing the narrowest part of the neck away from you while pulling the tip of the ampoule towards you.
- 8) Transfer the solution from the ampoule using a pycnometer or a pipet with dispenser handle. **NEVER PIPETTE BY MOUTH.**
- 9) Seal any unused SRM solution in a flame-sealed glass ampoule, if possible, to minimize the evaporation loss.

See also reference [4]\*.

# PROPERTIES OF SRM 4334H

## Certified values

Radionuclide	Plutonium-242
Reference time	1200 EST, 07 June 1994 [b]*
Massic activity of the solution [c]	26.31 Bq·g <sup>-1</sup>
Relative expanded uncertainty (k=2)	0.72% [d] [e]
Solution density	(1.105 ± 0.002) g·mL <sup>-1</sup> at 20 °C [f]

## Uncertified values

Physical Properties:			
Source description	Liquid in flame-sealed NIST borosilicate-glass ampoule		
Ampoule specifications	Body outside diameter	(16.5 ± 0.5) mm	
	Wall thickness	(0.60 ± 0.04) mm	
	Barium content	Less than 2.5%	
	Lead-oxide content	Less than 0.02%	
	Other heavy elements	Trace quantities	
Solution mass	Approximately 5.5 g		
Chemical Properties:			
Solution composition	Chemical Formula	Concentration (mol·L <sup>-1</sup> )	Mass Fraction (g·g <sup>-1</sup> )
	H <sub>2</sub> O	50	0.81
	HNO <sub>3</sub>	3.2	0.19
	<sup>242</sup> Pu <sup>+6</sup>	8 × 10 <sup>-7</sup>	2 × 10 <sup>-7</sup>
Radiological Properties:			
Alpha-particle-emitting impurities	None detected [g] [h]. See table on page 5.		
Beta-particle-emitting impurities	Plutonium-241: (0.092 ± 0.018) Bq·g <sup>-1</sup> [f] [h]		
Photon-emitting impurities	None detected [i]		
Half lives used	Plutonium-242: (373 500 ± 1100) a [j] [5] Plutonium-241: (14.35 ± 0.10) a [j] [5] Americium-241: (432.2 ± 0.7) a [j] [5]		
Calibration method and measuring instrument(s)	Three 4π liquid-scintillation counters, a calibrated germanium detector system, and a silicon surface-barrier detector		

**EVALUATION OF THE UNCERTAINTY OF THE MASSIC ACTIVITY [d] [e]\***

Input Quantity $x_i$ , the source of uncertainty  (and individual uncertainty components where appropriate)	Method Used To Evaluate $u(x_i)$ , the standard uncertainty of $x_i$ , (A) denotes evaluation by statistical methods (B) denotes evaluation by other methods	Relative Uncertainty Of Input Quantity, $u(x_i)/x_i$ , (%) [k]	Relative Sensitivity Factor, $ \partial y/\partial x_i  \cdot$ $(x_i/y)$ [m]	Relative Uncertainty Of Output Quantity, $u(y)/y$ , (%) [n]
Massic alpha-particle emission rate, corrected for background and decay	Standard deviation of the mean for 80 sets of $4\pi\alpha$ liquid- scintillation measurements (A)	0.05	1.0	0.05
Half life of Pu-242	Standard uncertainty of the half life (A)	0.32 [p]	0.00001 [q]	0.000003
Decay-scheme data	Standard uncertainty of the probability of decay by alpha- particle emission (A)	0.001	1.0	0.001
Extrapolation of alpha- particle-count-rate- versus-energy to zero energy	Estimated (B)	0.25	1.0	0.25
Gravimetric measurements	Estimated (B)	0.10	1.0	0.10
Live time [r]	Estimated (B)	0.10	1.0	0.10
Alpha-particle detection efficiency of scintillators	Estimated (B)	0.15	1.0	0.15
Alpha-particle-emitting impurities	Limit of detection (B) [s]	100.	0.001	0.10
Photon-emitting impurities	Limit of detection (B) [s]	100.	0.001	0.10
Relative Combined Standard Uncertainty of the Output Quantity, $u_c(y)/y$ , (%)				0.36
Coverage Factor, $k$				<u>x 2</u>
Relative Expanded Uncertainty of the Output Quantity, $U(y)/y$ , (%)				0.72

# RELATIVE ACTIVITIES OF RADIONUCLIDIC IMPURITIES AT THE REFERENCE TIME [b]

Radionuclide	Half Life (years) [j] [5]	Relative Activity As Determined By	
		LLNL	NIST
Plutonium-242	373 500 ± 1100	1.000 000	1.000 000
Plutonium-241	14.35 ± 0.10	- -	0.0035 ± 0.0004 [t]
Plutonium-240	6 564 ± 11	<sup>239</sup> Pu + <sup>240</sup> Pu <0.000 001 [u]	<sup>239</sup> Pu + <sup>240</sup> Pu 0.000 020 ± 0.000 021 [v]
Plutonium-239	24 110 ± 30		
Plutonium-238	87.7 ± 0.1	<sup>238</sup> Pu + <sup>241</sup> Am <0.000 016 [u]	0.000 009 ± 0.000 016 [v]
Americium-241	432.2 ± 0.7		0.000 000 assumed [t]

## NOTES

- [a] The Sievert is the SI unit for dose equivalent. See reference [1]. One  $\mu\text{Sv}$  is equal to 0.1 mrem.  
Distance from Ampoule (cm): 1 30 100  
Approximate Dose Rate ( $\mu\text{Sv/h}$ ): <0.1 - -
- [b] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994.
- [c] **Massic activity** is the preferred name for the quantity activity divided by the total mass of the sample. See reference [1].
- [d] The reported value,  $y$ , of massic activity (activity per unit mass) at the reference time was not measured directly but was derived from measurements and calculations of other quantities. This can be expressed as  $y = f(x_1, x_2, x_3, \dots, x_n)$ , where  $f$  is a mathematical function derived from the assumed model of the measurement process. The value,  $x_i$ , used for each input quantity  $i$  has a **standard uncertainty**,  $u(x_i)$ , that generates a corresponding uncertainty in  $y$ ,  $u_i(y) \equiv |\partial y / \partial x_i| \cdot u(x_i)$ , called a **component of combined standard uncertainty** of  $y$ . The **combined standard uncertainty** of  $y$ ,  $u_c(y)$ , is the positive square root of the sum of the squares of the components of combined standard uncertainty. The combined standard uncertainty is multiplied by a **coverage factor** of  $k=2$  to obtain  $U$ , the **expanded uncertainty** of  $y$ .

Since it can be assumed that the possible estimated values of the massic activity are approximately normally distributed with approximate standard deviation  $u_c(y)$ , the unknown value of the massic activity is believed to lie in the interval  $y \pm U$  with a level of confidence of approximately 95 percent.

For further information on the expression of uncertainties, see references [2] and [3].

- [e] The value of each component of combined standard uncertainty, and hence the value of the expanded uncertainty itself, is a best estimate based upon all available information, but is only approximately known. That is to say, the "uncertainty of the uncertainty" is large and not well known. This is true for uncertainties evaluated by statistical methods (e.g., the relative standard deviation of the standard deviation of the mean for the massic response is approximately 50%) and for uncertainties evaluated by other methods (which could easily be over estimated or under estimated by substantial amounts). The unknown value of the expanded uncertainty is believed to lie in the interval  $U/2$  to  $2U$  (i.e., within a factor of 2 of the estimated value).
- [f] The stated uncertainty is two times the standard uncertainty.
- [g] Estimated limits of detection for alpha-particle-emitting impurities, expressed as massic alpha-particle emission rates (numbers of alpha particles per second per gram), are:  
 $0.003 \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies less than 3.1 MeV,  
 $0.03 \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 3.1 and 4.4 MeV, and  
 $0.003 \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies greater than 5.0 MeV.
- [h] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994. Americium-241, the daughter of plutonium-241, was removed but has been growing in since that time.
- [i] Estimated limits of detection for photon-emitting impurities, expressed as massic photon emission rates (numbers of photons per second per gram), are:  
 $5 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 19 and 39 keV,  
 $7 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 49 and 92 keV,  
 $2 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 106 and 507 keV,  
 $1 \times 10^{-5} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 515 and 1456 keV, and  
 $5 \times 10^{-6} \text{ s}^{-1}\cdot\text{g}^{-1}$  for energies between 1465 and 2750 keV,  
provided that the photons are separated in energy by 4 keV or more from photons emitted in the decay of plutonium-242, plutonium-241, or americium-241.
- [j] The stated uncertainty is the standard uncertainty.
- [k] Relative standard uncertainty of the input quantity  $x_i$ .
- [m] The relative change in the output quantity  $y$  divided by the relative change in the input quantity  $x_i$ . If  $|\partial y / \partial x_i| \cdot (x_i / y) = 1.0$ , then a 1% change in  $x_i$  results in a 1% change in  $y$ . If  $|\partial y / \partial x_i| \cdot (x_i / y) = 0.05$ , then a 1% change in  $x_i$  results in a 0.05% change in  $y$ .
- [n] Relative component of combined standard uncertainty of output quantity  $y$ , rounded to two significant figures or less. The relative component of combined standard uncertainty of  $y$  is given by  $u_i(y)/y \equiv |\partial y / \partial x_i| \cdot u(x_i)/y = |\partial y / \partial x_i| \cdot (x_i / y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y / \partial x_i| \cdot (x_i / y)$ , and  $u_i(y)/y$ , all dimensionless quantities, are listed in columns 3, 4, and 5, respectively. Thus, the value in column 5 is equal to the value in column 4 multiplied by the value in column 3. The input quantities are independent, or very nearly so. Hence the covariances are zero or negligible.

- [p] The relative standard uncertainty of  $\lambda \cdot t$  is determined by the relative standard uncertainty of  $\lambda$  (i.e., of the half life). The relative standard uncertainty of  $t$  is negligible.
- [q]  $|\partial y / \partial x_i| \cdot (x_i / y) = |\lambda \cdot t|$
- [r] The live time is determined by counting the pulses from a gated crystal-controlled oscillator.
- [s] The standard uncertainty for each undetected impurity that might reasonably be expected to be present is estimated to be equal to the estimated limit of detection for that impurity, i.e.  $u(x_i) / x_i = 100\%$ .  $|\partial y / \partial x_i| \cdot (x_i / y) = \{(\text{response per Bq of impurity}) / (\text{response per Bq of Pu-242})\} \cdot \{(\text{Bq of impurity}) / (\text{Bq of Pu-242})\}$ . Thus  $u(y) / y$  is the relative change in  $y$  if the impurity were present with a massic activity equal to the estimated limit of detection.
- [t] The stated uncertainty is the standard uncertainty. The plutonium-241 activity was calculated from a gamma-ray measurement of the americium-241 ingrowth as of 25 November 1998, assuming that americium-241 was completely removed at the time of chemical purification.
- [u] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The value shown is an estimated upper limit based upon background and counting statistics. Measurements were made at the Lawrence Livermore National Laboratory (LLNL) in July of 1994.
- [v] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The stated uncertainty is the standard uncertainty. Measurements were made at the National Institute of Standards and Technology (NIST) in June and July of 1999.

#### REFERENCES

- [1] International Organization for Standardization (ISO), *ISO Standards Handbook - Quantities and Units*, 1993. Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [2] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993 (corrected and reprinted, 1995). Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [3] B.N. Taylor and C.E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [4] National Council on Radiation Protection and Measurements Report No. 58, *A Handbook of Radioactivity Measurements Procedures*, Second Edition, 1985. Available from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814 U.S.A.
- [5] Evaluated Nuclear Structure Data File (ENSDF), January 2005.

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1374	Isotope:	Plutonium-242
Prepared By:	Mary Aders	Prepared By:	Ashley Drochter
Carrier Conc:	0.5M HNO3	Prep Date:	12/02/2009
Reference Date:	06/07/1994	Verification Date:	12/08/2009
Ampoule Mass (g):	5.5 g	Expiration Date:	12/08/2010
Uncertainty:	+/- .72 %	Primary Code:	1374-A
LogBook No:	RC-S-051-093	Dilution(mL):	250 mL
		Mass of Parent(g):	5.3616 g
		Density(g/mL):	1.0136
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3616 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (250 \text{ mL}) = 33.8553 \text{ dpm/mL}$
$(5.3616 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0136 \text{ g/mL}) / (250 \text{ mL}) = 33.4010 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC

Version 1.0 9/18/2000

## Verification for Pu-242 Standard 1374-A

A.Drochter 12/8/2009	Isotope	Value	Uncertainty
	1374-A	1.610	0.2480
	1374-A	1.580	0.2510
	1374-A	1.530	0.2440
Mean Value (Counting) =	1.573	103.17	Pass
Stdev =	0.040414519	Rule 3 (Pass/Fail)	
Target =	1.52		
Lower Limit =	1.492504296		
Upper Limit =	1.654162371		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.080829038		
10 % of Mean =	0.157333333		
Rule 2 (Pass/Fail)	Pass		

Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

Rule 3 = The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for standard 1374-A using 0.1 mL for each source. Each standard was combined with 0.1 mL of Pu239 standard 0338-BB and 50 micrograms of neodymium carrier in a disposable centrifuge tube containing 4 mL of 2 M HCl and 6 mL of DI water. Four drops of 25% Hydrazine dihydrochloride were added to each centrifuge tube and swirled. Two mL of 49% HF was added to precipitate neodymium (and plutonium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Pu-242 were calculated by comparison to Pu-239 certified values.

*Handwritten:* Jot c well  
12/8/09  
12/9/09  
12/9/09





**Eckert & Ziegler**  
Analytics

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318  
Tel 404-352-8677  
Fax 404-352-2837  
www.analyticsinc.com

**CERTIFICATE OF CALIBRATION**  
Standard Radionuclide Source

**78747-278**

1283

**U-232 5 mL Liquid in Flame Sealed Vial**

**Customer:** GEL Laboratories, LLC  
**P.O. No.:** 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.15, Revision 1.

Isotope:	U-232
Activity (Bq):	3.754 E3
Half-Life:	68.9 years
Calibration Date:	December 9, 2008 12:00 EST
Relative Expanded Uncertainty (k=2):	5.0%

**Comments:**

Impurities: U-233 <0.3%, Am-241 <0.15%  
5.20453 grams 1M HNO<sub>3</sub> solution.

Source Prepared By: WMS

W. Mao, Radiochemist

QA Approved: DM Montgomery

D. M. Montgomery, QA Manager

Date: 12-11-08

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1283	Isotope:	Uranium-232
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3	Prep Date:	12/16/2008
Reference Date:	12/09/2008	Verification Date:	12/30/2008
Ampoule Mass (g):	5.20453 g	Expiration Date:	12/30/2009
Uncertainty:	+/- 5 %	Primary Code:	1283-A
LogBook No:	RC-S-051-002	Dilution(mL):	100 mL
		Mass of Parent(g):	5.0245 g
		Density(g/mL):	1.0285
		Balance ID:	

## Calculations Converting parent activity to dpm/mL/dpm/g

$(\text{Mass of parent(g)}) * (\text{Parent Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parent Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2174.4872 \text{ dpm/mL}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0285 \text{ g/mL}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2114.1700 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
12/16/2008	Daniel Roy	25.1813	1000	1283-B	53.2375 dpm/ml	12/16/2008	12/16/2009
12/30/2008	Tina Schoneman	2.05	250	1283-C	17.336 dpm/mL	12/30/2008	12/30/2009
12/30/2008	Tina Schoneman	.49	250	1283-D	4.1438 dpm/mL	01/09/2009	01/09/2010
01/14/2009	Mary Aders	25.0528	1000	1283-E	52.9659 dpm/ml	01/15/2009	01/15/2010
12/02/2009	Julie Strock	2.076	250	1283-F	17.5561 dpm/mL	01/09/2009	12/30/2009
12/02/2009	Julie Strock	.517	250	1283-G	4.3721 dpm/mL	01/09/2009	12/30/2009
12/09/2009	Ashley Drochter	21.56	1000	1283-H	45.58 dpm/mL	12/09/2009	12/09/2010

## Verification for Uranium-232 Standard 1283-H

<b>Analyst: A. Drochter</b>	<b>Serial #</b>	<b>Value</b>	<b>Uncertainty</b>					
<b>Date: 12/10/09</b>	1283-H N1	2.020	pCi/L	0.238	pCi/L			
	1283-H N2	2.000	pCi/L	0.234	pCi/L			
	1283-H N3	2.060	pCi/L	0.242	pCi/L			
<b>Mean Value (Counting) =</b>	2.027	pCi/L	<b>99.66904</b>	<b>Pass</b>				
<b>Stdev =</b>	0.030550505	pCi/L	<b>Rule 3 (Pass/Fail)</b>					
<b>Target =</b>	2.033	pCi/L						
<b>Lower Limit =</b>	1.965565657	pCi/L						
<b>Upper Limit =</b>	2.087767676	pCi/L						
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>							
<b>Two sigma =</b>	0.061101009							
<b>10 % of Mean =</b>	0.202666667							
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>							

**Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

**Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

**Rule 3 =** The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for standard 1283-H using 0.1 mL for each source. Each standard was combined with 0.1 mL of U-238 standard 1163-G and was diluted to 10 mL with DI water. 50 micrograms of neodymium carrier and 1ml of Titanium Chloride were added. The solution was allowed to sit for 30 seconds. One mL of 49% HF was then added to precipitate neodymium (and uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

*A. Drochter*  
12/14/09

# RUNLOGS

# Instrument Run Log

Instrument Type: GAMMA SPECTROMETER

Batch ID: 941239

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244229001	SAMPLE	MXR1	GAM15	22-JAN-10 12:56	DONE	CAN	16-FEB-09 00:00
244229002	SAMPLE	MXR1	GAM18	22-JAN-10 12:57	DONE	CAN	23-APR-09 00:00
244229003	SAMPLE	MXR1	GAM21	22-JAN-10 12:57	DONE	CAN	28-JUL-09 00:00
244229004	SAMPLE	MXR1	GAM22	22-JAN-10 12:58	DONE	CAN	02-DEC-09 00:00
244229005	SAMPLE	MXR1	GAM23	22-JAN-10 13:05	DONE	CAN	02-JUN-09 00:00
244229006	SAMPLE	MXR1	GAM12	22-JAN-10 13:40	DONE	CAN	10-FEB-09 00:00
244229007	SAMPLE	MXR1	GAM25	22-JAN-10 13:40	DONE	CAN	07-OCT-09 00:00
244229008	SAMPLE	MXR1	GAM11	22-JAN-10 14:03	DONE	CAN	18-NOV-09 00:00
244229009	SAMPLE	MXR1	GAM14	22-JAN-10 14:04	DONE	CAN	06-MAR-09 00:00
244229010	SAMPLE	MXR1	GAM06	22-JAN-10 14:11	DONE	CAN	04-FEB-09 00:00
244229011	SAMPLE	MXR1	GAM19	22-JAN-10 14:16	DONE	CAN	12-MAR-09 00:00
244229012	SAMPLE	MXR1	GAM10	22-JAN-10 14:49	DONE	CAN	16-MAR-09 00:00
244229013	SAMPLE	MXR1	GAM13	22-JAN-10 16:50	DONE	CAN	02-FEB-09 00:00
244229014	SAMPLE	MXR1	GAM15	22-JAN-10 16:50	DONE	CAN	16-FEB-09 00:00
244229015	SAMPLE	MXR1	GAM18	22-JAN-10 16:51	DONE	CAN	23-APR-09 00:00
1202014507	MB	MXR1	GAM22	22-JAN-10 16:51	DONE	CAN	02-DEC-09 00:00
1202014508	DUP	MXR1	GAM23	22-JAN-10 16:52	DONE	CAN	02-JUN-09 00:00
1202014509	LCS	MXR1	GAM19	22-JAN-10 16:52	DONE	CAN	12-MAR-09 00:00

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 941356

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244229001	SAMPLE	JXD2	1036	21-JAN-10 17:04	DONE		
244229002	SAMPLE	JXD2	1065	21-JAN-10 17:04	DONE		
244229003	SAMPLE	JXD2	1066	21-JAN-10 17:04	DONE		
244229004	SAMPLE	JXD2	1067	21-JAN-10 17:04	DONE		
244229005	SAMPLE	JXD2	1068	21-JAN-10 17:04	DONE		
244229006	SAMPLE	JXD2	1069	21-JAN-10 17:04	DONE		
244229007	SAMPLE	JXD2	1070	21-JAN-10 17:04	DONE		
244229008	SAMPLE	JXD2	1071	21-JAN-10 17:04	DONE		
244229009	SAMPLE	JXD2	1072	21-JAN-10 17:04	DUSE		
244229010	SAMPLE	JXD2	1073	21-JAN-10 17:04	DONE		
244229011	SAMPLE	JXD2	1074	21-JAN-10 17:04	DONE		
244229012	SAMPLE	JXD2	1075	21-JAN-10 17:04	DONE		
244229013	SAMPLE	JXD2	1076	21-JAN-10 17:04	DONE		
244229014	SAMPLE	JXD2	1077	21-JAN-10 17:04	DONE		
244229015	SAMPLE	JXD2	1078	21-JAN-10 17:04	DUSE		
244519001	SAMPLE	JXD2	1079	21-JAN-10 17:04	DONE		
244519002	SAMPLE	JXD2	1080	21-JAN-10 17:04	DONE		
244519004	SAMPLE	JXD2	1081	21-JAN-10 17:04	DONE		
244519005	SAMPLE	JXD2	1082	21-JAN-10 17:04	DONE		
244519006	SAMPLE	JXD2	1083	21-JAN-10 17:04	DONE		
1202014803	MB	JXD2	1084	21-JAN-10 17:04	DONE		
1202014804	DUP	JXD2	1085	21-JAN-10 17:04	DONE		
1202014805	LCS	JXD2	1086	21-JAN-10 17:04	DONE		
244229009	SAMPLE	JXD2	1231	22-JAN-10 12:49	DONE		
244229015	SAMPLE	JXD2	1232	22-JAN-10 12:49	DONE		

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID:941357

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202014808	LCS	JXD2	1046	20-JAN-10 12:59	DONE		
1202014806	MB	JXD2	1047	20-JAN-10 12:59	DONE		
244229001	SAMPLE	JXD2	1067	20-JAN-10 16:41	DONE		
244229002	SAMPLE	JXD2	1068	20-JAN-10 16:41	DONE		
244229003	SAMPLE	JXD2	1069	20-JAN-10 16:41	DONE		
244229004	SAMPLE	JXD2	1070	20-JAN-10 16:41	DONE		
244229005	SAMPLE	JXD2	1071	20-JAN-10 16:41	DONE		
244229007	SAMPLE	JXD2	1073	20-JAN-10 16:41	DONE		
244229012	SAMPLE	JXD2	1078	20-JAN-10 16:41	DUSE		
244229013	SAMPLE	JXD2	1079	20-JAN-10 16:41	DONE		
244229014	SAMPLE	JXD2	1080	20-JAN-10 16:41	DONE		
244229015	SAMPLE	JXD2	1081	20-JAN-10 16:41	DONE		
244519001	SAMPLE	JXD2	1082	20-JAN-10 16:41	DONE		
244519005	SAMPLE	JXD2	1085	20-JAN-10 16:41	DONE		
244519006	SAMPLE	JXD2	1086	20-JAN-10 16:41	DONE		
244229012	SAMPLE	JXD2	1087	21-JAN-10 17:04	DONE		
244229006	SAMPLE	JXD2	1237	22-JAN-10 13:18	DONE		
244229008	SAMPLE	JXD2	1253	22-JAN-10 13:18	DONE		
244229009	SAMPLE	JXD2	1256	22-JAN-10 13:18	DONE		
244229010	SAMPLE	JXD2	1029	23-JAN-10 12:08	DONE		
244229011	SAMPLE	JXD2	1030	23-JAN-10 12:08	DONE		
244519002	SAMPLE	JXD2	1037	23-JAN-10 12:08	DONE		
244519004	SAMPLE	JXD2	1039	23-JAN-10 12:08	DONE		
1202014807	DUP	JXD2	1047	23-JAN-10 12:08	DONE		

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID:941358

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244229013	SAMPLE	JXD2	1113	21-JAN-10 20:07	DONE		
244229014	SAMPLE	JXD2	1114	21-JAN-10 20:07	DONE		
244229015	SAMPLE	JXD2	1115	21-JAN-10 20:07	DONE		
244519001	SAMPLE	JXD2	1117	21-JAN-10 20:08	DUSE		
244519002	SAMPLE	JXD2	1118	21-JAN-10 20:08	DONE		
244519004	SAMPLE	JXD2	1121	21-JAN-10 20:08	DONE		
244519005	SAMPLE	JXD2	1122	21-JAN-10 20:08	DONE		
244519006	SAMPLE	JXD2	1123	21-JAN-10 20:08	DONE		
1202014809	MB	JXD2	1124	21-JAN-10 20:08	DONE		
1202014810	DUP	JXD2	1127	21-JAN-10 20:08	DONE		
1202014811	LCS	JXD2	1128	21-JAN-10 20:08	DONE		
244229001	SAMPLE	JXD2	1001	21-JAN-10 20:09	DONE		
244229002	SAMPLE	JXD2	1002	21-JAN-10 20:09	DONE		
244229003	SAMPLE	JXD2	1003	21-JAN-10 20:09	DONE		
244229004	SAMPLE	JXD2	1004	21-JAN-10 20:09	DONE		
244229005	SAMPLE	JXD2	1005	21-JAN-10 20:09	DONE		
244229006	SAMPLE	JXD2	1006	21-JAN-10 20:09	DONE		
244229007	SAMPLE	JXD2	1007	21-JAN-10 20:09	DONE		
244229008	SAMPLE	JXD2	1008	21-JAN-10 20:09	DONE		
244229009	SAMPLE	JXD2	1009	21-JAN-10 20:09	DONE		
244229010	SAMPLE	JXD2	1010	21-JAN-10 20:09	DONE		
244229011	SAMPLE	JXD2	1011	21-JAN-10 20:09	DONE		
244229012	SAMPLE	JXD2	1012	21-JAN-10 20:09	DONE		
244519001	SAMPLE	JXD2	1133	22-JAN-10 20:46	DONE		
244519002	SAMPLE	JXD2	1134	22-JAN-10 20:46	DUSE		



# RADIOLOGICAL ANALYSIS

**Radiochemistry Case Narrative  
Los Alamos National Laboratory (LANL)  
SDG 10-1162-1  
Work Order 244231**

**Method/Analysis Information**

**Product:** AM241  
**Analytical Method:** DOE EML HASL-300, Am-05-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941346  
**Prep Batch Number:** 941234

<b>Sample ID</b>	<b>Client ID</b>
244231001	RE12-10-7709
244231002	RE12-10-7711
244231003	RE12-10-7712
244231004	RE12-10-7716
244231005	RE12-10-7718
244231006	RE12-10-7713
1202014794	Method Blank (MB)
1202014795	244515006(RE46-10-10024) Sample Duplicate (DUP)
1202014796	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

**SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

**Calibration Information:**

**Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

**Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

**Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

**Quality Control (QC) Information:****Blank Information**

Aliquot for sample 1202014794 (MB) was changed to 1.0 per client request.

**Designated QC**

The following sample was used for QC: 244515006 (RE46-10-10024). The QC was from LANL work order 244515.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:****Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The MDCs are calculated using a blank population.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

**Product:** ISOPU  
**Analytical Method:** DOE EML HASL-300, Pu-11-RC Modified  
**Prep Method:** Dry Soil Prep  
**Analytical Batch Number:** 941353  
**Prep Batch Number:** 941234

Sample ID	Client ID
244231001	RE12-10-7709
244231002	RE12-10-7711
244231003	RE12-10-7712
244231004	RE12-10-7716
244231005	RE12-10-7718
244231006	RE12-10-7713
1202014797	Method Blank (MB)
1202014798	244515006(RE46-10-10024) Sample Duplicate (DUP)
1202014799	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

##### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

##### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

Aliquot for sample 1202014797 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 244515006 (RE46-10-10024). The QC was from LANL work order 244515.

**QC Information**

All of the QC samples met the required acceptance limits.

**CSU**

The blank result is less than 1.65 times the CSU.

**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:****Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The MDCs are calculated using a blank population. Sample, 1202014797 (MB), did not meet the client tracer yield requirements, however it is less than 110 percent and does meet the GEL standard tracer yield requirements.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	ISOU
Analytical Method:	DOE EML HASL-300, U-02-RC Modified
Prep Method:	Dry Soil Prep
Analytical Batch Number:	941354
Prep Batch Number:	941234

<b>Sample ID</b>	<b>Client ID</b>
244231001	RE12-10-7709
244231002	RE12-10-7711
244231003	RE12-10-7712
244231004	RE12-10-7716
244231005	RE12-10-7718
244231006	RE12-10-7713
1202014800	Method Blank (MB)
1202014801	244515006(RE46-10-10024) Sample Duplicate (DUP)
1202014802	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-011 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. Calibrations are performed monthly using mixed alpha standards comprised of the following: Gd-148, Np-237, and Cm-244.

##### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

##### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

Aliquot for sample 1202014800 (MB) was changed to 1.0 per client request.

##### **Designated QC**

The following sample was used for QC: 244515006 (RE46-10-10024). The QC was from LANL work order 244515.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The blank, 1202014800 (MB), result for U-233/234 and U-235 is greater than 1.65 times the CSU but less than the MDC.

**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:****Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Manual Integration**

No manual integrations were performed on data in this batch.

**Additional Comments**

The MDCs are calculated using a blank population.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Manual qualifiers were not required.

**Method/Analysis Information**

<b>Product:</b>	<b>GAMMA SPEC</b>
Analytical Method:	DOE HASL 300, 4.5.2.3/Ga-01-R
Prep Method:	Dry Soil Prep
Analytical Batch Number:	941242
Prep Batch Number:	941234

Sample ID	Client ID
244231001	RE12-10-7709
244231002	RE12-10-7711
244231003	RE12-10-7712
244231004	RE12-10-7716
244231005	RE12-10-7718
244231006	RE12-10-7713
1202014513	Method Blank (MB)
1202014514	244515001(RE46-10-10025) Sample Duplicate (DUP)
1202014515	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on a "dry weight" basis.

#### **SOP Reference**

Procedure for preparation, analysis and reporting of analytical data are controlled by GEL Laboratories LLC as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with GL-RAD-A-013 REV# 18.

#### **Calibration Information:**

##### **Calibration Information**

All initial and continuing calibration requirements have been met. The initial Calibrations were performed in January 2009, February 2009, August 2009, October 2009, November 2009 and January 2010.

##### **Standards Information**

Standard solution(s) for these analyses are NIST traceable and used before the expiration date(s).

##### **Sample Geometry**

All counting sources were prepared in the same geometry as the calibration standards.

#### **Quality Control (QC) Information:**

##### **Blank Information**

The blank volume is representative of the sample volume in this batch.

##### **Designated QC**

The following sample was used for QC: 244515001 (RE46-10-10025). The QC was from LANL work order 244515.

##### **QC Information**

All of the QC samples met the required acceptance limits.

##### **CSU**

The blank result for Cs-134 is greater than 1.65 times the CSU but less than the MDC. 1202014513 (MB).



**Technical Information:****Holding Time**

All sample procedures for this sample set were performed within the required holding time.

**Sample Re-prep/Re-analysis**

None of the samples in this sample set required reprep or reanalysis.

**Miscellaneous Information:****Data Exception (DER) Documentation**

Data exception reports are generated to document any procedural anomalies that may deviate from referenced SOP or contractual documents. A data exception report (DER) was not generated for this SDG.

**Additional Comments**

Additional comments were not required for this sample set.

**Blank Decision Level**

The blank result is less than the decision level.

**Qualifier information**

Qualifier	Reason	Analyte	Sample	Client Sample
UI	Data rejected due to interference.	Bismuth-211	244231001	RE12-10-7709
			244231002	RE12-10-7711
			244231003	RE12-10-7712
			244231004	RE12-10-7716
			244231005	RE12-10-7718
			244231006	RE12-10-7713
			1202014514	RE46-10-10025(244515001DUP)
		Cadmium-109	244231001	RE12-10-7709
			244231002	RE12-10-7711
			244231003	RE12-10-7712
			244231004	RE12-10-7716
			244231005	RE12-10-7718
			244231006	RE12-10-7713
			1202014514	RE46-10-10025(244515001DUP)
		Radium-224	244231001	RE12-10-7709
			244231002	RE12-10-7711
			244231003	RE12-10-7712
			244231004	RE12-10-7716
			244231005	RE12-10-7718
			244231006	RE12-10-7713
			1202014514	RE46-10-10025(244515001DUP)
UI	Data rejected due to low abundance.	Cesium-134	244231001	RE12-10-7709
			244231004	RE12-10-7716

#### **Certification Statement**

Where the analytical method has been performed under NELAP certification, the analysis has met all

of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

**Review Validation:**

GEL requires all analytical data to be verified by a qualified data validator. In addition, all data designated for CLP or CLP-like packaging will receive a third level validation upon completion of the data package.

**The following data validator verified the information presented in this case narrative:**

**Reviewer/Date:** \_\_\_\_\_

*AB* 1/26/10

# SAMPLE DATA SUMMARY

## **GEL LABORATORIES LLC**

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - [www.gel.com](http://www.gel.com)

### **Certificate of Analysis Report for**

**LANL010 Los Alamos National Laboratory (72733-001-09)**

**Client SDG: 10-1162-1 GEL Work Order: 244231**

**The Qualifiers in this report are defined as follows:**

- \* Indicates that a quality control analyte recovery is outside of specified acceptance criteria.
- \*\* Indicates the analyte is a surrogate compound.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

The designation ND, if present, appears in the result column when the analyte concentration is not detected above the detection limit.

This data report has been prepared and reviewed in accordance with GEL Laboratories LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by



# GEL LABORATORIES LLC

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7709  
Sample ID: 244231001  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 15.8%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241		0.0257	0.0195	+/-0.00844	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-2.41E-09	0.0208	+/-0.00667	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240		0.0353	0.0238	+/-0.00736	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.50	0.124	+/-0.205	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236		0.153	0.0768	+/-0.0296	0.100	pCi/g						
Uranium-238		2.90	0.0718	+/-0.233	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0582	0.313	+/-0.0947	0.200	pCi/g		MXR1	01/21/10	0901	941242	4
Bismuth-211	UI	3.41	0.343	+/-0.302		pCi/g						
Bismuth-214		0.991	0.115	+/-0.0957	0.200	pCi/g						
Cadmium-109	UI	3.17	1.22	+/-0.448		pCi/g						
Cerium-139	U	0.0019	0.0516	+/-0.0153	0.050	pCi/g						
Cesium-134	UI	0.105	0.0983	+/-0.0261	0.100	pCi/g						
Cesium-137		0.700	0.0681	+/-0.0595	0.100	pCi/g						
Cobalt-60	U	0.0263	0.0707	+/-0.0199	0.100	pCi/g						
Europium-152	U	-0.00556	0.170	+/-0.0519	0.200	pCi/g						
Lanthanum-140	U	-0.00833	0.159	+/-0.048		pCi/g						
Lead-212		1.47	0.0929	+/-0.108	0.100	pCi/g						
Lead-214		1.19	0.119	+/-0.109	0.100	pCi/g						
Mercury-203	U	0.0232	0.0768	+/-0.0217	0.100	pCi/g						
Potassium-40		31.0	0.422	+/-1.75	1.00	pCi/g						
Radium-223	U	-0.255	1.22	+/-0.363		pCi/g						
Radium-224	UI	3.85	1.06	+/-0.762		pCi/g						
Radium-226		0.991	0.115	+/-0.0957		pCi/g						
Radium-228		1.26	0.236	+/-0.180	0.500	pCi/g						
Ruthenium-106	U	-0.29	0.539	+/-0.170	0.800	pCi/g						
Sodium-22	U	-0.0371	0.0808	+/-0.0263	0.080	pCi/g						
Strontium-85	U	0.0245	0.0668	+/-0.0222		pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7709  
Sample ID: 244231001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thallium-208		0.442	0.0645	+/-0.0457	0.080	pCi/g						
Thorium-227	U	-0.221	0.634	+/-0.189		pCi/g						
Thorium-231	U	-0.255	1.22	+/-0.363		pCi/g						
Thorium-234	U	2.11	2.44	+/-1.24	2.00	pCi/g						
Tin-113	U	-0.00773	0.0822	+/-0.0247	0.100	pCi/g						
Uranium-235	U	0.313	0.400	+/-0.115	0.500	pCi/g						
Yttrium-88	U	0.0106	0.0668	+/-0.0194	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.3	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	86.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	88.4	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure

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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7709  
Sample ID: 244231001

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------	-------	------

N/A RPD or %Recovery limits do not apply.

ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.



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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7711  
Sample ID: 244231002  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 17.8%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.0174	0.0204	+/-0.00499	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00509	0.021	+/-0.0057	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240		0.0458	0.0241	+/-0.00819	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		2.24	0.123	+/-0.185	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236		0.205	0.0761	+/-0.0349	0.100	pCi/g						
Uranium-238		3.05	0.0711	+/-0.243	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.113	0.367	+/-0.117	0.200	pCi/g		MXR1	01/21/10	0901	941242	4
Bismuth-211	UI	3.89	0.401	+/-0.259		pCi/g						
Bismuth-214		1.27	0.140	+/-0.105	0.200	pCi/g						
Cadmium-109	UI	2.42	1.62	+/-0.625		pCi/g						
Cerium-139	U	0.00152	0.0591	+/-0.0177	0.050	pCi/g						
Cesium-134	U	0.0684	0.104	+/-0.0282	0.100	pCi/g						
Cesium-137		0.696	0.0782	+/-0.0542	0.100	pCi/g						
Cobalt-60	U	0.00788	0.0766	+/-0.0232	0.100	pCi/g						
Europium-152	U	-0.0287	0.205	+/-0.0703	0.200	pCi/g						
Lanthanum-140	U	0.0148	0.161	+/-0.0472		pCi/g						
Lead-212		1.54	0.123	+/-0.0836	0.100	pCi/g						
Lead-214		1.35	0.139	+/-0.0968	0.100	pCi/g						
Mercury-203	U	0.0301	0.0906	+/-0.0262	0.100	pCi/g						
Potassium-40		32.6	0.530	+/-1.49	1.00	pCi/g						
Radium-223	U	0.679	1.48	+/-0.477		pCi/g						
Radium-224	UI	4.38	1.39	+/-0.792		pCi/g						
Radium-226		1.27	0.140	+/-0.105		pCi/g						
Radium-228		1.56	0.273	+/-0.202	0.500	pCi/g						
Ruthenium-106	U	0.0524	0.672	+/-0.203	0.800	pCi/g						
Sodium-22	U	-0.0451	0.074	+/-0.0255	0.080	pCi/g						
Strontium-85	U	0.0762	0.0878	+/-0.0273		pCi/g						
Thallium-208		0.541	0.0701	+/-0.0517	0.080	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7711  
Sample ID: 244231002

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.191	0.821	+/-0.247		pCi/g					
Thorium-231	U	0.679	1.48	+/-0.477		pCi/g					
Thorium-234		3.65	3.02	+/-1.21	2.00	pCi/g					
Tin-113	U	-0.0604	0.0937	+/-0.0296	0.100	pCi/g					
Uranium-235	U	0.0774	0.459	+/-0.137	0.500	pCi/g					
Yttrium-88	U	0.0257	0.0716	+/-0.0193	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	94.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	87.7	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.1	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7711  
Sample ID: 244231002

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7712  
Sample ID: 244231003  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 10.5%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00381	0.0192	+/-0.00346	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	-0.00115	0.019	+/-0.00162	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240	U	0.00574	0.0217	+/-0.00258	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		0.739	0.110	+/-0.0731	0.100	pCi/g		MXE1	01/20/10	2014	941354	3
Uranium-235/236	U	0.0481	0.068	+/-0.0149	0.100	pCi/g						
Uranium-238		0.771	0.0636	+/-0.0755	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0548	0.188	+/-0.0594	0.200	pCi/g		MXR1	01/21/10	0902	941242	4
Bismuth-211	UI	4.29	0.300	+/-0.356		pCi/g						
Bismuth-214		1.23	0.105	+/-0.108	0.200	pCi/g						
Cadmium-109	UI	4.48	1.02	+/-0.518		pCi/g						
Cerium-139	U	0.0197	0.0467	+/-0.0131	0.050	pCi/g						
Cesium-134	U	0.0893	0.0958	+/-0.0347	0.100	pCi/g						
Cesium-137	U	0.0151	0.0637	+/-0.0187	0.100	pCi/g						
Cobalt-60	U	0.0274	0.0731	+/-0.0211	0.100	pCi/g						
Europium-152	U	0.00888	0.137	+/-0.0415	0.200	pCi/g						
Lanthanum-140	U	-0.0203	0.114	+/-0.0357		pCi/g						
Lead-212		2.00	0.0802	+/-0.151	0.100	pCi/g						
Lead-214		1.49	0.104	+/-0.130	0.100	pCi/g						
Mercury-203	U	0.0554	0.0668	+/-0.0209	0.100	pCi/g						
Potassium-40		35.9	0.427	+/-1.80	1.00	pCi/g						
Radium-223	U	-0.223	0.962	+/-0.340		pCi/g						
Radium-224	UI	5.28	0.912	+/-0.729		pCi/g						
Radium-226		1.23	0.105	+/-0.108		pCi/g						
Radium-228		1.95	0.192	+/-0.186	0.500	pCi/g						
Ruthenium-106	U	0.353	0.541	+/-0.150	0.800	pCi/g						
Sodium-22	U	-0.0384	0.0609	+/-0.0209	0.080	pCi/g						
Strontium-85	U	0.0391	0.062	+/-0.0192		pCi/g						
Thallium-208		0.573	0.0516	+/-0.0505	0.080	pCi/g						

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7712  
Sample ID: 244231003  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.0959	0.574	+/-0.169		pCi/g					
Thorium-231	U	-0.223	0.962	+/-0.340		pCi/g					
Thorium-234		1.70	1.65	+/-0.693	2.00	pCi/g					
Tin-113	U	0.00426	0.0672	+/-0.0193	0.100	pCi/g					
Uranium-235	U	0.0205	0.317	+/-0.0921	0.500	pCi/g					
Yttrium-88	U	-0.000297	0.0504	+/-0.0154	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	96.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	93.5	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	90.7	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7712  
Sample ID: 244231003

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7716  
Sample ID: 244231004  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 4.68%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.000996	0.0235	+/-0.00229	0.050	pCi/g		MXE1	01/20/10 1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.00514	0.0212	+/-0.00365	0.050	pCi/g		MXE1	01/19/10 1934	941353	2
Plutonium-239/240	U	0.00643	0.0243	+/-0.00289	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		0.580	0.114	+/-0.0623	0.100	pCi/g		MXE1	01/20/10 2014	941354	3
Uranium-235/236	U	0.0274	0.0711	+/-0.0146	0.100	pCi/g					
Uranium-238		0.565	0.0664	+/-0.0607	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.00725	0.221	+/-0.0663	0.200	pCi/g		MXR1	01/21/10 0902	941242	4
Bismuth-211	UI	3.28	0.294	+/-0.230		pCi/g					
Bismuth-214		0.995	0.103	+/-0.088	0.200	pCi/g					
Cadmium-109	UI	3.78	1.22	+/-0.479		pCi/g					
Cerium-139	U	-0.0209	0.0425	+/-0.0129	0.050	pCi/g					
Cesium-134	UI	0.0848	0.0837	+/-0.0258	0.100	pCi/g					
Cesium-137	U	-0.00992	0.0552	+/-0.0172	0.100	pCi/g					
Cobalt-60	U	0.0216	0.0661	+/-0.0189	0.100	pCi/g					
Europium-152	U	-0.0313	0.139	+/-0.0428	0.200	pCi/g					
Lanthanum-140	U	-0.0799	0.105	+/-0.0374		pCi/g					
Lead-212		1.59	0.0792	+/-0.0754	0.100	pCi/g					
Lead-214		1.14	0.103	+/-0.0852	0.100	pCi/g					
Mercury-203	U	0.0339	0.0638	+/-0.0197	0.100	pCi/g					
Potassium-40		28.8	0.553	+/-1.31	1.00	pCi/g					
Radium-223	U	0.0278	0.920	+/-0.301		pCi/g					
Radium-224	UI	3.92	0.901	+/-0.583		pCi/g					
Radium-226		0.995	0.103	+/-0.088		pCi/g					
Radium-228		1.36	0.178	+/-0.136	0.500	pCi/g					
Ruthenium-106	U	0.167	0.504	+/-0.141	0.800	pCi/g					
Sodium-22	U	-0.0166	0.0663	+/-0.0208	0.080	pCi/g					
Strontium-85	U	0.0339	0.0544	+/-0.0171		pCi/g					
Thallium-208		0.501	0.0486	+/-0.0413	0.080	pCi/g					

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7716  
Sample ID: 244231004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	0.0827	0.559	+/-0.156		pCi/g					
Thorium-231	U	0.0278	0.920	+/-0.301		pCi/g					
Thorium-234	U	1.88	1.96	+/-0.739	2.00	pCi/g					
Tin-113	U	0.016	0.0671	+/-0.0192	0.100	pCi/g					
Uranium-235	U	0.073	0.318	+/-0.0908	0.500	pCi/g					
Yttrium-88	U	-0.0015	0.0462	+/-0.0141	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery %	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	82.9	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	86.1	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	95.9	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.



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Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7716  
Sample ID: 244231004

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit

NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

R Sample results are rejected

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

UI Gamma Spectroscopy--Uncertain identification

X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

Y QC Samples were not spiked with this compound

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

h Preparation or preservation holding time was exceeded

The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7718  
Sample ID: 244231005  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 13%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>												
<i>AM241 "Dry Weight Corrected"</i>												
Americium-241	U	0.00694	0.0211	+/-0.00678	0.050	pCi/g		MXE1	01/20/10	1641	941346	1
<i>ISOPU "Dry Weight Corrected"</i>												
Plutonium-238	U	0.00335	0.0184	+/-0.00194	0.050	pCi/g		MXE1	01/19/10	1934	941353	2
Plutonium-239/240	U	0.0156	0.0211	+/-0.00453	0.050	pCi/g						
<i>ISOU "Dry Weight Corrected"</i>												
Uranium-233/234		1.20	0.105	+/-0.106	0.100	pCi/g		MXE1	01/20/10	2015	941354	3
Uranium-235/236		0.0714	0.0654	+/-0.018	0.100	pCi/g						
Uranium-238		2.67	0.0611	+/-0.211	0.100	pCi/g						
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Americium-241	U	0.0877	0.0988	+/-0.030	0.200	pCi/g		MXR1	01/21/10	0903	941242	4
Bismuth-211	UI	4.04	0.360	+/-0.281		pCi/g						
Bismuth-214		1.32	0.124	+/-0.109	0.200	pCi/g						
Cadmium-109	UI	4.16	0.948	+/-0.456		pCi/g						
Cerium-139	U	0.0218	0.0492	+/-0.0147	0.050	pCi/g						
Cesium-134	U	0.0911	0.104	+/-0.0288	0.100	pCi/g						
Cesium-137		0.227	0.0729	+/-0.034	0.100	pCi/g						
Cobalt-60	U	0.0244	0.0832	+/-0.0257	0.100	pCi/g						
Europium-152	U	0.0264	0.165	+/-0.0605	0.200	pCi/g						
Lanthanum-140	U	0.0193	0.171	+/-0.0519		pCi/g						
Lead-212		1.53	0.126	+/-0.096	0.100	pCi/g						
Lead-214		1.41	0.126	+/-0.104	0.100	pCi/g						
Mercury-203	U	0.0114	0.0691	+/-0.0203	0.100	pCi/g						
Potassium-40		36.5	0.591	+/-1.47	1.00	pCi/g						
Radium-223	U	0.0758	1.13	+/-0.388		pCi/g						
Radium-224	UI	2.48	1.12	+/-0.406		pCi/g						
Radium-226		1.32	0.124	+/-0.109		pCi/g						
Radium-228		1.80	0.262	+/-0.182	0.500	pCi/g						
Ruthenium-106	U	0.170	0.658	+/-0.195	0.800	pCi/g						
Sodium-22	U	-0.0454	0.085	+/-0.0271	0.080	pCi/g						
Strontium-85	U	0.0561	0.0717	+/-0.0228		pCi/g						
Thallium-208		0.570	0.0694	+/-0.0482	0.080	pCi/g						

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
Address : PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7718  
Sample ID: 244231005  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time	Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>												
<i>GAMMA SPEC "Dry Weight Corrected"</i>												
Thorium-227	U	-0.0628	0.634	+/-0.189		pCi/g						
Thorium-231	U	0.0758	1.13	+/-0.388		pCi/g						
Thorium-234		2.19	0.959	+/-0.555	2.00	pCi/g						
Tin-113	U	-0.0499	0.0739	+/-0.024	0.100	pCi/g						
Uranium-235	U	0.186	0.360	+/-0.112	0.500	pCi/g						
Yttrium-88	U	-0.0123	0.0591	+/-0.0188	0.100	pCi/g						

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	90.1	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	104	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	101	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- A The TIC is a suspected aldol-condensation product
- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID:  
Sample ID:

RE12-10-7718  
244231005

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
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ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7713  
Sample ID: 244231006  
Matrix: R  
Collect Date: 06-JAN-10  
Receive Date: 12-JAN-10  
Collector: Client  
Moisture: 26.1%

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Alpha Spec Analysis</b>											
<i>AM241 "Dry Weight Corrected"</i>											
Americium-241	U	0.0119	0.0211	+/-0.00723	0.050	pCi/g		MXE1	01/20/10	1641 941346	1
<i>ISOPU "Dry Weight Corrected"</i>											
Plutonium-238	U	0.00135	0.0223	+/-0.00135	0.050	pCi/g		MXE1	01/19/10	1934 941353	2
Plutonium-239/240		0.0404	0.0255	+/-0.00813	0.050	pCi/g					
<i>ISOU "Dry Weight Corrected"</i>											
Uranium-233/234		2.58	0.122	+/-0.209	0.100	pCi/g		MXE1	01/20/10	2015 941354	3
Uranium-235/236		0.116	0.0755	+/-0.0261	0.100	pCi/g					
Uranium-238		2.91	0.0705	+/-0.232	0.100	pCi/g					
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Americium-241	U	0.0812	0.189	+/-0.0586	0.200	pCi/g		MXR1	01/21/10	0903 941242	4
Bismuth-211	UI	3.53	0.300	+/-0.261		pCi/g					
Bismuth-214		1.14	0.112	+/-0.102	0.200	pCi/g					
Cadmium-109	UI	3.41	1.03	+/-0.484		pCi/g					
Cerium-139	U	-0.0242	0.0427	+/-0.0135	0.050	pCi/g					
Cesium-134	U	0.0607	0.0831	+/-0.0226	0.100	pCi/g					
Cesium-137		0.726	0.0619	+/-0.0591	0.100	pCi/g					
Cobalt-60	U	0.0146	0.0602	+/-0.0178	0.100	pCi/g					
Europium-152	U	-0.0226	0.142	+/-0.0459	0.200	pCi/g					
Lanthanum-140	U	0.036	0.105	+/-0.0318		pCi/g					
Lead-212		1.53	0.0821	+/-0.096	0.100	pCi/g					
Lead-214		1.23	0.105	+/-0.0962	0.100	pCi/g					
Mercury-203	U	0.0322	0.0633	+/-0.0176	0.100	pCi/g					
Potassium-40		33.0	0.504	+/-1.68	1.00	pCi/g					
Radium-223	U	0.371	1.02	+/-0.326		pCi/g					
Radium-224	UI	4.97	0.934	+/-0.685		pCi/g					
Radium-226		1.14	0.112	+/-0.102		pCi/g					
Radium-228		1.64	0.172	+/-0.157	0.500	pCi/g					
Ruthenium-106	U	-0.22	0.447	+/-0.148	0.800	pCi/g					
Sodium-22	U	0.0391	0.0762	+/-0.0217	0.080	pCi/g					
Strontium-85	U	0.0497	0.0582	+/-0.0179		pCi/g					
Thallium-208		0.431	0.0551	+/-0.0454	0.080	pCi/g					

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## Certificate of Analysis

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Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7713  
Sample ID: 244231006

Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
<b>Rad Gamma Spec Analysis</b>											
<i>GAMMA SPEC "Dry Weight Corrected"</i>											
Thorium-227	U	-0.147	0.563	+/-0.167		pCi/g					
Thorium-231	U	0.371	1.02	+/-0.326		pCi/g					
Thorium-234		3.50	1.69	+/-0.877	2.00	pCi/g					
Tin-113	U	-0.00616	0.0671	+/-0.0201	0.100	pCi/g					
Uranium-235	U	0.0364	0.339	+/-0.102	0.500	pCi/g					
Yttrium-88	U	0.00239	0.0417	+/-0.0124	0.100	pCi/g					

### The following Analytical Methods were performed

Method	Description
1	DOE EML HASL-300, Am-05-RC Modified
2	DOE EML HASL-300, Pu-11-RC Modified
3	DOE EML HASL-300, U-02-RC Modified
4	DOE HASL 300, 4.5.2.3/Ga-01-R

Surrogate/Tracer recovery	Test	Recovery%	Acceptable Limits
Americium-243 Tracer	AM241 "Dry Weight Corrected"	89.6	(50%-105%)
Plutonium-242 Tracer	ISOPU "Dry Weight Corrected"	85.9	(50%-105%)
Uranium-232 Tracer	ISOU "Dry Weight Corrected"	89.4	(50%-105%)

### Notes:

TPU is calculated at the 67% confidence level (1-sigma).

The Qualifiers in this report are defined as follows :

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
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- B For General Chemistry and Organic analysis the target analyte was detected in the associated blank.
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- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- F Estimated Value
- H Analytical holding time was exceeded
- J Value is estimated
- M M if above MDC and less than LLD
- M Matrix Related Failure
- N/A RPD or %Recovery limits do not apply.

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## Certificate of Analysis

Company : Los Alamos National Laboratory  
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TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico 87545  
Contact: Ms. Joylene Valdez  
Project: LANL ER Project

Report Date: January 26, 2010

Client Sample ID: RE12-10-7713  
Sample ID: 244231006  
Project: LANL01004  
Client ID: LANL010

Parameter	Qualifier	Result	DL	TPU	RL	Units	DF	Analyst	Date	Time Batch	Mtd.
-----------	-----------	--------	----	-----	----	-------	----	---------	------	------------	------

ND Analyte concentration is not detected above the detection limit  
NJ Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
R Sample results are rejected  
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.  
UI Gamma Spectroscopy--Uncertain identification  
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier  
Y QC Samples were not spiked with this compound  
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.  
h Preparation or preservation holding time was exceeded  
The above sample is reported on a dry weight basis.

# QUALITY CONTROL DATA



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## QC Summary

Report Date: January 26, 2010

Page 1 of 6

Client : Los Alamos National Laboratory  
PO Box 1663  
TA-03, SM271, Drop Pt. 02U, Rm  
Los Alamos, New Mexico  
Contact: Ms. Joylene Valdez  
Workorder: 244231

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch 941346											
QC1202014795 244515006 DUP											
Americium-241	U	-0.00516	U	0.000769	pCi/g	0.261		(0-1)	MXE1	01/20/1016:41	
	TPU:	+/-0.00523		+/-0.0061							
	Yield:	91.3		89.0							
QC1202014796 LCS											
Americium-241	33.2			29.1	pCi/g		87.7	(75%-125%)			
	TPU:			+/-2.13							
	Yield:			61.4							
QC1202014794 MB											
Americium-241			U	0.000575	pCi/g					01/20/1016:41	
	TPU:			+/-0.00222							
	Yield:			94.2							
Batch 941353											
QC1202014798 244515006 DUP											
Plutonium-238	U	0.00175	U	0.00501	pCi/g	0.211		(0-1)	MXE1	01/19/1019:34	
	TPU:	+/-0.00304		+/-0.0047							
	Yield:	61.9		90.1							
Plutonium-239/240	U	0.00175	U	-0.00125	pCi/g	0.186		(0-1)			
	TPU:	+/-0.00392		+/-0.00416							
	Yield:	61.9		90.1							
QC1202014799 LCS											
Plutonium-238				7.19	pCi/g			(75%-125%)			
	TPU:			+/-0.489							
	Yield:			99.2							
Plutonium-239/240	41.8			37.4	pCi/g		89.6	(75%-125%)			
	TPU:			+/-2.18							
	Yield:			99.2							
QC1202014797 MB											
Plutonium-238			U	-0.00143	pCi/g						
	TPU:			+/-0.00321							
	Yield:			106							
Plutonium-239/240			U	0.00573	pCi/g						
	TPU:			+/-0.00352							
	Yield:			106							
Batch 941354											
QC1202014801 244515006 DUP											
Uranium-233/234		0.948		0.874	pCi/g	0.210		(0-1)	MXE1	01/20/1020:15	
	TPU:	+/-0.0926		+/-0.084							
	Yield:	85.8		93.7							
Uranium-235/236	U	0.0413	U	0.0684	pCi/g	0.408		(0-1)			
	TPU:	+/-0.0149		+/-0.0183							
	Yield:	85.8		93.7							
Uranium-238		0.969		0.956	pCi/g	0.0361		(0-1)			
	TPU:	+/-0.0941		+/-0.090							

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## QC Summary

Workorder: 244231

Page 2 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Alpha Spec											
Batch	941354										
QC1202014802	LCS	Yield:	85.8	93.7							
Uranium-233/234				5.51	pCi/g			(75%-125%)		01/20/1013:15	
		TPU:		+/-0.518							
		Yield:		93.0							
Uranium-235/236				0.371	pCi/g			(75%-125%)			
		TPU:		+/-0.092							
		Yield:		93.0							
Uranium-238	5.75			5.36	pCi/g		93.2	(75%-125%)			
		TPU:		+/-0.506							
		Yield:		93.0							
QC1202014800	MB										
Uranium-233/234			U	0.0215	pCi/g					01/20/1020:15	
		TPU:		+/-0.00643							
		Yield:		96.6							
Uranium-235/236			U	0.00897	pCi/g						
		TPU:		+/-0.00453							
		Yield:		96.6							
Uranium-238			U	0.00726	pCi/g						
		TPU:		+/-0.00447							
		Yield:		96.6							
Rad Gamma Spec											
Batch	941242										
QC1202014514	244515001	DUP									
Americium-241		U	-0.158	U	0.0206	pCi/g	0.474	(0-1)	MXR1	01/21/1011:24	
		TPU:	+/-0.155		+/-0.0334						
Bismuth-211		UI	4.02	UI	4.67	pCi/g	0.502	(0-1)			
		TPU:	+/-0.313		+/-0.339						
Bismuth-214			1.19		1.53	pCi/g	0.747	(0-1)			
		TPU:	+/-0.108		+/-0.120						
Cadmium-109		UI	2.99	UI	4.59	pCi/g	0.764	(0-1)			
		TPU:	+/-0.579		+/-0.470						
Cerium-139		U	0.0397	U	0.0144	pCi/g	0.362	(0-1)			
		TPU:	+/-0.0192		+/-0.0158						
Cesium-134		U	0.0708	U	0.0288	pCi/g	0.272	(0-1)			
		TPU:	+/-0.0294		+/-0.0479						
Cesium-137		U	0.00722	U	0.00835	pCi/g	0.0117	(0-1)			
		TPU:	+/-0.0216		+/-0.0269						
Cobalt-60		U	0.0127	U	0.0143	pCi/g	0.0166	(0-1)			
		TPU:	+/-0.022		+/-0.0244						
Europium-152		U	-0.186	U	-0.039	pCi/g	0.493	(0-1)			
		TPU:	+/-0.0947		+/-0.0546						
Lanthanum-140		U	-0.0689	U	0.0344	pCi/g	0.604	(0-1)			
		TPU:	+/-0.0413		+/-0.0443						
Lead-212			1.71		1.85	pCi/g	0.319	(0-1)			
		TPU:	+/-0.0987		+/-0.113						
Lead-214			1.40		1.63	pCi/g	0.474	(0-1)			
		TPU:	+/-0.115		+/-0.125						
Mercury-203		U	0.0319	U	-0.00884	pCi/g	0.450	(0-1)			
		TPU:	+/-0.024		+/-0.0214						

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## QC Summary

Workorder: 244231

Page 3 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch	941242										
Potassium-40		30.3		27.4	pCi/g	0.461		(0-1)			
	TPU:	+/-1.51		+/-1.60							
Radium-223	U	0.845	U	-0.173	pCi/g	0.572		(0-1)			
	TPU:	+/-0.481		+/-0.409							
Radium-224	UI	4.10	UI	5.08	pCi/g	0.308		(0-1)			
	TPU:	+/-0.782		+/-0.811							
Radium-226		1.19		1.53	pCi/g	0.747		(0-1)			
	TPU:	+/-0.108		+/-0.120							
Radium-228		1.77		1.76	pCi/g	0.0116		(0-1)			
	TPU:	+/-0.194		+/-0.239							
Ruthenium-106	U	0.258	U	0.0125	pCi/g	0.322		(0-1)			
	TPU:	+/-0.176		+/-0.206							
Sodium-22	U	-0.0164	U	-0.0422	pCi/g	0.219		(0-1)			
	TPU:	+/-0.0262		+/-0.0327							
Strontium-85	U	0.0578	U	0.0435	pCi/g	0.153		(0-1)			
	TPU:	+/-0.0237		+/-0.0231							
Thallium-208		0.489		0.601	pCi/g	0.524		(0-1)			
	TPU:	+/-0.0512		+/-0.0556							
Thorium-227	U	0.288	U	0.273	pCi/g	0.016		(0-1)			
	TPU:	+/-0.247		+/-0.209							
Thorium-231	U	0.845	U	-0.173	pCi/g	0.572		(0-1)			
	TPU:	+/-0.481		+/-0.409							
Thorium-234	U	1.92	U	0.818	pCi/g	0.310		(0-1)			
	TPU:	+/-1.23		+/-0.551							
Tin-113	U	0.00695	U	-0.0235	pCi/g	0.292		(0-1)			
	TPU:	+/-0.0273		+/-0.025							
Uranium-235	U	0.0368	U	-0.158	pCi/g	0.394		(0-1)			
	TPU:	+/-0.135		+/-0.113							
Yttrium-88	U	0.0177	U	0.0353	pCi/g	0.270		(0-1)			
	TPU:	+/-0.0177		+/-0.0151							
QC1202014515	LCS										
Americium-241	16.3			14.5	pCi/g		88.9 (75%-125%)			01/21/1011:09	
	TPU:			+/-0.758							
Bismuth-211				2.59	pCi/g						
	TPU:			+/-0.382							
Bismuth-214				0.992	pCi/g						
	TPU:			+/-0.151							
Cadmium-109				39.0	pCi/g						
	TPU:			+/-1.87							
Cerium-139			U	0.0257	pCi/g						
	TPU:			+/-0.0252							
Cesium-134			U	0.113	pCi/g						
	TPU:			+/-0.0577							
Cesium-137	5.70			5.86	pCi/g		103 (75%-125%)				
	TPU:			+/-0.284							
Cobalt-60	6.61			6.84	pCi/g		103 (75%-125%)				
	TPU:			+/-0.269							
Europium-152			U	0.0335	pCi/g						
	TPU:			+/-0.112							
Lanthanum-140			U	-0.0683	pCi/g						
	TPU:			+/-0.0549							

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## QC Summary

Workorder: 244231

Page 4 of 6

Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
<b>Rad Gamma Spec</b>										
Batch	941242									
Lead-212			1.18	pCi/g						
	TPU:		+/-0.121							
Lead-214			0.900	pCi/g						
	TPU:		+/-0.135							
Mercury-203		U	0.0578	pCi/g						
	TPU:		+/-0.0338							
Potassium-40		U	0.688	pCi/g						
	TPU:		+/-0.319							
Radium-223		U	-0.52	pCi/g						
	TPU:		+/-0.674							
Radium-224			3.70	pCi/g						
	TPU:		+/-0.752							
Radium-226			0.992	pCi/g						
	TPU:		+/-0.151							
Radium-228			1.00	pCi/g						
	TPU:		+/-0.385							
Ruthenium-106		U	0.129	pCi/g						
	TPU:		+/-0.391							
Sodium-22		U	0.0678	pCi/g						
	TPU:		+/-0.036							
Strontium-85		U	0.0557	pCi/g						
	TPU:		+/-0.0435							
Thallium-208			0.445	pCi/g						
	TPU:		+/-0.076							
Thorium-227		U	-0.419	pCi/g						
	TPU:		+/-0.377							
Thorium-231		U	-0.52	pCi/g						
	TPU:		+/-0.674							
Thorium-234		U	1.49	pCi/g						
	TPU:		+/-0.702							
Tin-113		U	0.00239	pCi/g						
	TPU:		+/-0.0487							
Uranium-235		U	-0.121	pCi/g						
	TPU:		+/-0.175							
Yttrium-88		U	0.0378	pCi/g						
	TPU:		+/-0.029							
QC1202014513 MB										
Americium-241		U	0.0148	pCi/g					01/21/10	11:03
	TPU:		+/-0.041							
Bismuth-211		U	-0.0924	pCi/g						
	TPU:		+/-0.0643							
Bismuth-214		U	0.00374	pCi/g						
	TPU:		+/-0.0232							
Cadmium-109		U	-0.0525	pCi/g						
	TPU:		+/-0.167							
Cerium-139		U	-0.00127	pCi/g						
	TPU:		+/-0.00797							
Cesium-134		U	0.0238	pCi/g						
	TPU:		+/-0.0132							
Cesium-137		U	0.0126	pCi/g						
	TPU:		+/-0.00994							

# GEL LABORATORIES LLC

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## QC Summary

Workorder: 244231

Page 5 of 6

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
Rad Gamma Spec											
Batch 941242											
Cobalt-60			U	0.00682	pCi/g						
	TPU:			+/-0.00984							
Europium-152			U	0.00734	pCi/g						
	TPU:			+/-0.0248							
Lanthanum-140			U	-0.00258	pCi/g						
	TPU:			+/-0.015							
Lead-212			U	-0.00849	pCi/g						
	TPU:			+/-0.018							
Lead-214			U	-0.0146	pCi/g						
	TPU:			+/-0.0223							
Mercury-203			U	0.015	pCi/g						
	TPU:			+/-0.0104							
Potassium-40			U	-0.157	pCi/g						
	TPU:			+/-0.128							
Radium-223			U	0.298	pCi/g						
	TPU:			+/-0.198							
Radium-224			U	-0.359	pCi/g						
	TPU:			+/-0.191							
Radium-226			U	0.00374	pCi/g						
	TPU:			+/-0.0232							
Radium-228			U	-0.123	pCi/g						
	TPU:			+/-0.0429							
Ruthenium-106			U	-0.0205	pCi/g						
	TPU:			+/-0.0908							
Sodium-22			U	-0.0178	pCi/g						
	TPU:			+/-0.0101							
Strontium-85			U	-0.0992	pCi/g						
	TPU:			+/-0.0168							
Thallium-208			U	-0.0207	pCi/g						
	TPU:			+/-0.0125							
Thorium-227			U	0.111	pCi/g						
	TPU:			+/-0.104							
Thorium-231			U	0.298	pCi/g						
	TPU:			+/-0.198							
Thorium-234			U	-0.236	pCi/g						
	TPU:			+/-0.432							
Tin-113			U	0.00623	pCi/g						
	TPU:			+/-0.012							
Uranium-235			U	-0.0264	pCi/g						
	TPU:			+/-0.064							
Yttrium-88			U	-0.0026	pCi/g						
	TPU:			+/-0.0088							

### Notes:

The Qualifiers in this report are defined as follows:

- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported

## GEL LABORATORIES LLC

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### QC Summary

Workorder: 244231

Page 6 of 6

Parmname	NOM	Sample Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time
A	The TIC is a suspected aldol-condensation product									
B	For General Chemistry and Organic analysis the target analyte was detected in the associated blank.									
BD	Results are either below the MDC or tracer recovery is low									
C	Analyte has been confirmed by GC/MS analysis									
D	Results are reported from a diluted aliquot of the sample									
F	Estimated Value									
H	Analytical holding time was exceeded									
J	Value is estimated									
M	M if above MDC and less than LLD									
M	Matrix Related Failure									
N/A	RPD or %Recovery limits do not apply.									
ND	Analyte concentration is not detected above the detection limit									
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
R	Sample results are rejected									
U	Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.									
UI	Gamma Spectroscopy--Uncertain identification									
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier									
Y	QC Samples were not spiked with this compound									
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.									
h	Preparation or preservation holding time was exceeded									

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more.

\*\* Indicates analyte is a surrogate compound.

^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.

For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

**RAW DATA**

## Radiochemistry Batch Checklist, Rev10

Batch#

941346

Product:

Am

Date:

1/21/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs Initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stated.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

Denise Green 1/21/10

Secondary Review Performed By:

H. J. Brown 1/21/10



# Am/Cm Que Sheet

13-JAN-10

Batch #: 941346 Analyst: MXE1 First Client Due Date: 02-FEB-10 Internal Due Date: 23-JAN-10 Comments:  
 Tracer(s): Am-241/Cm-244 Tracer Code: 445-910-2-SS Expiration Date: 5/1/10 Vol: 0.1  
 LCS Isotope(s): Am-241/Cm-244 LCS Code(s): / / / Vol(s): / / /  
 Spike Isotope(s): Am-241/Cm-244 Spike Code(s): / / / Vol(s): / / /  
 Prep Date: 1/15/10 Initials: MB Pipet ID: 2471058 Balance ID: 5040272 Witness: 880 01/15/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Dry Allotment	Am/Cm Det #
244231001-1	RE12-10-7709	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	1	1	1.284	25
244231002-1	RE12-10-7711	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	2	2	1.253	26
244231003-1	RE12-10-7712	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	3	3	1.253	27
244231004-1	RE12-10-7716	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	4	4	1.287	28
244231005-1	RE12-10-7718	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	5	5	1.289	29
244231006-1	RE12-10-7713	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	6	6	1.262	30
244515001-1	RE46-10-10025	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	7	7	1.252	31
244515002-1	RE46-10-10026	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	8	8	1.267	33
244515003-1	RE46-10-10018	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	9	9	1.263	35
244515004-1	RE46-10-10022	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	10	10	1.265	36
244515005-1	RE46-10-10053	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	11	11	1.271	37
244515006-1	RE46-10-10024	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	12	12	1.290	38
244515007-1	RE46-10-10021	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	13	13	1.265	39
244515008-1	RE46-10-10023	SAMPLE		.05 pCi/g	SOIL	LANL010	08-JAN-10	14	14	1.271	40
244519003-1	RE16-10-420	SAMPLE		.05 pCi/g	SOIL	LANL010	06-JAN-10	15	15	1.259	41
1202014794-1	MB for batch 941346	MB		.05 pCi/g	SOIL	QC ACCOUNT		16	16		42
1202014795-1	RE46-10-10024(244515006DUP)	DUP		.05 pCi/g	SOIL	QC ACCOUNT	08-JAN-10	17	17	1.269	65
1202014796-1	LCS for batch 941346	LCS		.05 pCi/g	SOIL	QC ACCOUNT		18	18	0.190	66

SRM 0244-B 4/30/20 0.140g

Choose SOP Used: GL-RAD-A-011  
 GL-RAD-A-036

Solid Sample Dissolution by: LEACH or DIGESTION  
 Circle One

Data Reviewed By: [Signature]

GEL Laboratories LLC, Radiochemistry Division

# Blank Correction Report

**Batch ID 941346**

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014795	DUP	Americium-241	1.27 g	0.000769	0.0061	0.0218	.000452756	pCi/g	YES
1202014796	LCS	Americium-241	0.140 g	29.1	2.13	0.286	.004107143	pCi/g	NO
1202014794	MB	Americium-241	1.00 g	0.000575	0.00222	0.0243	.000575	pCi/g	YES
244231001	RE12-10-7709	Americium-241	1.28 g	0.0257	0.00844	0.0195	.000449219	pCi/g	NO
244231002	RE12-10-7711	Americium-241	1.25 g	0.0174	0.00499	0.0204	.00046	pCi/g	NO
244231003	RE12-10-7712	Americium-241	1.25 g	0.00381	0.00346	0.0192	.00046	pCi/g	NO
244231004	RE12-10-7716	Americium-241	1.29 g	0.000996	0.00229	0.0235	.000445736	pCi/g	YES
244231005	RE12-10-7718	Americium-241	1.29 g	0.00694	0.00678	0.0211	.000445736	pCi/g	NO
244231006	RE12-10-7713	Americium-241	1.26 g	0.0119	0.00723	0.0211	.000456349	pCi/g	NO
244515001	RE46-10-10025	Americium-241	1.25 g	0.000306	0.00221	0.0181	.00046	pCi/g	YES
244515002	RE46-10-10026	Americium-241	1.27 g	-0.00423	0.0021	0.0206	.000452756	pCi/g	YES
244515003	RE46-10-10018	Americium-241	1.26 g	-0.00181	0.00467	0.0242	.000456349	pCi/g	YES
244515004	RE46-10-10022	Americium-241	1.27 g	0.00315	0.00264	0.021	.000452756	pCi/g	NO
244515005	RE46-10-10053	Americium-241	1.27 g	0.00659	0.00531	0.0204	.000452756	pCi/g	NO
244515006	RE46-10-10024	Americium-241	1.29 g	-0.00516	0.00523	0.0192	.000445736	pCi/g	YES
244515007	RE46-10-10021	Americium-241	1.27 g	-0.00419	0.0054	0.0203	.000452756	pCi/g	YES
244515008	RE46-10-10023	Americium-241	1.27 g	-0.00428	0.00249	0.0211	.000452756	pCi/g	YES
244519003	RE16-10-420	Americium-241	1.26 g	0.0136	0.00497	0.0218	.000456349	pCi/g	NO

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231001_AM SAMPLE QTY: 1.284 G	
DETECTOR NUMBER :45-149AA5 AVERAGE %EFFICIENCY :32.4684 % YIELD : 94.298		COUNT DATE:20-JAN-2010 16:41:33 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.75027 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B025.CNF;1104 BKG DATE : 17-JAN-2010 EFF FILE : W025.CNF;326 CAL DATE : 4-JAN-2010

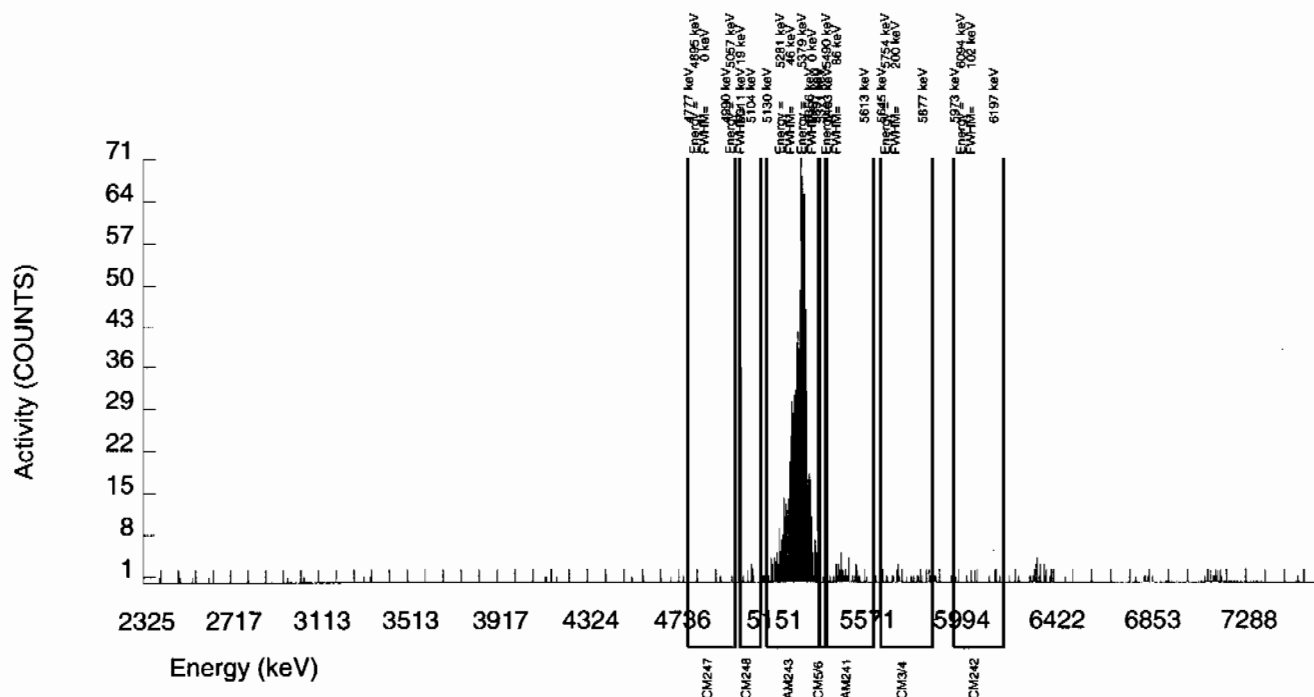
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	28.000	0.000	28.000	5.2338	100.0000	2.19E-09	8.59E-03	1.40E-02	3.10E-02	8.59E-03
CM-5/6	5386.000	12.000	10.000	2.000	19.8463	86.09000	1.33E-02	5.04E-03	6.15E-02	1.27E-01	4.98E-03
AM-241	5479.150	39.000	22.449	15.000	3.0704	99.94000	2.57E-02	8.44E-03	8.19E-03	1.95E-02	8.30E-03
CM-242	6102.000	10.000	4.000	6.000	4.3186	100.0000	4.89E-03	4.89E-03	1.15E-02	2.61E-02	4.89E-03
AM243	5270.000	894.000	891.000	3.000	1.7321	99.78000	1.02E+00	7.01E-02	4.63E-03	1.24E-02	3.44E-02
CM-247	4946.000	3.000	3.000	0.000	15.3366	79.30000	4.33E-03	2.52E-03	5.16E-02	1.07E-01	2.50E-03
CM-248	5078.600	11.000	11.000	0.000	22.1555	91.00000	1.39E-02	4.26E-03	6.49E-02	1.33E-01	4.18E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346  
SAMPLE DATE : 6-JAN-2010 00:00:00.

SAMPLE ID : S0244231002\_AM  
SAMPLE QTY: 1.253 G

DETECTOR NUMBER :78204  
AVERAGE %EFFICIENCY :31.5763  
% YIELD : 94.894

COUNT DATE:20-JAN-2010 16:41:33  
ELAPSED LIVE TIME(SEC): 59999.99  
ANALYST :MXE1

MS/MSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

LCS/LCSD  
ID : 0244-B  
ISOTOPE : AM-241  
PCI/G : 3.316E+01

TRACER  
ID : 445-96-2-SS  
ISOTOPE : AM243  
NOMINAL : 2.91658 dpm  
RESULTS : 2.76766 dpm

LIB FILE : ENV\_ALPHA\_AM.N  
BKG FILE : B026.CNF;1105  
BKG DATE : 17-JAN-2010  
EFF FILE : W026.CNF;300  
CAL DATE : 4-JAN-2010

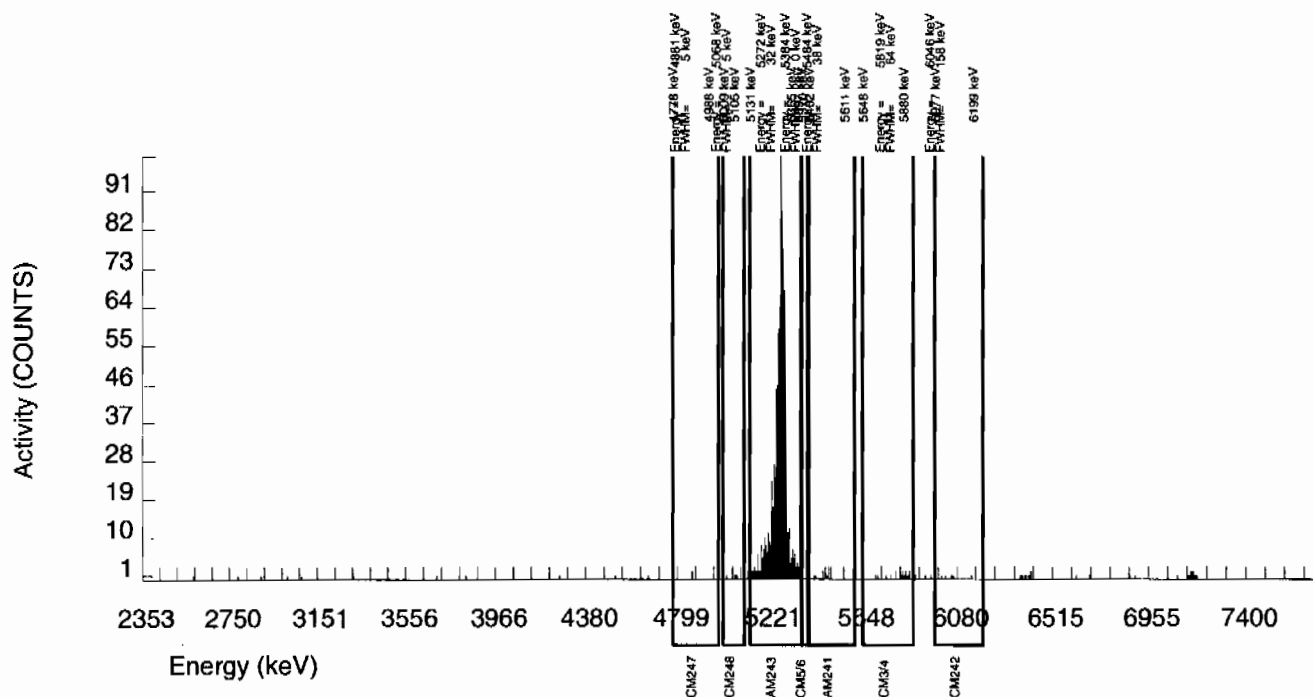
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	19.000	8.000	11.000	5.2338	100.0000	9.61E-03	6.61E-03	1.46E-02	3.25E-02	6.58E-03
CM-5/6	5386.000	2.000	2.000	0.000	19.8463	86.09000	2.79E-03	1.98E-03	6.43E-02	1.32E-01	1.97E-03
AM-241	5479.150	17.000	14.482	1.000	3.0704	99.94000	1.74E-02	4.99E-03	8.57E-03	2.04E-02	4.87E-03
CM-242	6102.000	8.000	8.000	0.000	4.3186	100.0000	1.02E-02	3.67E-03	1.21E-02	2.74E-02	3.62E-03
AM243	5270.000	876.000	872.000	4.000	2.0000	99.78000	1.05E+00	7.37E-02	5.59E-03	1.44E-02	3.57E-02
CM-247	4946.000	4.000	2.000	2.000	15.3366	79.30000	3.03E-03	3.71E-03	5.40E-02	1.12E-01	3.71E-03
CM-248	5078.600	9.000	9.000	0.000	22.1555	91.00000	1.19E-02	4.02E-03	6.80E-02	1.39E-01	3.96E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231003_AM SAMPLE QTY: 1.253 G	
DETECTOR NUMBER :42484 AVERAGE %EFFICIENCY :33.2327 % YIELD : 96.058		COUNT DATE:20-JAN-2010 16:41:33 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.80161 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B027.CNF;1111 BKG DATE : 17-JAN-2010 EFF FILE : W027.CNF;327 CAL DATE : 4-JAN-2010

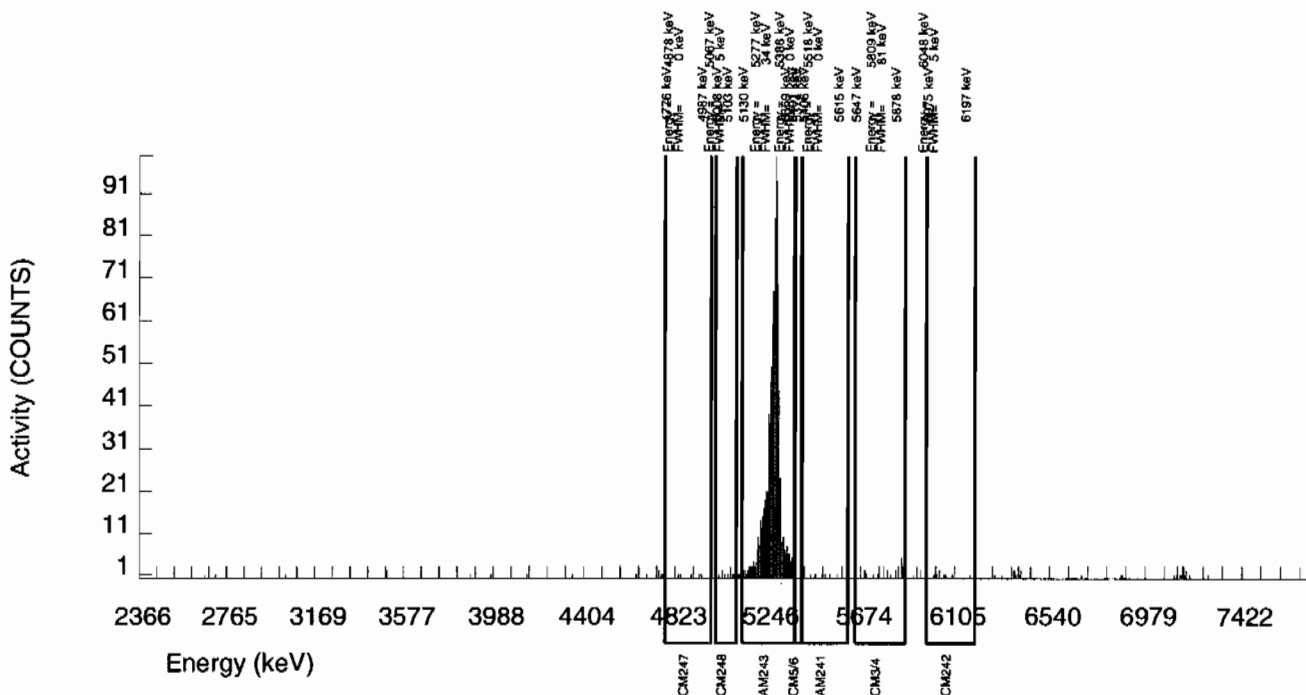
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	27.000	12.000	15.000	5.2338	100.0000	1.35E-02	7.36E-03	1.37E-02	3.05E-02	7.31E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.31E-03	1.31E-03	6.04E-02	1.24E-01	1.31E-03
AM-241	5479.150	8.000	3.383	3.000	3.0704	99.94000	3.81E-03	3.46E-03	8.05E-03	1.92E-02	3.45E-03
CM-242	6102.000	12.000	12.000	0.000	4.3186	100.0000	1.44E-02	4.25E-03	1.13E-02	2.57E-02	4.16E-03
AM243	5270.000	931.000	929.000	2.000	1.4142	99.78000	1.05E+00	7.26E-02	3.71E-03	1.05E-02	3.45E-02
CM-247	4946.000	6.000	5.000	1.000	15.3366	79.30000	7.10E-03	3.78E-03	5.07E-02	1.05E-01	3.76E-03
CM-248	5078.600	8.000	8.000	0.000	22.1555	91.00000	9.90E-03	3.55E-03	6.38E-02	1.31E-01	3.50E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231004_AM SAMPLE QTY: 1.287 G	
DETECTOR NUMBER :78792 AVERAGE %EFFICIENCY :30.5070 % YIELD : 82.901		COUNT DATE:20-JAN-2010 16:41:33 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.41789 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B028.CNF;1115 BKG DATE : 17-JAN-2010 EFF FILE : W028.CNF;319 CAL DATE : 4-JAN-2010

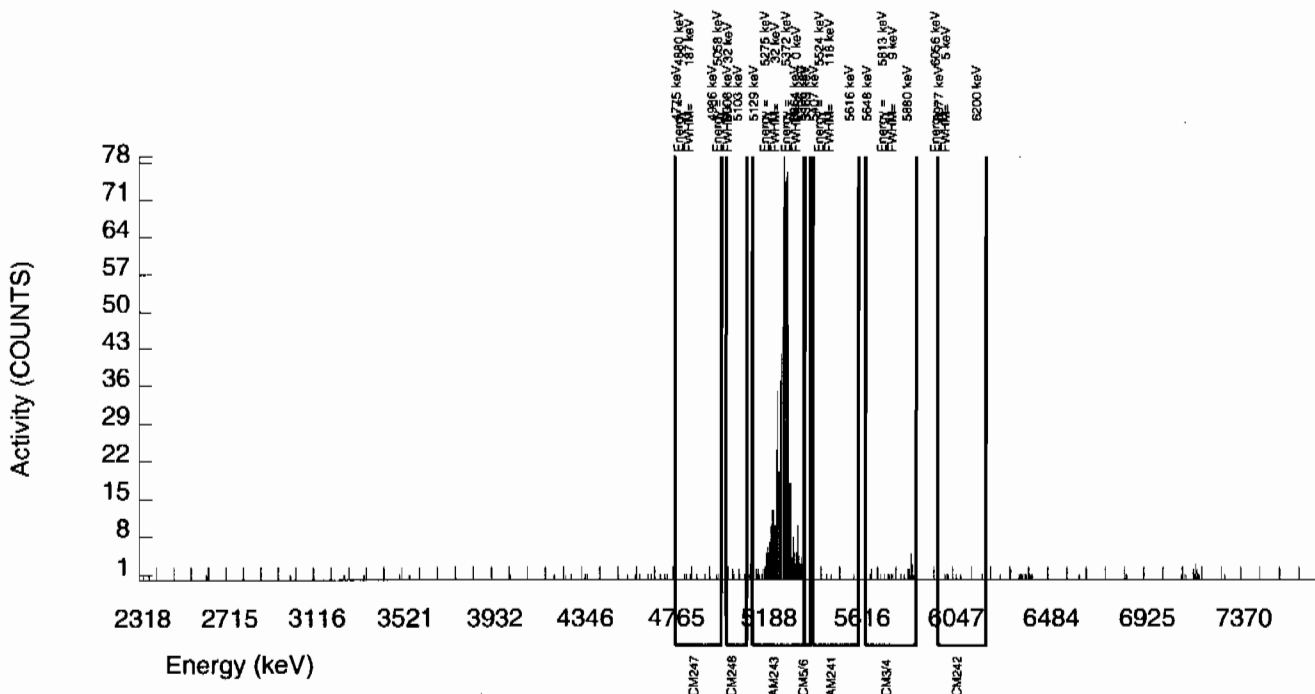
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	26.000	6.000	20.000	5.2338	100.0000	8.32E-03	9.42E-03	1.69E-02	3.75E-02	9.40E-03
CM-5/6	5386.000	2.000	2.000	0.000	19.8463	86.09000	3.22E-03	2.28E-03	7.42E-02	1.53E-01	2.27E-03
AM-241	5479.150	3.000	0.719	1.000	3.0704	99.94000	9.96E-04	2.29E-03	9.89E-03	2.35E-02	2.28E-03
CM-242	6102.000	9.000	6.000	3.000	4.3186	100.0000	8.85E-03	5.14E-03	1.39E-02	3.16E-02	5.11E-03
AM243	5270.000	737.000	736.000	1.000	1.0000	99.78000	1.02E+00	7.47E-02	3.23E-03	1.02E-02	3.77E-02
CM-247	4946.000	8.000	8.000	0.000	15.3366	79.30000	1.40E-02	5.01E-03	6.23E-02	1.29E-01	4.94E-03
CM-248	5078.600	8.000	7.000	1.000	22.1555	91.00000	1.06E-02	4.61E-03	7.84E-02	1.61E-01	4.56E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231005_AM SAMPLE QTY: 1.289 G	
DETECTOR NUMBER :33454 AVERAGE %EFFICIENCY :31.1998 % YIELD : 90.092		COUNT DATE:20-JAN-2010 16:41:33 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.62760 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B029.CNF;1106 BKG DATE : 17-JAN-2010 EFF FILE : W029.CNF;318 CAL DATE : 4-JAN-2010

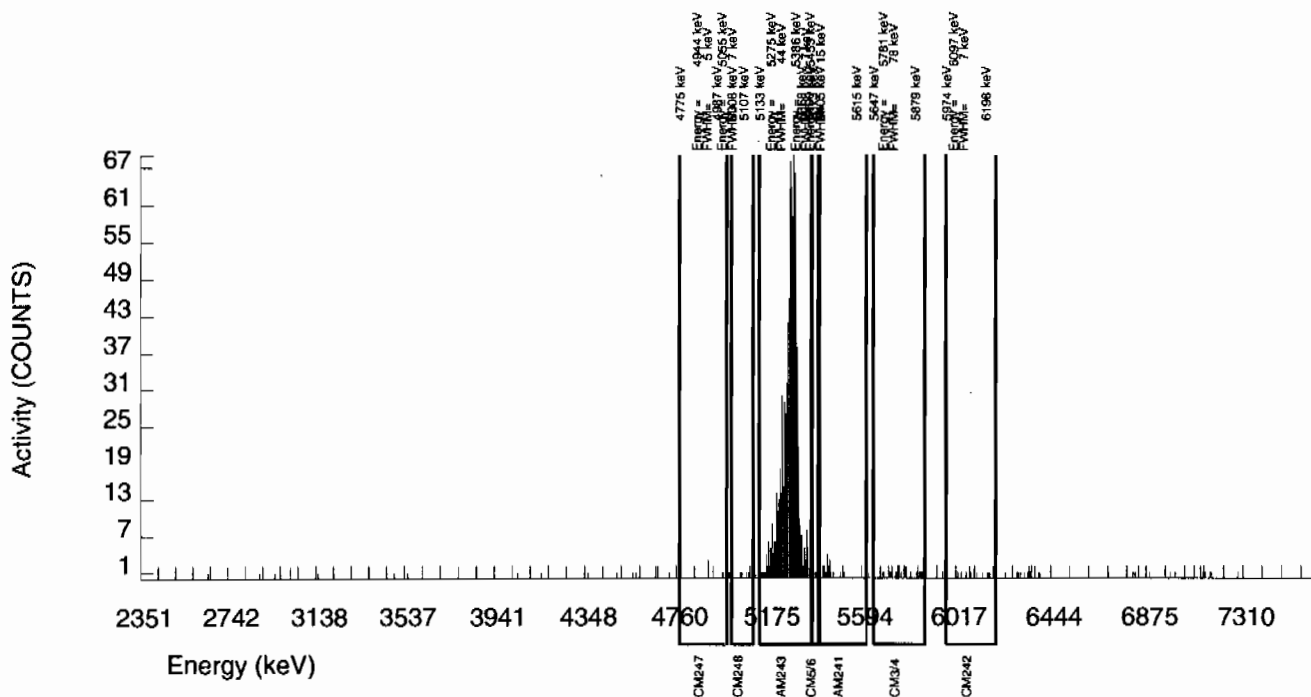
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	29.000	9.000	20.000	5.2338	100.0000	1.12E-02	8.74E-03	1.51E-02	3.36E-02	8.72E-03
CM-5/6	5386.000	6.000	5.000	1.000	19.8463	86.09000	7.22E-03	3.85E-03	6.67E-02	1.37E-01	3.82E-03
AM-241	5479.150	19.000	5.576	12.000	3.0704	99.94000	6.94E-03	6.78E-03	8.89E-03	2.11E-02	6.77E-03
CM-242	6102.000	14.000	6.000	8.000	4.3186	100.0000	7.95E-03	6.24E-03	1.25E-02	2.84E-02	6.22E-03
AM243	5270.000	824.000	818.000	6.000	2.4495	99.78000	1.02E+00	7.29E-02	7.10E-03	1.76E-02	3.59E-02
CM-247	4946.000	6.000	2.000	4.000	15.3366	79.30000	3.14E-03	4.96E-03	5.59E-02	1.16E-01	4.96E-03
CM-248	5078.600	8.000	7.000	1.000	22.1555	91.00000	9.56E-03	4.14E-03	7.04E-02	1.45E-01	4.10E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231006_AM SAMPLE QTY: 1.262 G	
DETECTOR NUMBER :33447 AVERAGE %EFFICIENCY :32.1103 % YIELD : 89.570		COUNT DATE:20-JAN-2010 16:41:33 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.61239 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B030.CNF;1103 BKG DATE : 17-JAN-2010 EFF FILE : W030.CNF;303 CAL DATE : 4-JAN-2010

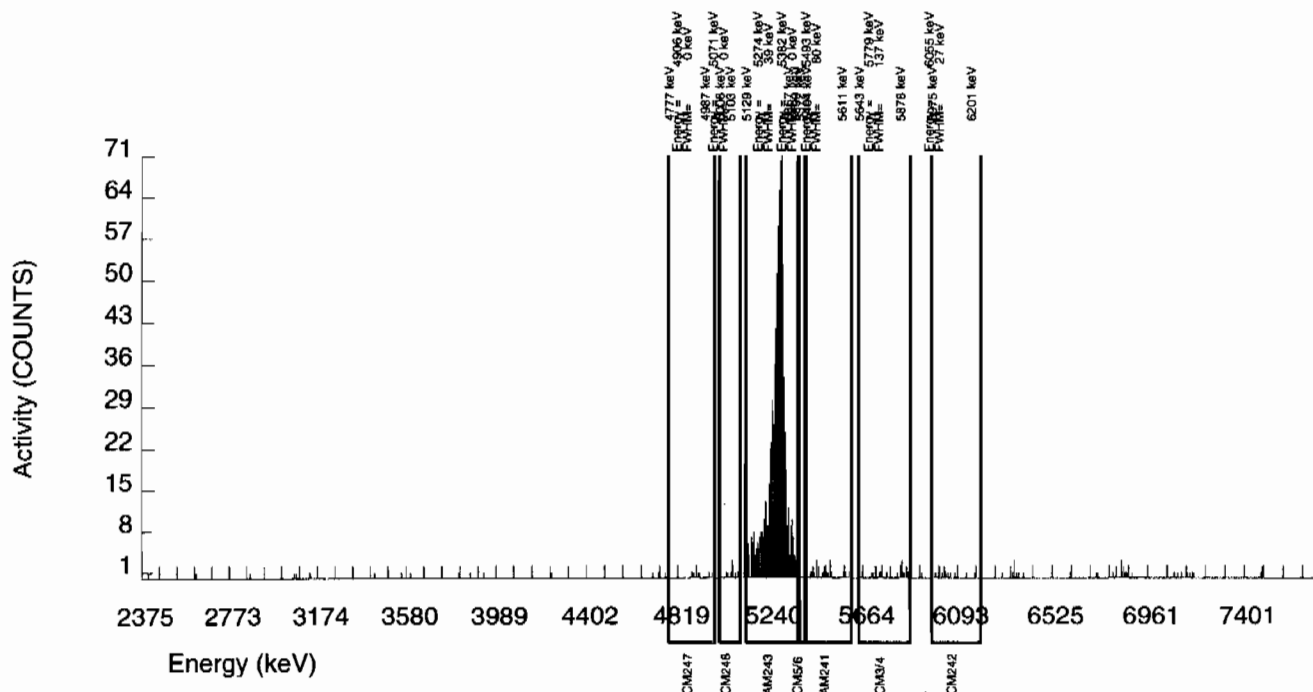
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	23.000	0.000	23.000	5.2338	100.0000	2.37E-09	8.43E-03	1.51E-02	3.36E-02	8.43E-03
CM-5/6	5386.000	13.000	13.000	0.000	19.8463	86.09000	1.87E-02	5.33E-03	6.66E-02	1.37E-01	5.20E-03
AM-241	5479.150	23.000	9.543	12.000	3.0704	99.94000	1.19E-02	7.23E-03	8.87E-03	2.11E-02	7.19E-03
CM-242	6102.000	13.000	8.000	5.000	4.3186	100.0000	1.06E-02	5.65E-03	1.25E-02	2.83E-02	5.61E-03
AM243	5270.000	840.000	837.000	3.000	1.7321	99.78000	1.04E+00	7.39E-02	5.01E-03	1.34E-02	3.61E-02
CM-247	4946.000	8.000	3.000	5.000	15.3366	79.30000	4.69E-03	5.65E-03	5.58E-02	1.16E-01	5.64E-03
CM-248	5078.600	12.000	10.000	2.000	22.1555	91.00000	1.36E-02	5.17E-03	7.03E-02	1.44E-01	5.10E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 8-JAN-2010 00:00:00.		SAMPLE ID : S0244515006_AM SAMPLE QTY: 1.290 G	
DETECTOR NUMBER :72532 AVERAGE %EFFICIENCY :33.8964 % YIELD : 91.339		COUNT DATE:20-JAN-2010 16:41:35 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.66397 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B038.CNF;1105 BKG DATE : 17-JAN-2010 EFF FILE : W038.CNF;319 CAL DATE : 4-JAN-2010

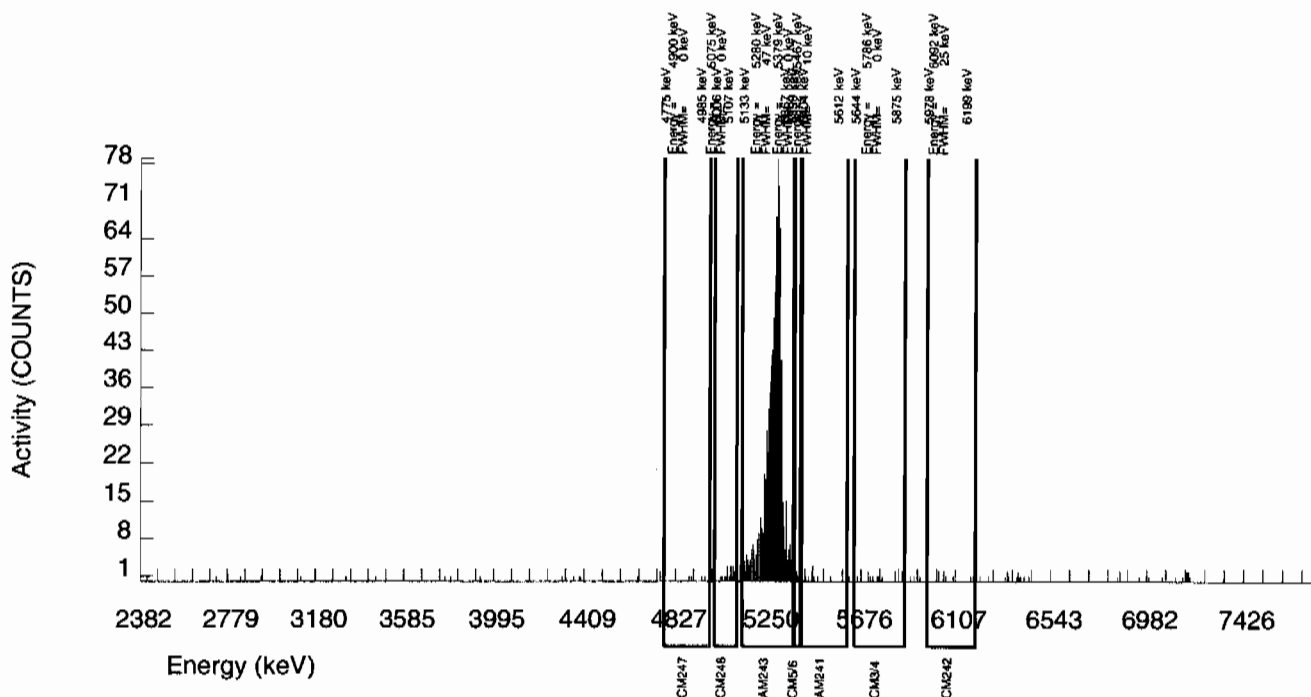
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	15.000	-1.000	16.000	5.2338	100.0000	-1.13E-03	6.29E-03	1.37E-02	3.05E-02	6.29E-03
CM-5/6	5386.000	10.000	10.000	0.000	19.8463	86.09000	1.31E-02	4.22E-03	6.05E-02	1.25E-01	4.14E-03
AM-241	5479.150	10.000	-4.568	13.000	3.0704	99.94000	-5.16E-03	5.23E-03	8.06E-03	1.92E-02	5.22E-03
CM-242	6102.000	8.000	4.000	4.000	4.3186	100.0000	4.77E-03	4.14E-03	1.13E-02	2.57E-02	4.13E-03
AM243	5270.000	904.000	901.000	3.000	1.7321	99.78000	1.02E+00	6.95E-02	4.55E-03	1.22E-02	3.40E-02
CM-247	4946.000	5.000	4.000	1.000	15.3366	79.30000	5.69E-03	3.50E-03	5.07E-02	1.05E-01	3.48E-03
CM-248	5078.600	23.000	23.000	0.000	22.1555	91.00000	2.85E-02	6.18E-03	6.39E-02	1.31E-01	5.94E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 15-JAN-2010 00:00:00		SAMPLE ID : S1202014794_AM SAMPLE QTY: 1.000 G	
DETECTOR NUMBER : 78793 AVERAGE %EFFICIENCY : 33.4897 % YIELD : 94.192		COUNT DATE: 20-JAN-2010 16:41:35 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST : MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.74719 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B042.CNF;1100 BKG DATE : 17-JAN-2010 EFF FILE : W042.CNF;292 CAL DATE : 4-JAN-2010

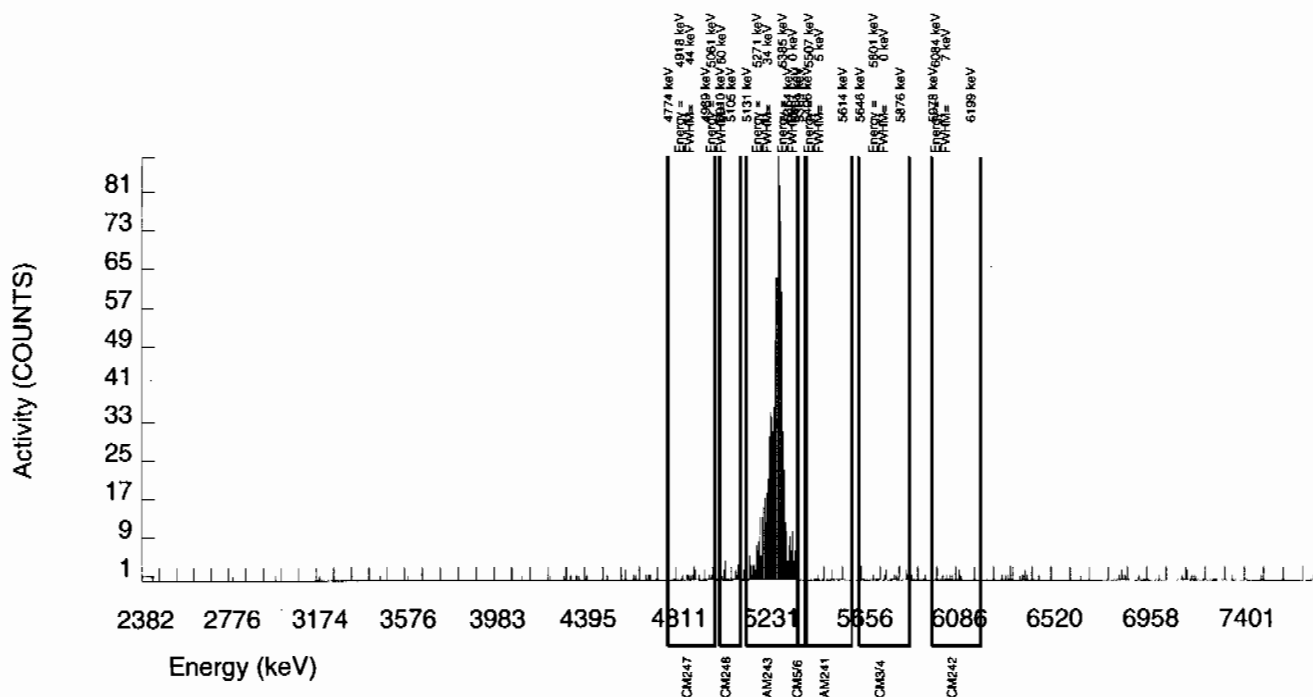
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	13.000	-6.000	19.000	5.2338	100.0000	-8.57E-03	8.08E-03	1.74E-02	3.86E-02	8.08E-03
CM-5/6	5386.000	1.000	1.000	0.000	19.8463	86.09000	1.66E-03	1.66E-03	7.66E-02	1.58E-01	1.66E-03
AM-241	5479.150	3.000	0.402	1.000	3.0704	99.94000	5.75E-04	2.22E-03	1.02E-02	2.43E-02	2.21E-03
CM-242	6102.000	9.000	4.000	5.000	4.3186	100.0000	5.86E-03	5.49E-03	1.43E-02	3.26E-02	5.48E-03
AM243	5270.000	923.000	918.000	5.000	2.2361	99.78000	1.31E+00	8.95E-02	7.44E-03	1.88E-02	4.36E-02
CM-247	4946.000	13.000	12.000	1.000	15.3366	79.30000	2.16E-02	6.86E-03	6.42E-02	1.33E-01	6.74E-03
CM-248	5078.600	14.000	13.000	1.000	22.1555	91.00000	2.04E-02	6.20E-03	8.09E-02	1.66E-01	6.08E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 8-JAN-2010 00:00:00.		SAMPLE ID : S1202014795_AM SAMPLE QTY: 1.269 G	
DETECTOR NUMBER :68551 AVERAGE %EFFICIENCY :31.0643 % YIELD : 89.047		COUNT DATE:20-JAN-2010 16:41:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 2.59712 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B065.CNF;1936 BKG DATE : 17-JAN-2010 EFF FILE : W065.CNF;305 CAL DATE : 11-JAN-2010

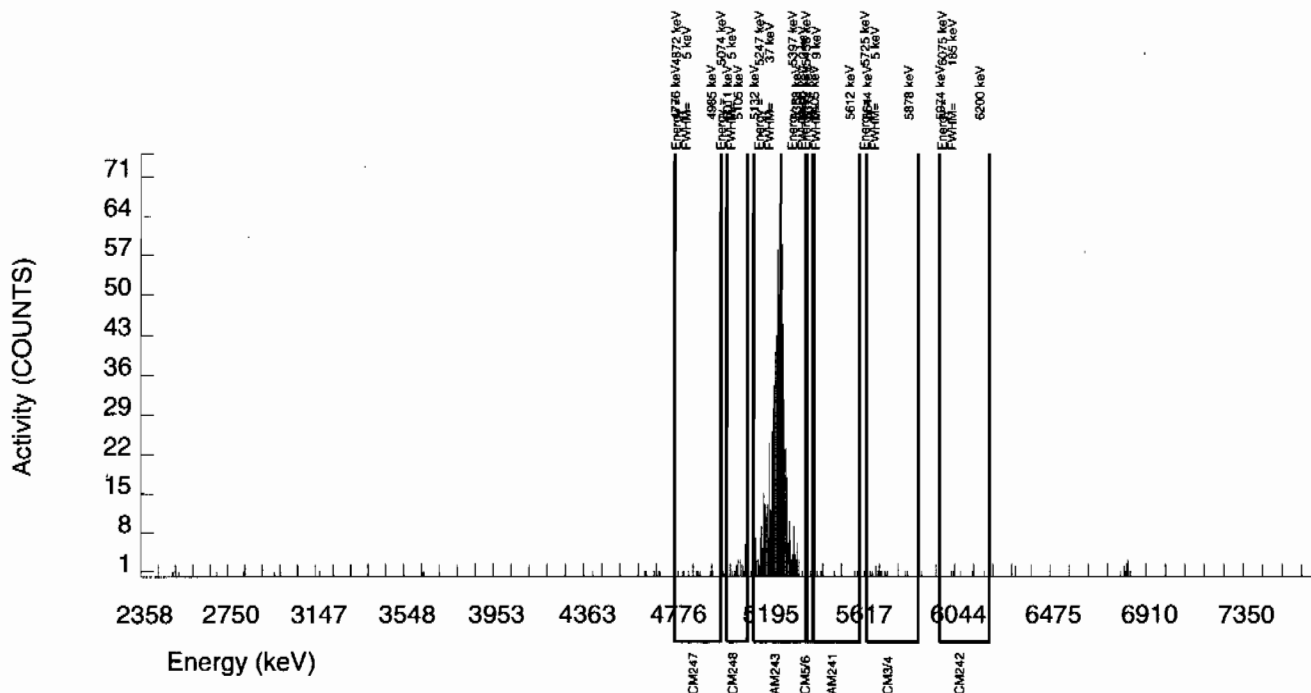
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	12.000	-4.000	16.000	5.2338	100.0000	-5.14E-03	6.80E-03	1.56E-02	3.47E-02	6.80E-03
CM-5/6	5386.000	2.000	-3.000	5.000	19.8463	86.09000	-4.47E-03	3.94E-03	6.88E-02	1.42E-01	3.94E-03
AM-241	5479.150	13.000	0.599	11.000	3.0704	99.94000	7.69E-04	6.10E-03	9.17E-03	2.18E-02	6.10E-03
CM-242	6102.000	6.000	4.000	2.000	4.3186	100.0000	5.43E-03	3.85E-03	1.29E-02	2.93E-02	3.84E-03
AM243	5270.000	807.000	805.000	2.000	1.4142	99.78000	1.04E+00	7.27E-02	4.23E-03	1.19E-02	3.66E-02
CM-247	4946.000	13.000	11.000	2.000	15.3366	79.30000	1.78E-02	6.36E-03	5.77E-02	1.20E-01	6.27E-03
CM-248	5078.600	23.000	22.000	1.000	22.1555	91.00000	3.10E-02	7.16E-03	7.27E-02	1.49E-01	6.91E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941346 SAMPLE DATE : 15-JAN-2010 00:00:00			SAMPLE ID : S1202014796_AM SAMPLE QTY: 0.140 G		
DETECTOR NUMBER :46-089C1 AVERAGE %EFFICIENCY :31.1641 % YIELD : 61.416			COUNT DATE:20-JAN-2010 16:41:37 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1		
MS/MSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	LCS/LCSD ID : 0244-B ISOTOPE : AM-241 PCI/G : 3.316E+01	TRACER ID : 445-96-2-SS ISOTOPE : AM243 NOMINAL : 2.91658 dpm RESULTS : 1.79126 dpm	LIB FILE : ENV_ALPHA_AM.N BKG FILE : B066.CNF;1097 BKG DATE : 17-JAN-2010 EFF FILE : W066.CNF;306 CAL DATE : 11-JAN-2010		

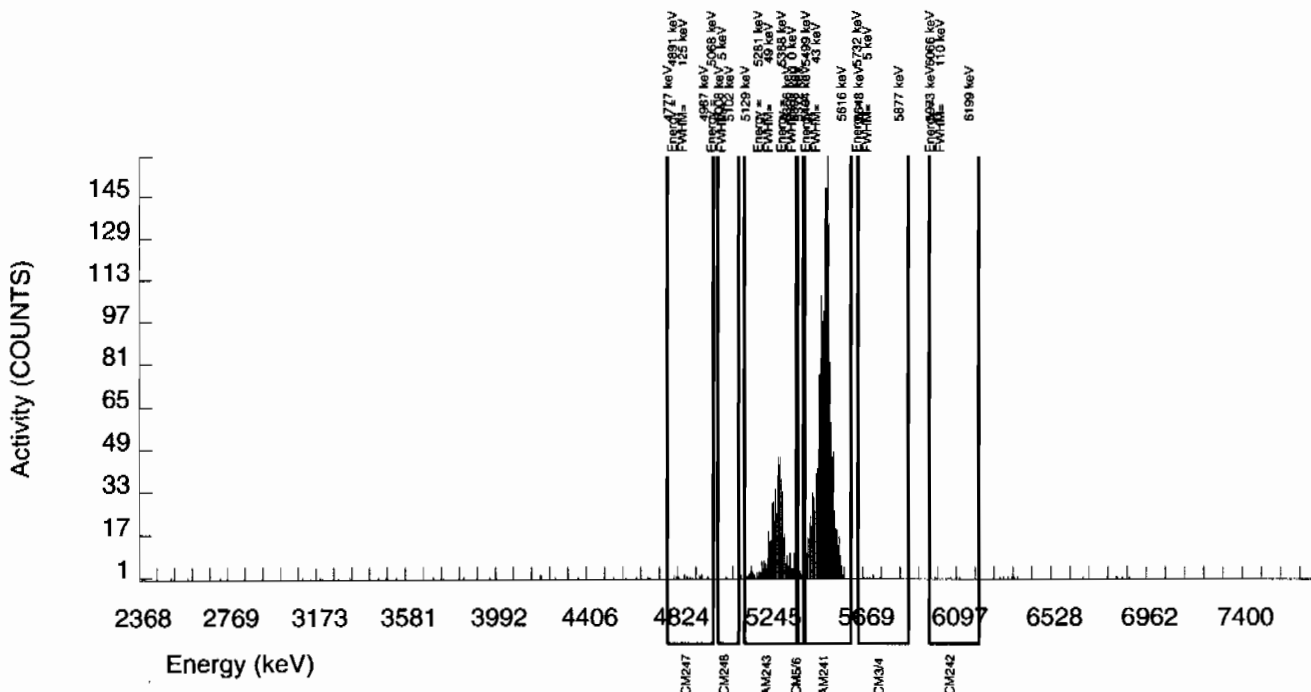
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
CM-3/4	5795.020	7.000	-7.000	14.000	5.2338	100.0000	-1.18E-01	7.71E-02	2.05E-01	4.55E-01	7.71E-02
CM-5/6	5386.000	33.000	33.000	0.000	19.8463	86.09000	6.44E-01	1.21E-01	9.02E-01	1.86E+00	1.12E-01
AM-241	5479.150	1734.000	1728.031	5.000	3.0704	99.94000	2.91E+01	2.13E+00	1.20E-01	2.86E-01	7.01E-01
CM-242	6102.000	3.000	0.000	3.000	4.3186	100.0000	0.00E+00	4.23E-02	1.69E-01	3.83E-01	4.22E-02
AM243	5270.000	563.000	557.000	6.000	2.4495	99.78000	9.38E+00	7.64E-01	9.60E-02	2.38E-01	4.02E-01
CM-247	4946.000	17.000	11.000	6.000	15.3366	79.30000	2.33E-01	1.03E-01	7.56E-01	1.57E+00	1.02E-01
CM-248	5078.600	7.000	3.000	4.000	22.1555	91.00000	5.54E-02	6.14E-02	9.52E-01	1.95E+00	6.13E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of AM243 calculated as sqrt(BKG AREA)

NOTE: Corrections made to AM-241 net area due to tracer impurity



# Radiochemistry Batch Checklist, Rev10

Batch# 941853 Product: Pu Date: 1/21/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		case narrative
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDL/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.	✓		
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By: [Signature] 1/25/10

Secondary Review Performed By: JapLMR 1/22/10

LANL

1/23- 2/2

## Plutonium Que Sheet

13-JAN-10

Batch #: 941353 Analyst: MXE1 First Client Due Date: 02-FEB-10 Internal Due Date: 23-JAN-10  
 Tracer Isotope(s): Pu-238/Pu-238 Tracer Code: 1314-A Expiration Date: 12/18/10 Vol: 0.1  
 LCS Isotope(s): Pu-239/Pu-238 LCS Code: Expiration Date: Vol: 1  
 Spike Isotope(s): Pu-239/Pu-238 Spike Code: Expiration Date: Vol: 1  
 Prep Date: 1/15/10 Initials: MB Pipet ID: 2971058 Balance ID: 50410272 Witness: JAO 01/15/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Ally Aliquot	Pu Det #
244231001-1	RE12-10-7709	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	1	1	1.284	71
244231002-1	RE12-10-7711	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	2	2	1.253	72
244231003-1	RE12-10-7712	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	3	3	1.253	73
244231004-1	RE12-10-7716	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	4	4	1.287	74
244231005-1	RE12-10-7718	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	5	5	1.289	75
244231006-1	RE12-10-7713	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	6	6	1.262	76
244515001-1	RE46-10-10025	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	7	7	1.252	77
244515002-1	RE46-10-10026	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	8	8	1.267	78
244515003-1	RE46-10-10018	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	9	9	1.263	79
244515004-1	RE46-10-10022	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	10	10	1.265	80
244515005-1	RE46-10-10053	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	11	11	1.271	81
244515006-1	RE46-10-10024	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	12	12	1.290	82
244515007-1	RE46-10-10021	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	13	13	1.265	83
244515008-1	RE46-10-10023	SAMPLE	.05 pCi/g		SOIL	LANL010	08-JAN-10	14	14	1.271	84
244519003-1	RE16-10-420	SAMPLE	.05 pCi/g		SOIL	LANL010	06-JAN-10	15	15	1.259	85
1202014797-1	MB for batch 941353	MB	.05 pCi/g		SOIL	QC ACCOUNT		16	16	1.269	86
1202014798-1	RE46-10-10024(244515006DUP)	DUP	.05 pCi/g		SOIL	QC ACCOUNT	08-JAN-10	17	17	0.140	87
1202014799-1	LCS for batch 941353	LCS	.05 pCi/g		SOIL	QC ACCOUNT		18	18		88

\*SRM 0244-B exp 04/30/20 0.140g  
 01/15/10

Choose SOP Used: GL-RAD-A-011, GL-RAD-A-036, GL-RAD-A-045, GL-RAD-A-043

Solid Sample Dissolution by LEACH or DIGESTION  
 Circle One

Data Reviewed By: *[Signature]* 1/21/10

GEL Laboratories LLC, Radiochemistry Division

Page: 1 of 1

*[Signature]* 1/22/10

# Blank Correction Report

Batch ID 941353

GEL Sample ID	Client sample ID	Parameter	Alliquot	Result	TPU	MDA	Alliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014798	DUP	Plutonium-238	1.27 g	0.00501	0.0047	0.0207	-.00112598	pCi/g	NO
		Plutonium-239/240	1.27 g	-0.00125	0.00416	0.0237	.004511811	pCi/g	YES
1202014799	LCS	Plutonium-238	0.140 g	7.19	0.489	0.178	-.01021429	pCi/g	NO
		Plutonium-239/240	0.140 g	37.4	2.18	0.204	.040928571	pCi/g	NO
1202014797	MB	Plutonium-238	1.00 g	-0.00143	0.00321	0.0237	-.00143	pCi/g	NO
		Plutonium-239/240	1.00 g	0.00573	0.00352	0.0271	.00573	pCi/g	YES
244231001	RE12-10-7709	Plutonium-238	1.28 g	-2.41E-09	0.00667	0.0208	-.00111719	pCi/g	NO
		Plutonium-239/240	1.28 g	0.0353	0.00736	0.0238	.004476563	pCi/g	NO
244231002	RE12-10-7711	Plutonium-238	1.25 g	0.00509	0.0057	0.021	-.001144	pCi/g	NO
		Plutonium-239/240	1.25 g	0.0458	0.00819	0.0241	.004584	pCi/g	NO
244231003	RE12-10-7712	Plutonium-238	1.25 g	-0.00115	0.00162	0.019	-.001144	pCi/g	NO
		Plutonium-239/240	1.25 g	0.00574	0.00258	0.0217	.004584	pCi/g	YES
244231004	RE12-10-7716	Plutonium-238	1.29 g	0.00514	0.00365	0.0212	-.00110853	pCi/g	NO
		Plutonium-239/240	1.29 g	0.00643	0.00289	0.0243	.004441860	pCi/g	YES
244231005	RE12-10-7718	Plutonium-238	1.29 g	0.00335	0.00194	0.0184	-.00110853	pCi/g	NO
		Plutonium-239/240	1.29 g	0.0156	0.00453	0.0211	.004441860	pCi/g	YES
244231006	RE12-10-7713	Plutonium-238	1.26 g	0.00135	0.00135	0.0223	-.00113492	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0404	0.00813	0.0255	.004547619	pCi/g	NO
244515001	RE46-10-10025	Plutonium-238	1.25 g	7.28E-10	0.00529	0.0252	-.001144	pCi/g	NO
		Plutonium-239/240	1.25 g	-0.00153	0.00216	0.0288	.004584	pCi/g	YES
244515002	RE46-10-10026	Plutonium-238	1.26 g	0.00	0.00134	0.0156	-.00113492	pCi/g	NO
		Plutonium-239/240	1.26 g	0.000946	0.00164	0.0179	.004547619	pCi/g	YES
244515003	RE46-10-10018	Plutonium-238	1.26 g	0.00405	0.00235	0.0223	-.00113492	pCi/g	NO
		Plutonium-239/240	1.26 g	0.00135	0.00302	0.0255	.004547619	pCi/g	YES
244515004	RE46-10-10022	Plutonium-238	1.27 g	-0.00233	0.00202	0.0193	-.00112598	pCi/g	NO
		Plutonium-239/240	1.27 g	0.0035	0.00203	0.0221	.004511811	pCi/g	YES
244515005	RE46-10-10053	Plutonium-238	1.27 g	2.76E-10	0.00284	0.0191	-.00112598	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00232	0.00164	0.0219	.004511811	pCi/g	YES
244515006	RE46-10-10024	Plutonium-238	1.29 g	0.00175	0.00304	0.029	-.00110853	pCi/g	NO
		Plutonium-239/240	1.29 g	0.00175	0.00392	0.0331	.004441860	pCi/g	YES
244515007	RE46-10-10021	Plutonium-238	1.27 g	-0.00539	0.00444	0.0178	-.00112598	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00862	0.00343	0.0204	.004511811	pCi/g	YES
244515008	RE46-10-10023	Plutonium-238	1.27 g	-0.00117	0.00203	0.0194	-.00112598	pCi/g	NO
		Plutonium-239/240	1.27 g	0.00352	0.00353	0.0222	.004511811	pCi/g	YES
244519003	RE16-10-420	Plutonium-238	1.26 g	0.00	0.00161	0.0187	-.00113492	pCi/g	NO
		Plutonium-239/240	1.26 g	0.0261	0.00559	0.0214	.004547619	pCi/g	NO

301  
11/22/10

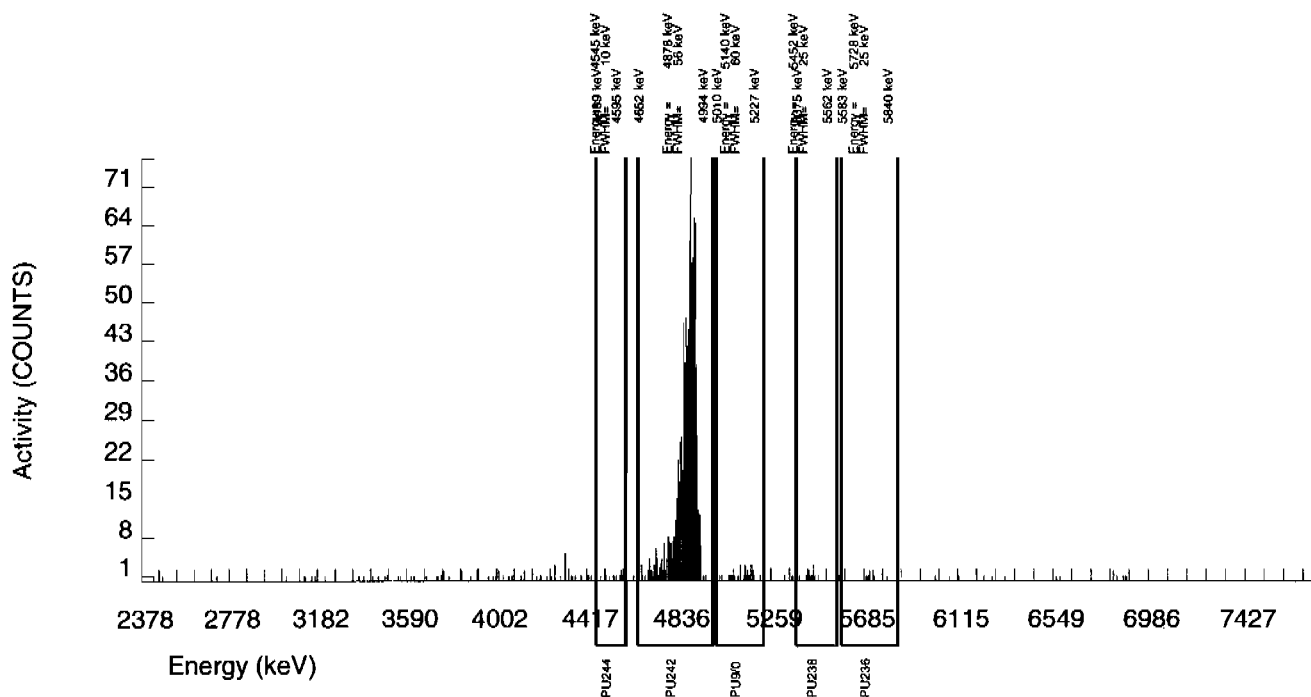
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231001_PU SAMPLE QTY: 1.284 G	
DETECTOR NUMBER :64259 AVERAGE %EFFICIENCY :32.3636 % YIELD : 86.068		COUNT DATE:19-JAN-2010 19:34:46 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.91376 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B071.CNF;1093 BKG DATE : 17-JAN-2010 EFF FILE : W071.CNF;284 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	30.000	28.000	2.000	3.4797	99.90000	3.53E-02	7.36E-03	1.02E-02	2.38E-02	7.13E-03
PU-236	5749.000	9.000	0.000	9.000	2.1286	100.0000	-1.21E-09	5.39E-03	6.24E-03	1.59E-02	5.39E-03
PU-238	5499.000	14.000	0.000	14.000	2.9680	99.90000	-2.41E-09	6.67E-03	8.70E-03	2.08E-02	6.67E-03
PU242	4890.000	945.000	943.000	2.000	1.4142	100.0000	1.19E+00	7.23E-02	4.14E-03	1.17E-02	3.88E-02
PU-244	4589.000	11.000	10.000	1.000	5.2050	99.90000	1.26E-02	4.42E-03	1.53E-02	3.39E-02	4.37E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





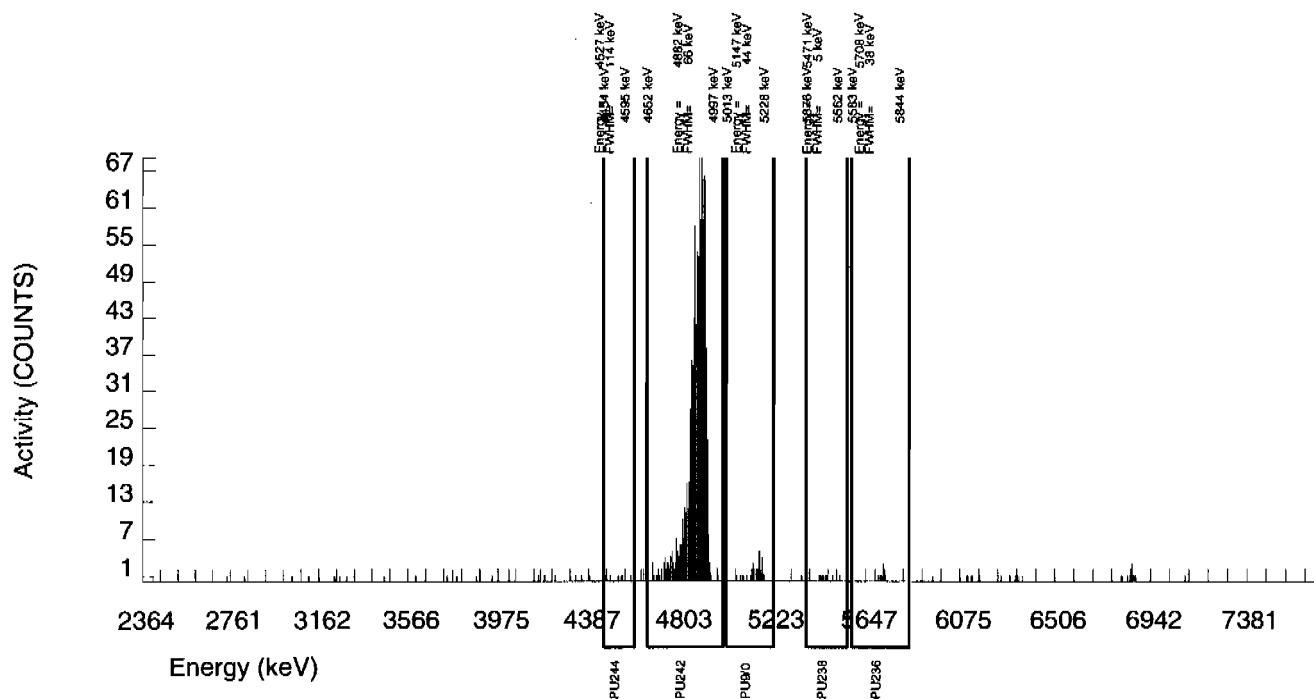
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231002_PU SAMPLE QTY: 1.253 G	
DETECTOR NUMBER :45-149AA3 AVERAGE %EFFICIENCY :32.2361 % YIELD : 87.691		COUNT DATE:19-JAN-2010 19:34:46 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.96872 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B072.CNF;1091 BKG DATE : 17-JAN-2010 EFF FILE : W072.CNF;275 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	37.000	36.000	1.000	3.4797	99.90000	4.58E-02	8.19E-03	1.03E-02	2.41E-02	7.85E-03
PU-236	5749.000	11.000	-6.000	17.000	2.1286	100.0000	-7.70E-03	6.79E-03	6.30E-03	1.60E-02	6.79E-03
PU-238	5499.000	12.000	4.000	8.000	2.9680	99.90000	5.09E-03	5.70E-03	8.79E-03	2.10E-02	5.69E-03
PU242	4890.000	962.000	957.000	5.000	2.2361	100.0000	1.22E+00	7.39E-02	6.62E-03	1.67E-02	3.95E-02
PU-244	4589.000	6.000	5.000	1.000	5.2050	99.90000	6.37E-03	3.38E-03	1.54E-02	3.43E-02	3.37E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



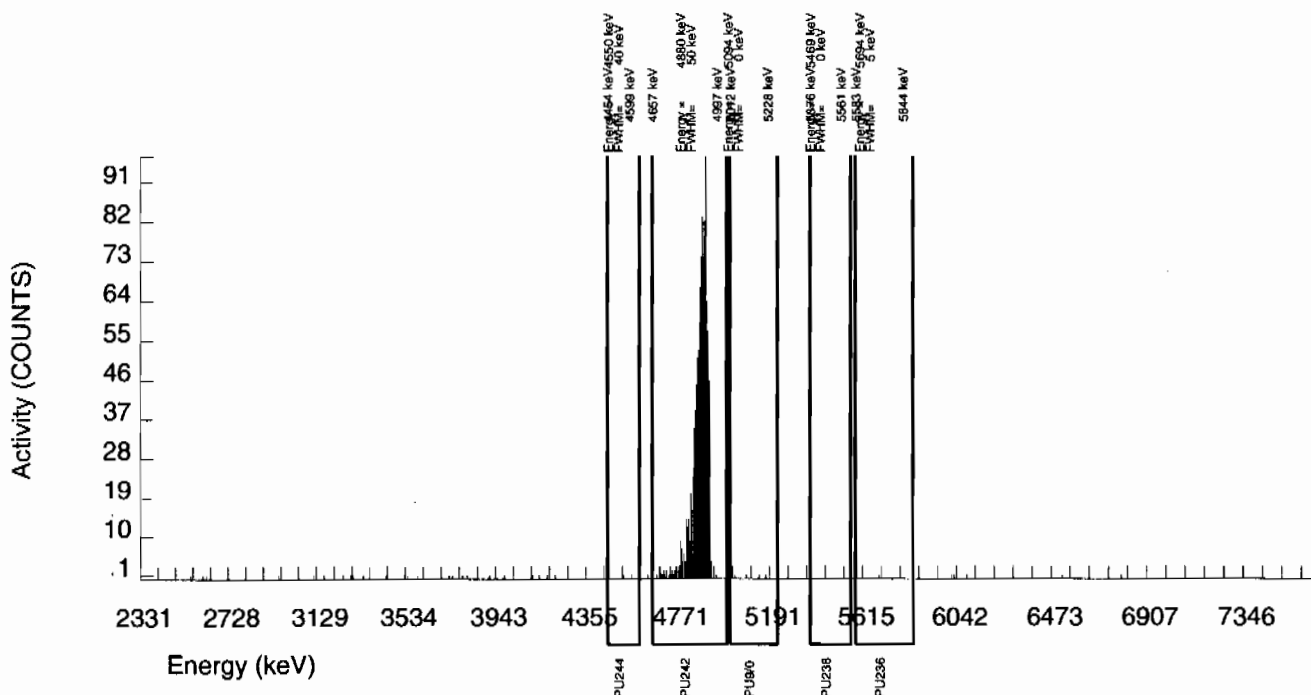
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231003_PU SAMPLE QTY: 1.253 G	
DETECTOR NUMBER :78775 AVERAGE %EFFICIENCY :33.5654 % YIELD : 93.458		COUNT DATE:19-JAN-2010 19:34:46 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.16397 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B073.CNF;1093 BKG DATE : 17-JAN-2010 EFF FILE : W073.CNF;283 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	5.000	5.000	0.000	3.4797	99.90000	5.74E-03	2.58E-03	9.29E-03	2.17E-02	2.57E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.16E-03	1.16E-03	5.67E-03	1.45E-02	1.16E-03
PU-238	5499.000	0.000	-1.000	1.000	2.9680	99.90000	-1.15E-03	1.62E-03	7.92E-03	1.90E-02	1.62E-03
PU242	4890.000	1063.000	1062.000	1.000	1.0000	100.0000	1.22E+00	7.16E-02	2.67E-03	8.44E-03	3.74E-02
PU-244	4589.000	2.000	2.000	0.000	5.2050	99.90000	2.29E-03	1.63E-03	1.39E-02	3.09E-02	1.62E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

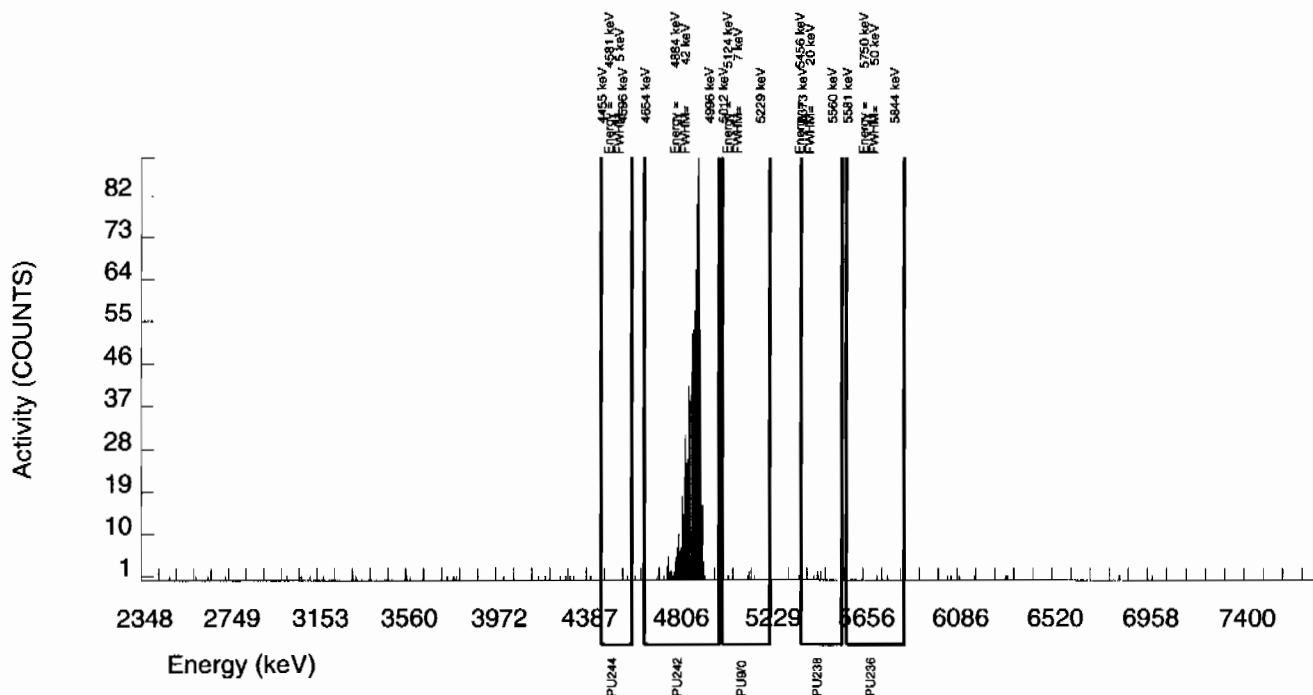
BATCH NUMBER: 941353 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231004_PU SAMPLE QTY: 1.287 G	
DETECTOR NUMBER :78266 AVERAGE %EFFICIENCY :31.6797 % YIELD : 86.061		COUNT DATE:19-JAN-2010 19:34:46 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.91354 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B074.CNF;1115 BKG DATE : 17-JAN-2010 EFF FILE : W074.CNF;330 CAL DATE : 11-JAN-2010

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	5.000	5.000	0.000	3.4797	99.90000	6.43E-03	2.89E-03	1.04E-02	2.43E-02	2.87E-03
PU-236	5749.000	2.000	0.000	2.000	2.1286	100.0000	-3.09E-10	2.59E-03	6.36E-03	1.62E-02	2.59E-03
PU-238	5499.000	6.000	4.000	2.000	2.9680	99.90000	5.14E-03	3.65E-03	8.87E-03	2.12E-02	3.64E-03
PU242	4890.000	927.000	923.000	4.000	2.0000	100.0000	1.18E+00	7.27E-02	5.97E-03	1.54E-02	3.92E-02
PU-244	4589.000	1.000	-2.000	3.000	5.2050	99.90000	-2.57E-03	2.57E-03	1.56E-02	3.46E-02	2.57E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



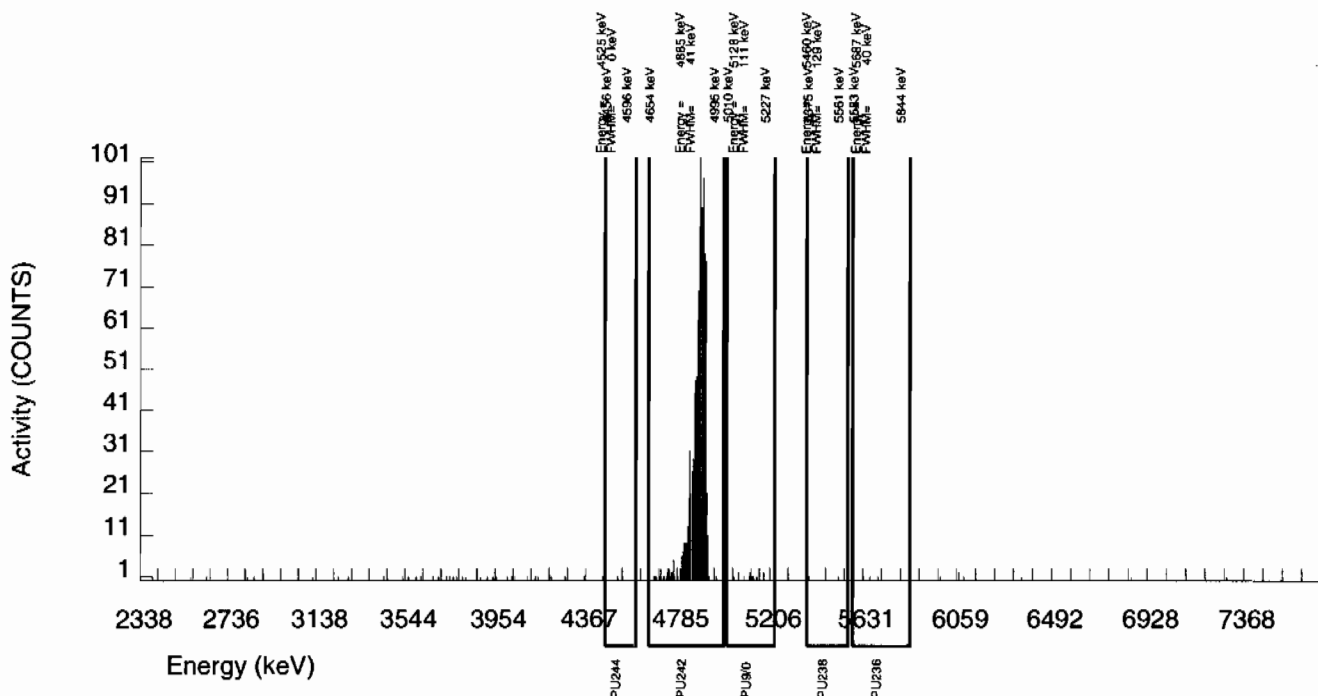
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231005_PU SAMPLE QTY: 1.289 G	
DETECTOR NUMBER :80010 AVERAGE %EFFICIENCY :30.2754 % YIELD : 103.614		COUNT DATE:19-JAN-2010 19:34:46 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.50779 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B075.CNF;1096 BKG DATE : 17-JAN-2010 EFF FILE : W075.CNF;288 CAL DATE : 12-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	15.000	14.000	1.000	3.4797	99.90000	1.56E-02	4.53E-03	9.03E-03	2.11E-02	4.46E-03
PU-236	5749.000	2.000	1.000	1.000	2.1286	100.0000	1.12E-03	1.95E-03	5.52E-03	1.41E-02	1.95E-03
PU-238	5499.000	3.000	3.000	0.000	2.9680	99.90000	3.35E-03	1.94E-03	7.70E-03	1.84E-02	1.93E-03
PU242	4890.000	1067.000	1062.000	5.000	2.2361	100.0000	1.18E+00	6.98E-02	5.79E-03	1.46E-02	3.65E-02
PU-244	4589.000	3.000	-1.000	4.000	5.2050	99.90000	-1.12E-03	2.95E-03	1.35E-02	3.00E-02	2.95E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



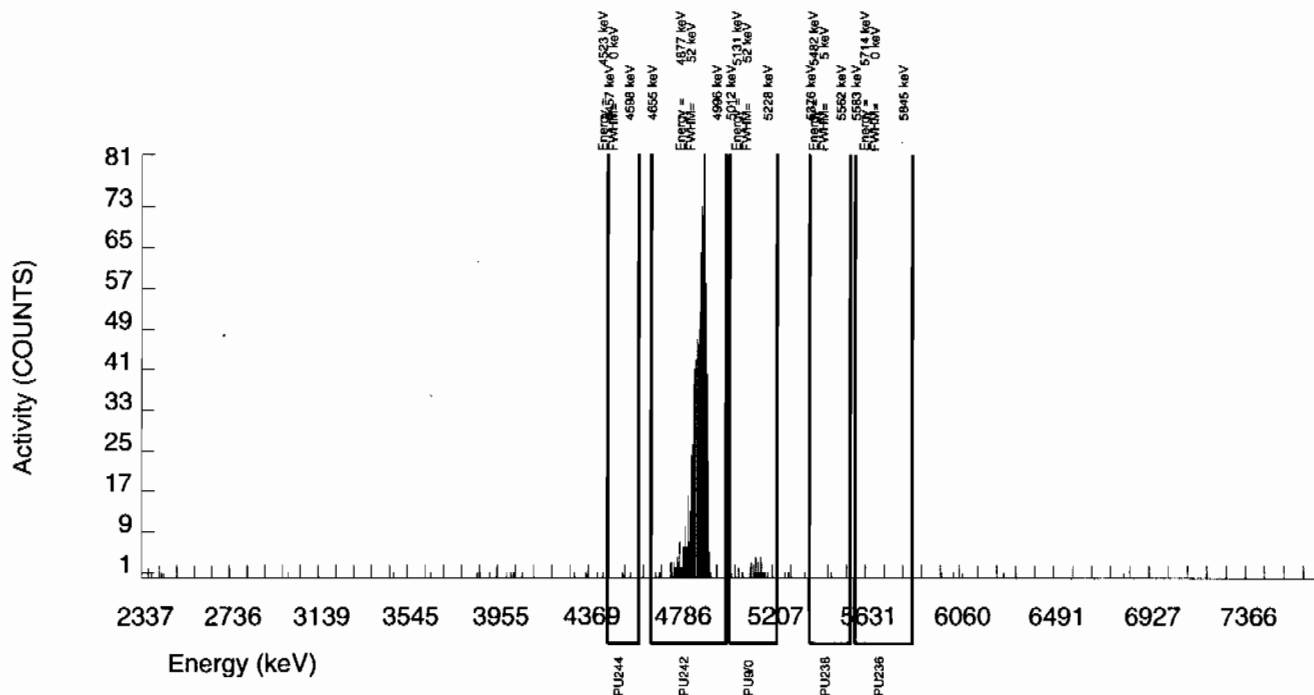
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231006_PU SAMPLE QTY: 1.262 G	
DETECTOR NUMBER : 78779 AVERAGE %EFFICIENCY : 30.8747 % YIELD : 85.913		COUNT DATE: 19-JAN-2010 19:34:46 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST : MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.90853 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B076.CNF;1099 BKG DATE : 17-JAN-2010 EFF FILE : W076.CNF;293 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	32.000	30.000	2.000	3.4797	99.90000	4.04E-02	8.13E-03	1.09E-02	2.55E-02	7.85E-03
PU-236	5749.000	0.000	-1.000	1.000	2.1286	100.0000	-1.36E-03	1.92E-03	6.66E-03	1.70E-02	1.92E-03
PU-238	5499.000	1.000	1.000	0.000	2.9680	99.90000	1.35E-03	1.35E-03	9.30E-03	2.23E-02	1.35E-03
PU242	4890.000	901.000	898.000	3.000	1.7321	100.0000	1.21E+00	7.47E-02	5.42E-03	1.45E-02	4.05E-02
PU-244	4589.000	4.000	4.000	0.000	5.2050	99.90000	5.39E-03	2.71E-03	1.63E-02	3.63E-02	2.69E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



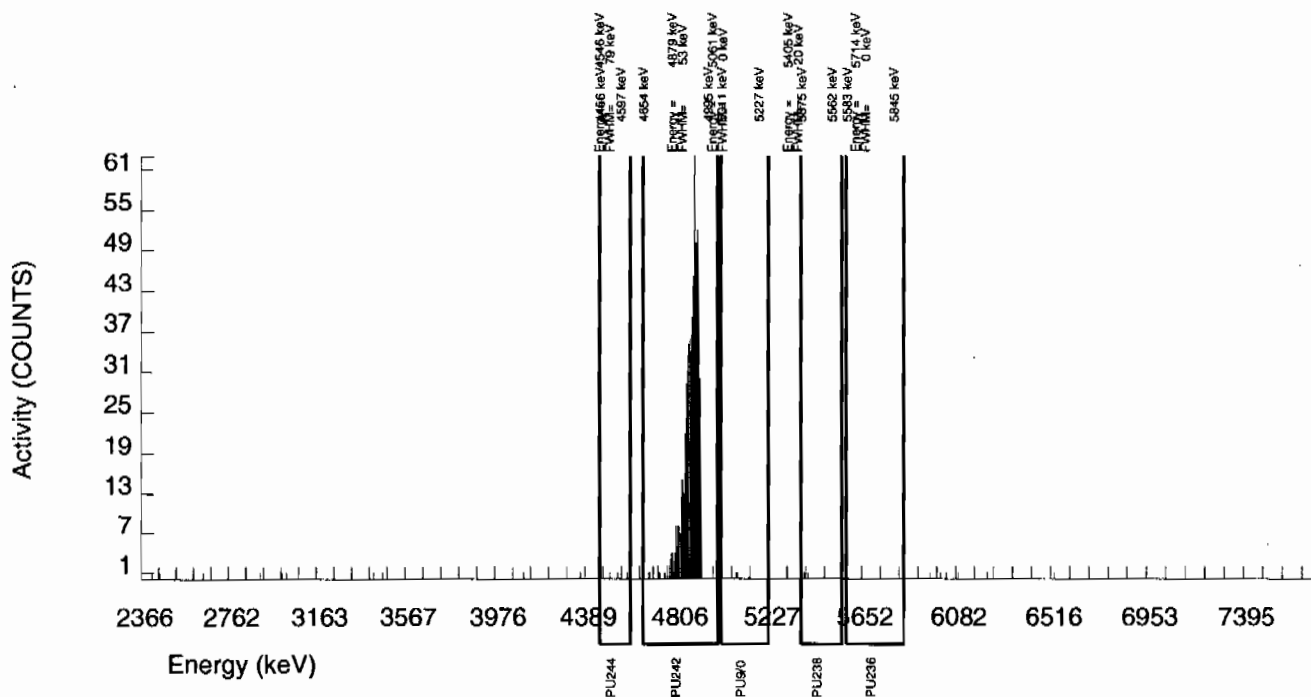
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 8-JAN-2010 00:00:00.		SAMPLE ID : S0244515006_PU SAMPLE QTY: 1.290 G	
DETECTOR NUMBER :79997 AVERAGE %EFFICIENCY :32.2248 % YIELD : 61.873		COUNT DATE:19-JAN-2010 19:34:47 ELAPSED LIVE TIME(SEC): 59999.99 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 2.09466 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B082.CNF;1008 BKG DATE : 17-JAN-2010 EFF FILE : W082.CNF;255 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	3.000	1.000	2.000	3.4797	99.90000	1.75E-03	3.92E-03	1.42E-02	3.31E-02	3.92E-03
PU-236	5749.000	0.000	0.000	0.000	2.1286	100.0000	0.00E+00	1.77E-03	8.67E-03	2.21E-02	1.77E-03
PU-238	5499.000	2.000	1.000	1.000	2.9680	99.90000	1.75E-03	3.04E-03	1.21E-02	2.90E-02	3.04E-03
PU242	4890.000	677.000	675.000	2.000	1.4142	100.0000	1.18E+00	7.98E-02	5.76E-03	1.63E-02	4.56E-02
PU-244	4589.000	3.000	2.000	1.000	5.2050	99.90000	3.51E-03	3.51E-03	2.12E-02	4.72E-02	3.51E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



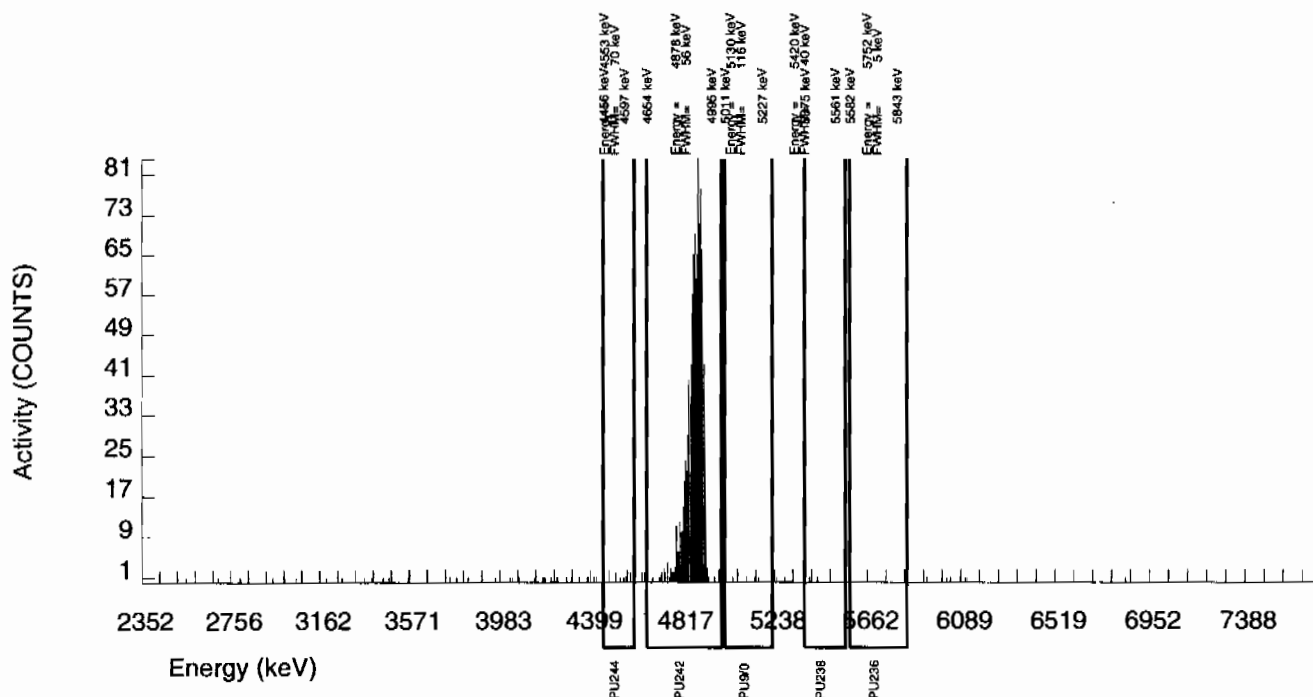
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 15-JAN-2010 00:00:00		SAMPLE ID : S1202014797_PU SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :78198 AVERAGE %EFFICIENCY :29.7986 % YIELD : 105.570		COUNT DATE:19-JAN-2010 19:34:49 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.57399 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B086.CNF;1015 BKG DATE : 17-JAN-2010 EFF FILE : W086.CNF;281 CAL DATE : 11-JAN-2010

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	5.000	4.000	1.000	3.4797	99.90000	5.73E-03	3.52E-03	1.16E-02	2.71E-02	3.51E-03
PU-236	5749.000	1.000	-2.000	3.000	2.1286	100.0000	-2.87E-03	2.87E-03	7.09E-03	1.81E-02	2.87E-03
PU-238	5499.000	2.000	-1.000	3.000	2.9680	99.90000	-1.43E-03	3.21E-03	9.90E-03	2.37E-02	3.21E-03
PU242	4890.000	1071.000	1065.000	6.000	2.4495	100.0000	1.52E+00	9.00E-02	8.16E-03	2.02E-02	4.70E-02
PU-244	4589.000	7.000	4.000	3.000	5.2050	99.90000	5.73E-03	4.54E-03	1.74E-02	3.86E-02	4.53E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

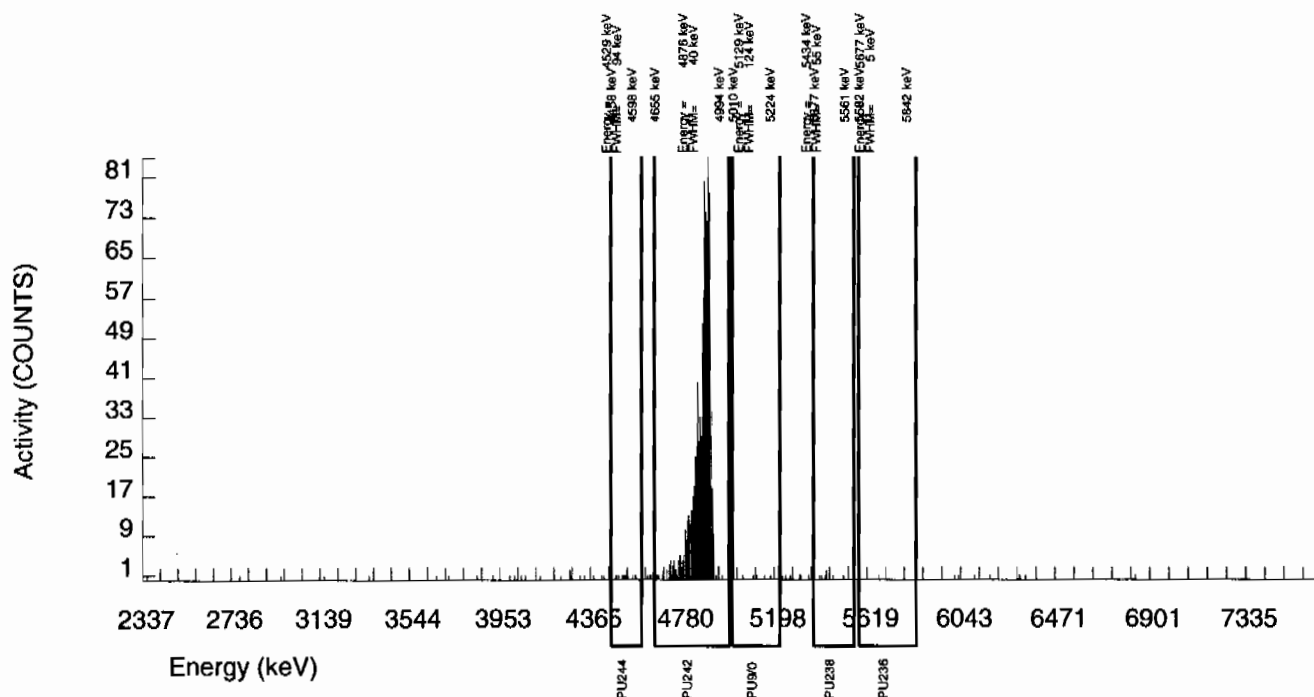
BATCH NUMBER: 941353 SAMPLE DATE : 8-JAN-2010 00:00:00.		SAMPLE ID : S1202014798_PU SAMPLE QTY: 1.269 G	
DETECTOR NUMBER :78199 AVERAGE %EFFICIENCY :31.4743 % YIELD : 90.095		COUNT DATE:19-JAN-2010 19:34:49 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.05010 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B087.CNF;1022 BKG DATE : 17-JAN-2010 EFF FILE : W087.CNF;274 CAL DATE : 11-JAN-2010

## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	5.000	-1.000	6.000	3.4797	99.90000	-1.25E-03	4.16E-03	1.01E-02	2.37E-02	4.16E-03
PU-236	5749.000	1.000	1.000	0.000	2.1286	100.0000	1.26E-03	1.26E-03	6.20E-03	1.58E-02	1.26E-03
PU-238	5499.000	9.000	4.000	5.000	2.9680	99.90000	5.01E-03	4.70E-03	8.65E-03	2.07E-02	4.69E-03
PU242	4890.000	969.000	960.000	9.000	3.0000	100.0000	1.20E+00	7.31E-02	8.74E-03	2.09E-02	3.91E-02
PU-244	4589.000	11.000	11.000	0.000	5.2050	99.90000	1.38E-02	4.22E-03	1.52E-02	3.37E-02	4.16E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of PU242 calculated as sqrt(BKG AREA)





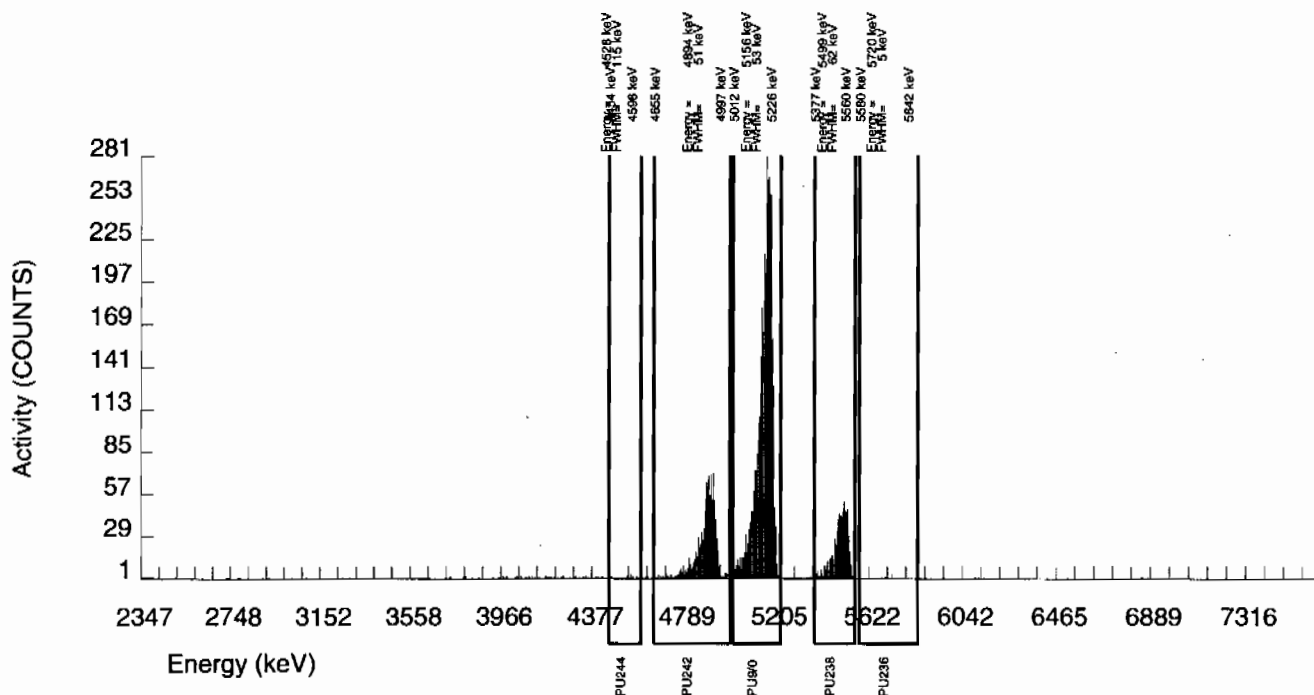
GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941353 SAMPLE DATE : 15-JAN-2010 00:00:00			SAMPLE ID : S1202014799_PU SAMPLE QTY: 0.140 G	
DETECTOR NUMBER :33452 AVERAGE %EFFICIENCY :30.1337 % YIELD : 99.200			COUNT DATE:19-JAN-2010 19:34:49 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	LCS/LCSD ID : 0244-B ISOTOPE : PU-9/0 PCI/G : 4.178E+01	TRACER ID : 1374-A ISOTOPE : PU242 NOMINAL : 3.38543 dpm RESULTS : 3.35836 dpm	LIB FILE : ENV_ALPHA_PU.N BKG FILE : B088.CNF;1010 BKG DATE : 17-JAN-2010 EFF FILE : W088.CNF;284 CAL DATE : 11-JAN-2010	

NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
PU-9/0	5155.000	3477.000	3475.000	2.000	3.4797	99.90000	3.74E+01	2.18E+00	8.72E-02	2.04E-01	6.35E-01
PU-236	5749.000	7.000	-5.000	12.000	2.1286	100.0000	-5.40E-02	4.71E-02	5.33E-02	1.36E-01	4.71E-02
PU-238	5499.000	675.000	667.000	8.000	2.9680	99.90000	7.19E+00	4.89E-01	7.44E-02	1.78E-01	2.82E-01
PU242	4890.000	1013.000	1012.000	1.000	1.0000	100.0000	1.09E+01	6.96E-01	2.50E-02	7.92E-02	3.43E-01
PU-244	4589.000	22.000	22.000	0.000	5.2050	99.90000	2.37E-01	5.22E-02	1.30E-01	2.90E-01	5.05E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)  
NOTE: Sg of PU242 calculated as sqrt(BKG AREA)



## Radiochemistry Batch Checklist, Rev10

Batch#

941354

Product:

U

Date:

1/21/10

Criteria:	Yes	No	Comments
Sample Solids are less than or equal to 100 mg for GAB.			N/A
Samples have been blank corrected (if required)	✓		
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met.	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.	✓		
Tracer yield is 15-125% . Carrier yield 25-125%.	✓		
Or meets the client's contract acceptance criteria.	✓		
Method blank is less than the RDL/ LLD. (If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			N/A
Smears Taken for Radioactive batches.			N/A
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			N/A
Aux data is correct.			N/A
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly statused.	✓		
QC data entered into QC database and batch is in REVW	✓		
Hit notification complete (if necessary)			N/A
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			N/A
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			N/A
Aliquot Correction completed if required.			N/A
Review sample historical results if available (If REMF, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

Denise Green 1/21/10

Secondary Review Performed By:

M. L. L. 1/21/10

# Uranium Que Sheet

13-JAN-10

Batch #: 941354 Analyst: MXE1 First Client Due Date: 02-FEB-10 Internal Due Date: 23-JAN-10  
Tracer Isotope: U-236 Tracer Code: 1283-H Expiration Date: 12/9/10 Vol: 0.1  
LCS Isotope: U-238 LCS Code: Expiration Date: Vol: 1  
Spike Isotope: U-238 Spike Code: Expiration Date: Vol: 1  
Prep Date: 1/6/10 Initials: WJZ Pipet ID: 2471058 Balance ID: 20410272  
Witness: JAO 01/15/10

Sample ID	Client Description	Type	Hazard Code	Min CRDL	Matrix	Client	Collection Date	Pos.	Label #	Wet/Allyquot	U Det #
244231001-1	RE12-10-7709	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	1	1	0.515	113
244231002-1	RE12-10-7711	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	2	2	0.507	114
244231003-1	RE12-10-7712	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	3	3	0.541	115
244231004-1	RE12-10-7716	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	4	4	0.507	117
244231005-1	RE12-10-7718	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	5	5	0.515	118
244231006-1	RE12-10-7713	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	6	6	0.500	119
244515001-1	RE46-10-10025	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	7	7	0.513	120
244515002-1	RE46-10-10026	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	8	8	0.502	123
244515003-1	RE46-10-10018	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	9	9	0.522	124
244515004-1	RE46-10-10022	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	10	10	0.507	125
244515005-1	RE46-10-10053	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	11	11	0.531	126
244515006-1	RE46-10-10024	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	12	12	0.516	127
244515007-1	RE46-10-10021	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	13	13	0.503	128
244515008-1	RE46-10-10023	SAMPLE		.1 pCi/g	SOIL	LANL010	08-JAN-10	14	14	0.506	129
244519003-1	RE16-10-420	SAMPLE		.1 pCi/g	SOIL	LANL010	06-JAN-10	15	15	0.512	130
1202014800-1	MB for batch 941354	MB		.1 pCi/g	SOIL	QC ACCOUNT		16	16	1	131
1202014801-1	RE46-10-10024(244515006DUP)	DUP		.1 pCi/g	SOIL	QC ACCOUNT	08-JAN-10	17	17	0.523	132
1202014802-1	LCS for batch 941354	LCS		.1 pCi/g	SOIL	QC ACCOUNT		18	18	0.111	201

SRM 0244-A 10/31/20 0.111g

Choose SOP used: GL-RAD-A-011

Solid Sample Dissolution by: LEACH or DIGESTION  
Circle One

Data Reviewed By: JAO 1/21/10

# Blank Correction Report

**Batch ID 941354**

GEL Sample ID	Client sample ID	Parameter	Allquot	Result	TPU	MDA	Allquot Corrected Blank Result	Units	Activity <5X Corrected Blank
1202014801	DUP	Uranium-233/234	0.523 g	0.874	0.084	0.114	.041108987	pCi/g	NO
		Uranium-235/236	0.523 g	0.0684	0.0183	0.071	.017151052	pCi/g	YES
		Uranium-238	0.523 g	0.956	0.090	0.0663	.013881453	pCi/g	NO
1202014802	LCS	Uranium-233/234	0.111 g	5.51	0.518	0.517	.193693694	pCi/g	NO
		Uranium-235/236	0.111 g	0.371	0.092	0.321	.080810811	pCi/g	YES
		Uranium-238	0.111 g	5.36	0.506	0.300	.065405405	pCi/g	NO
1202014800	MB	Uranium-233/234	1.00 g	0.0215	0.00643	0.0562	.0215	pCi/g	YES
		Uranium-235/236	1.00 g	0.00897	0.00453	0.0349	.00897	pCi/g	YES
		Uranium-238	1.00 g	0.00726	0.00447	0.0326	.00726	pCi/g	YES
244231001	RE12-10-7709	Uranium-233/234	0.515 g	2.50	0.205	0.124	.041747573	pCi/g	NO
		Uranium-235/236	0.515 g	0.153	0.0296	0.0768	.017417476	pCi/g	NO
		Uranium-238	0.515 g	2.90	0.233	0.0718	.014097087	pCi/g	NO
244231002	RE12-10-7711	Uranium-233/234	0.507 g	2.24	0.185	0.123	.042406312	pCi/g	NO
		Uranium-235/236	0.507 g	0.205	0.0349	0.0761	.017692308	pCi/g	NO
		Uranium-238	0.507 g	3.05	0.243	0.0711	.014319527	pCi/g	NO
244231003	RE12-10-7712	Uranium-233/234	0.541 g	0.739	0.0731	0.110	.039741220	pCi/g	NO
		Uranium-235/236	0.541 g	0.0481	0.0149	0.068	.016580407	pCi/g	YES
		Uranium-238	0.541 g	0.771	0.0755	0.0636	.013419593	pCi/g	NO
244231004	RE12-10-7716	Uranium-233/234	0.507 g	0.580	0.0623	0.114	.042406312	pCi/g	NO
		Uranium-235/236	0.507 g	0.0274	0.0146	0.0711	.017692308	pCi/g	YES
		Uranium-238	0.507 g	0.565	0.0607	0.0664	.014319527	pCi/g	NO
244231005	RE12-10-7718	Uranium-233/234	0.515 g	1.20	0.106	0.105	.041747573	pCi/g	NO
		Uranium-235/236	0.515 g	0.0714	0.018	0.0654	.017417476	pCi/g	YES
		Uranium-238	0.515 g	2.67	0.211	0.0611	.014097087	pCi/g	NO
244231006	RE12-10-7713	Uranium-233/234	0.500 g	2.58	0.209	0.122	.043	pCi/g	NO
		Uranium-235/236	0.500 g	0.116	0.0261	0.0755	.01794	pCi/g	NO
		Uranium-238	0.500 g	2.91	0.232	0.0705	.01452	pCi/g	NO
244515001	RE46-10-10025	Uranium-233/234	0.513 g	0.808	0.0826	0.130	.041910331	pCi/g	NO
		Uranium-235/236	0.513 g	0.0569	0.0176	0.0805	.017485380	pCi/g	YES
		Uranium-238	0.513 g	0.899	0.0889	0.0752	.014152047	pCi/g	NO
244515002	RE46-10-10026	Uranium-233/234	0.502 g	0.857	0.0816	0.109	.042828685	pCi/g	NO
		Uranium-235/236	0.502 g	0.0736	0.0186	0.0674	.017868526	pCi/g	YES
		Uranium-238	0.502 g	0.907	0.0851	0.0629	.014462151	pCi/g	NO
244515003	RE46-10-10018	Uranium-233/234	0.522 g	0.808	0.0791	0.113	.041187739	pCi/g	NO
		Uranium-235/236	0.522 g	0.0855	0.0215	0.0701	.017183908	pCi/g	YES
		Uranium-238	0.522 g	0.827	0.0801	0.0655	.013908046	pCi/g	NO
244515004	RE46-10-10022	Uranium-233/234	0.507 g	0.950	0.0892	0.111	.042406312	pCi/g	NO
		Uranium-235/236	0.507 g	0.0753	0.019	0.069	.017692308	pCi/g	YES
		Uranium-238	0.507 g	0.979	0.091	0.0644	.014319527	pCi/g	NO
244515005	RE46-10-10053	Uranium-233/234	0.531 g	0.887	0.0863	0.120	.040489642	pCi/g	NO
		Uranium-235/236	0.531 g	0.062	0.0178	0.0742	.016892655	pCi/g	YES

# Blank Correction Report

GEL Sample ID	Client sample ID	Parameter	Aliquot	Result	TPU	MDA	Aliquot Corrected Blank Result	Units	Activity <5X Corrected Blank
244515005	RE46-10-10053	Uranium-238	0.531 g	0.980	0.093	0.0694	.013672316	pCi/g	NO
244515006	RE46-10-10024	Uranium-233/234	0.516 g	0.948	0.0926	0.129	.041666667	pCi/g	NO
		Uranium-235/236	0.516 g	0.0413	0.0149	0.0804	.017383721	pCi/g	YES
		Uranium-238	0.516 g	0.969	0.0941	0.0751	.014069767	pCi/g	NO
244515007	RE46-10-10021	Uranium-233/234	0.503 g	0.949	0.0917	0.125	.042743539	pCi/g	NO
		Uranium-235/236	0.503 g	0.0447	0.0168	0.0773	.017833002	pCi/g	YES
		Uranium-238	0.503 g	0.989	0.0946	0.0723	.014433400	pCi/g	NO
244515008	RE46-10-10023	Uranium-233/234	0.506 g	0.894	0.0867	0.119	.042490119	pCi/g	NO
		Uranium-235/236	0.506 g	0.0664	0.0184	0.0739	.017727273	pCi/g	YES
		Uranium-238	0.506 g	0.810	0.080	0.069	.014347826	pCi/g	NO
244519003	RE16-10-420	Uranium-233/234	0.512 g	1.36	0.128	0.151	.041992188	pCi/g	NO
		Uranium-235/236	0.512 g	0.0604	0.023	0.094	.017519531	pCi/g	YES
		Uranium-238	0.512 g	1.13	0.111	0.0878	.014179688	pCi/g	NO

GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231001_UU SAMPLE QTY: 0.515 G	
DETECTOR NUMBER :45-111B4 AVERAGE %EFFICIENCY :24.7855 % YIELD : 88.355		COUNT DATE:20-JAN-2010 20:14:53 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50890 dpm RESULTS : 3.98383 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B113.CNF;438 BKG DATE : 17-JAN-2010 EFF FILE : W113.CNF;123 CAL DATE : 18-JAN-2010

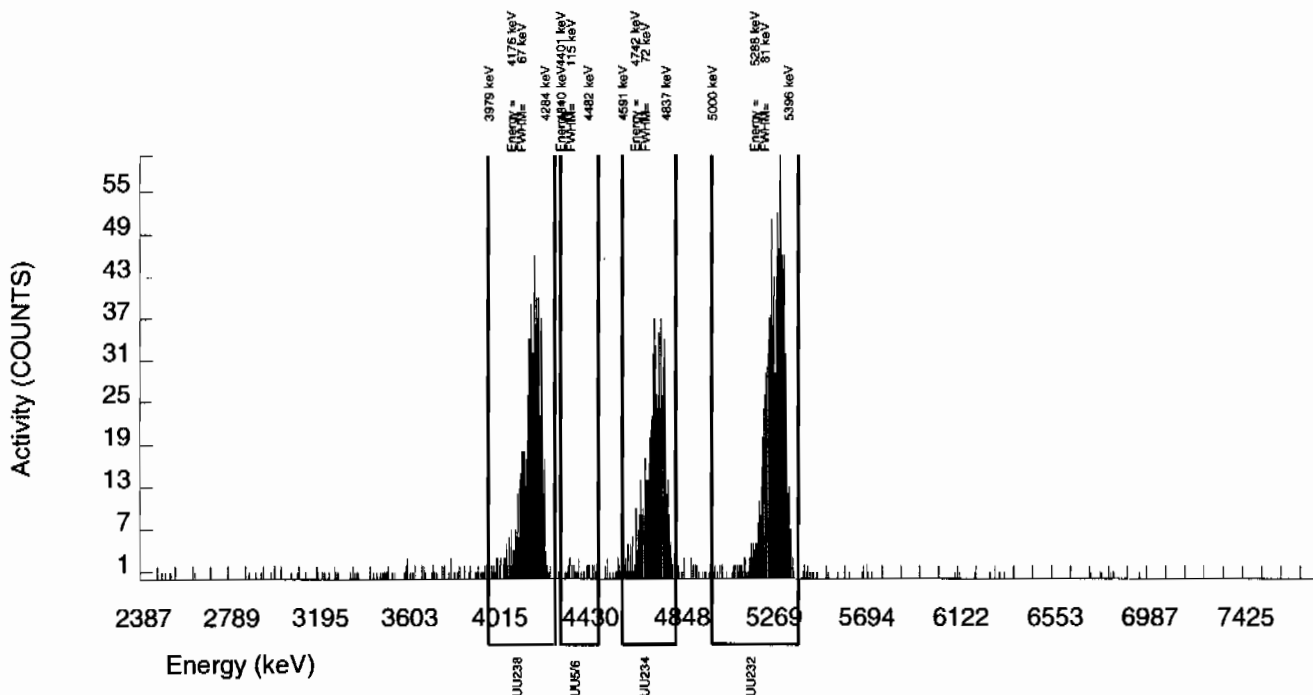
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	629.000	627.002	1.000	6.0782	100.0000	2.50E+00	2.05E-01	5.65E-02	1.24E-01	1.00E-01
U232	5302.100	991.000	987.000	4.000	2.0000	100.0000	3.94E+00	3.08E-01	1.86E-02	4.80E-02	1.26E-01
U-235	4391.000	31.000	31.000	0.000	2.7628	80.90000	1.53E-01	2.96E-02	3.17E-02	7.68E-02	2.75E-02
U-238	4184.730	726.000	725.000	1.000	3.2810	100.0000	2.90E+00	2.33E-01	3.05E-02	7.18E-02	1.08E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231002_UU SAMPLE QTY: 0.507 G	
DETECTOR NUMBER :78258 AVERAGE %EFFICIENCY :25.2301 % YIELD : 89.084		COUNT DATE:20-JAN-2010 20:14:54 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50891 dpm RESULTS : 4.01672 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B114.CNF;439 BKG DATE : 17-JAN-2010 EFF FILE : W114.CNF;119 CAL DATE : 18-JAN-2010

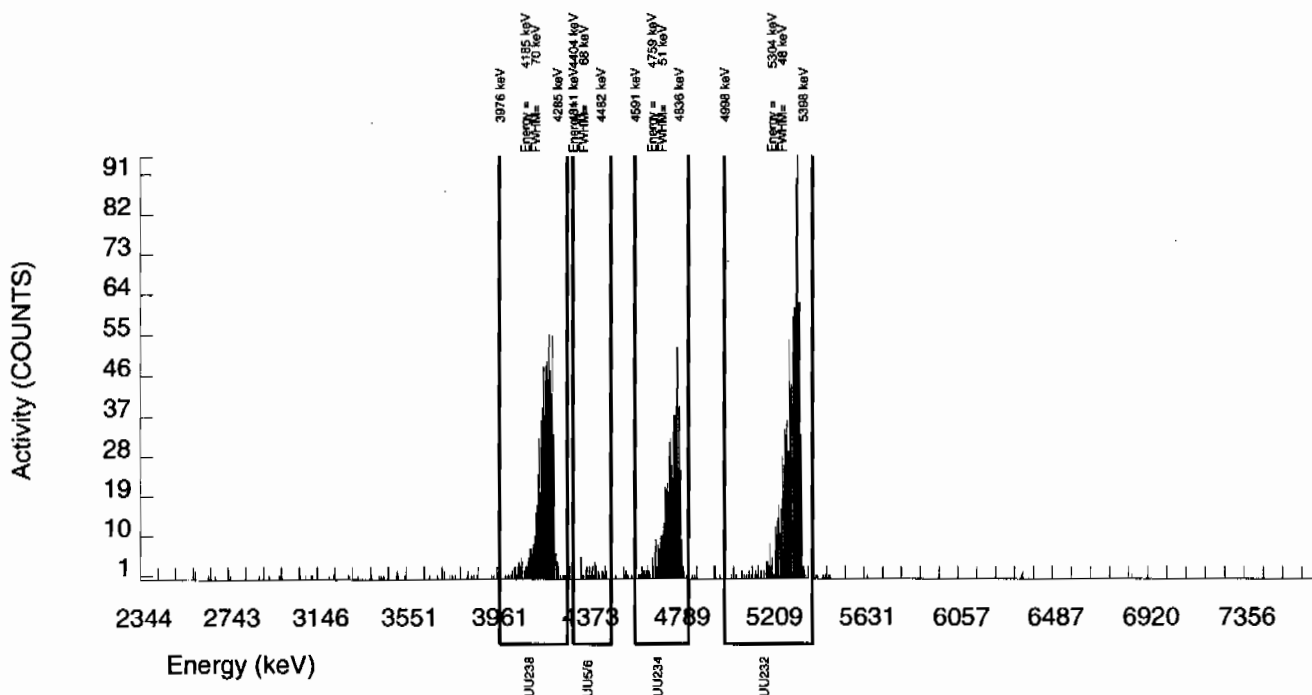
## NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	567.000	565.976	0.000	6.0782	100.0000	2.24E+00	1.85E-01	5.59E-02	1.23E-01	9.40E-02
U232	5302.100	1013.000	1013.000	0.000	0.0000	100.0000	4.01E+00	3.11E-01	0.00E+00	1.07E-02	1.26E-01
U-235	4391.000	42.000	42.000	0.000	2.7628	80.90000	2.05E-01	3.49E-02	3.14E-02	7.61E-02	3.17E-02
U-238	4184.730	771.000	771.000	0.000	3.2810	100.0000	3.05E+00	2.43E-01	3.02E-02	7.11E-02	1.10E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231003_UU SAMPLE QTY: 0.541 G	
DETECTOR NUMBER :79995 AVERAGE %EFFICIENCY :25.9560 % YIELD : 90.696		COUNT DATE:20-JAN-2010 20:14:57 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50891 dpm RESULTS : 4.08940 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B115.CNF;446 BKG DATE : 17-JAN-2010 EFF FILE : W115.CNF;147 CAL DATE : 18-JAN-2010

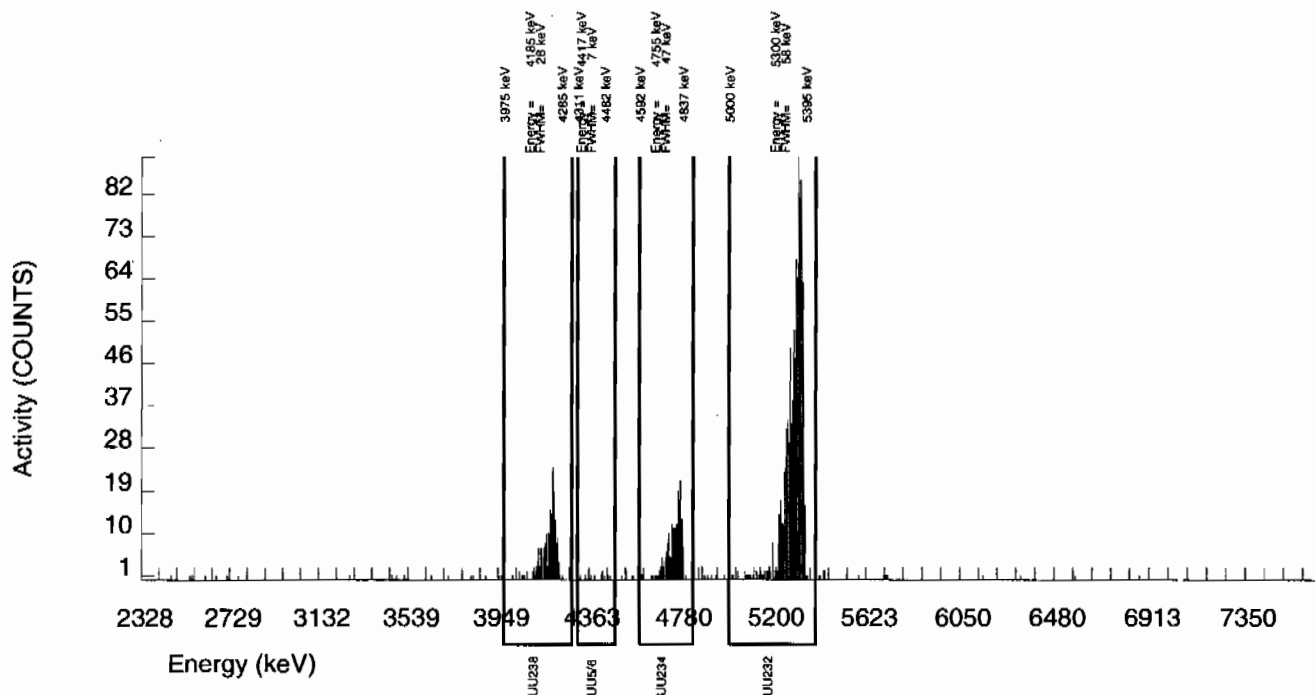
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	210.000	208.927	0.000	6.0782	100.0000	7.39E-01	7.31E-02	5.00E-02	1.10E-01	5.11E-02
U232	5302.100	1064.000	1061.000	3.000	1.7321	100.0000	3.75E+00	2.90E-01	1.43E-02	3.81E-02	1.16E-01
U-235	4391.000	11.000	11.000	0.000	2.7628	80.90000	4.81E-02	1.49E-02	2.81E-02	6.80E-02	1.45E-02
U-238	4184.730	218.000	218.000	0.000	3.2810	100.0000	7.71E-01	7.55E-02	2.70E-02	6.36E-02	5.22E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity





GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231004_UU SAMPLE QTY: 0.507 G	
DETECTOR NUMBER :33450 AVERAGE %EFFICIENCY :25.0873 % YIELD : 95.871		COUNT DATE:20-JAN-2010 20:14:59 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50891 dpm RESULTS : 4.32271 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B117.CNF;444 BKG DATE : 17-JAN-2010 EFF FILE : W117.CNF;119 CAL DATE : 18-JAN-2010

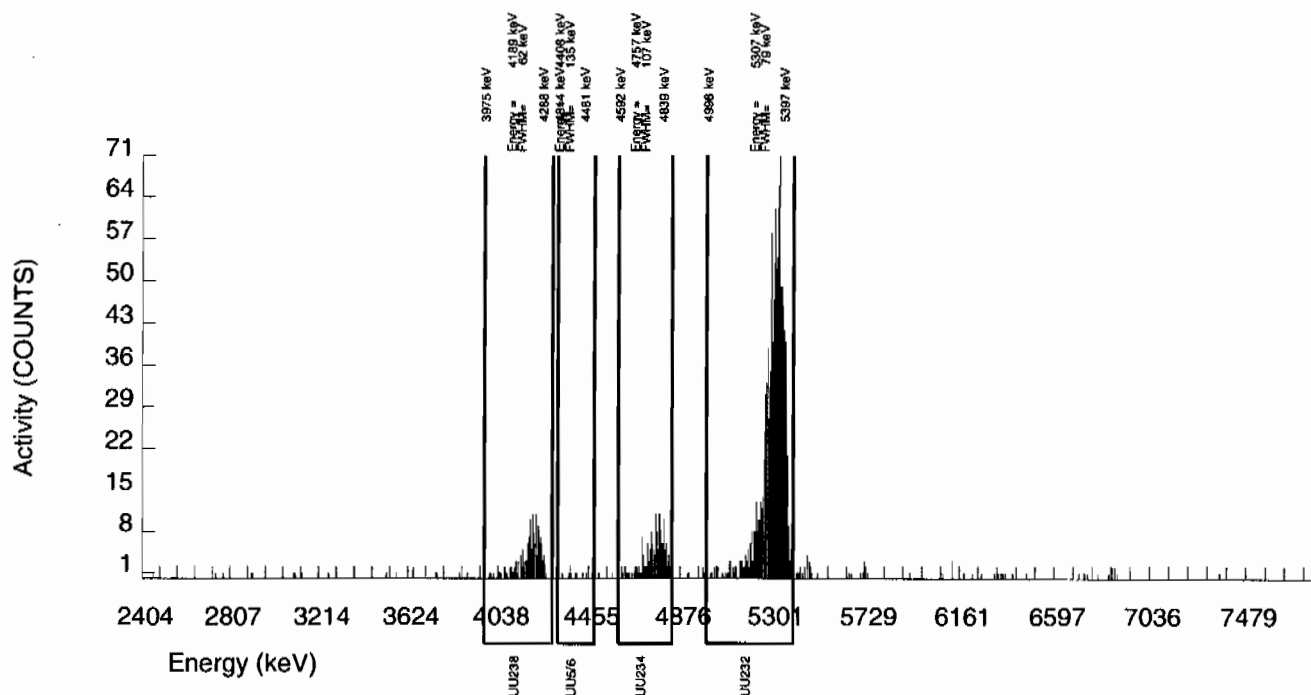
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	160.000	156.904	2.000	6.0782	100.0000	5.80E-01	6.23E-02	5.22E-02	1.14E-01	4.69E-02
U232	5302.100	1096.000	1084.000	12.000	3.4641	100.0000	4.01E+00	3.09E-01	2.98E-02	6.95E-02	1.23E-01
U-235	4391.000	8.000	6.000	2.000	2.7628	80.90000	2.74E-02	1.46E-02	2.93E-02	7.11E-02	1.44E-02
U-238	4184.730	153.000	153.000	0.000	3.2810	100.0000	5.65E-01	6.07E-02	2.82E-02	6.64E-02	4.57E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231005_UU SAMPLE QTY: 0.515 G	
DETECTOR NUMBER :75544 AVERAGE %EFFICIENCY :25.4737 % YIELD : 101.036		COUNT DATE:20-JAN-2010 20:15:02 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50891 dpm RESULTS : 4.55561 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B118.CNF;443 BKG DATE : 17-JAN-2010 EFF FILE : W118.CNF;116 CAL DATE : 18-JAN-2010

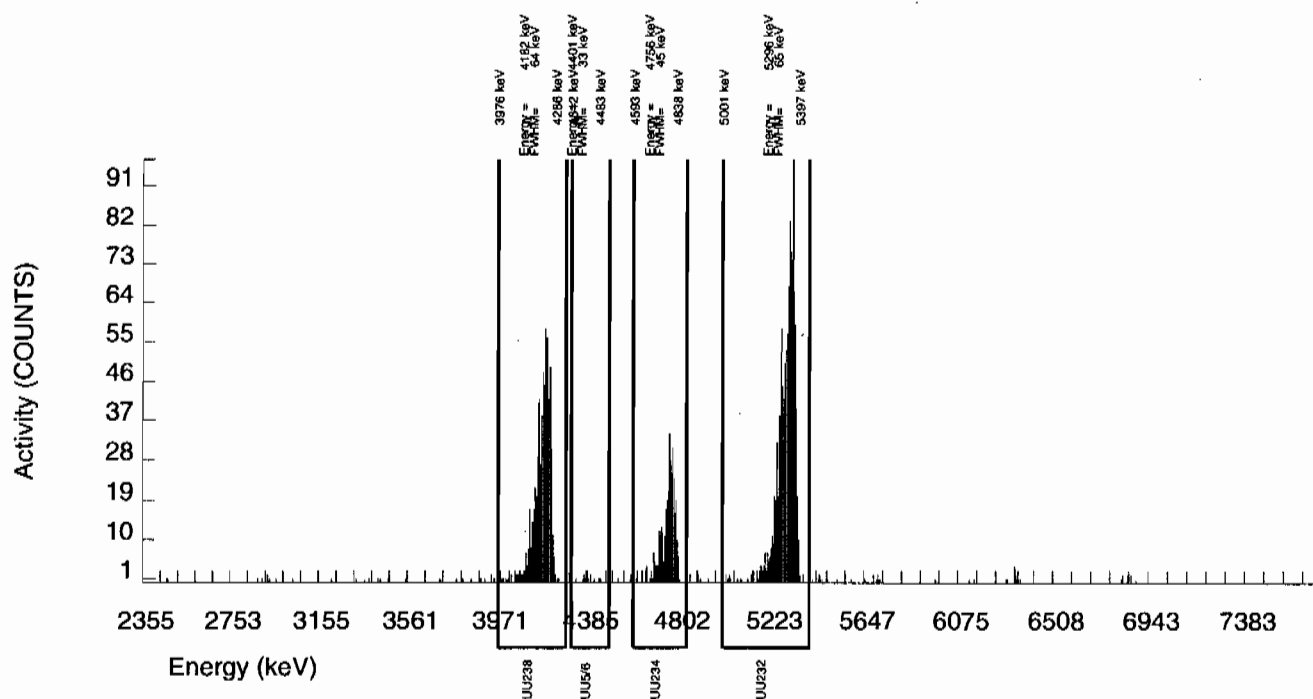
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	355.000	353.827	0.000	6.0782	100.0000	1.20E+00	1.06E-01	4.81E-02	1.05E-01	6.39E-02
U232	5302.100	1167.000	1160.000	7.000	2.6458	100.0000	3.94E+00	3.00E-01	2.09E-02	5.10E-02	1.16E-01
U-235	4391.000	17.000	17.000	0.000	2.7628	80.90000	7.14E-02	1.80E-02	2.70E-02	6.54E-02	1.73E-02
U-238	4184.730	789.000	787.000	2.000	3.2810	100.0000	2.67E+00	2.11E-01	2.59E-02	6.11E-02	9.56E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 6-JAN-2010 00:00:00.		SAMPLE ID : S0244231006_UU SAMPLE QTY: 0.500 G	
DETECTOR NUMBER :79450 AVERAGE %EFFICIENCY :25.6819 % YIELD : 89.418		COUNT DATE:20-JAN-2010 20:15:04 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50891 dpm RESULTS : 4.03175 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B119.CNF;452 BKG DATE : 17-JAN-2010 EFF FILE : W119.CNF;119 CAL DATE : 18-JAN-2010

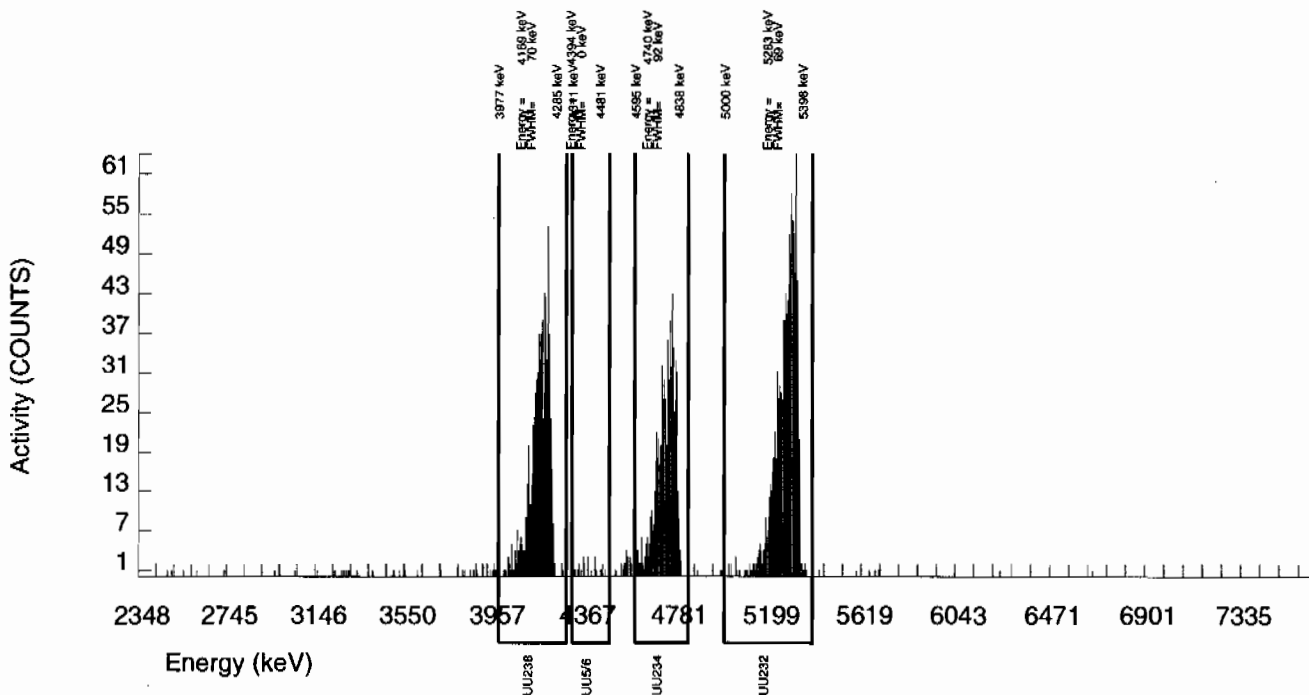
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	659.000	657.953	0.000	6.0782	100.0000	2.58E+00	2.09E-01	5.55E-02	1.22E-01	1.01E-01
U232	5302.100	1036.000	1035.000	1.000	1.0000	100.0000	4.06E+00	3.15E-01	9.13E-03	2.89E-02	1.26E-01
U-235	4391.000	25.000	24.000	1.000	2.7628	80.90000	1.16E-01	2.61E-02	3.12E-02	7.55E-02	2.47E-02
U-238	4184.730	741.000	741.000	0.000	3.2810	100.0000	2.91E+00	2.32E-01	2.99E-02	7.05E-02	1.07E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 8-JAN-2010 00:00:00.		SAMPLE ID : S0244515006_UU SAMPLE QTY: 0.516 G	
DETECTOR NUMBER :78770 AVERAGE %EFFICIENCY :24.3481 % YIELD : 85.841		COUNT DATE:20-JAN-2010 20:15:18 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50866 dpm RESULTS : 3.87029 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B127.CNF;447 BKG DATE : 17-JAN-2010 EFF FILE : W127.CNF;123 CAL DATE : 18-JAN-2010

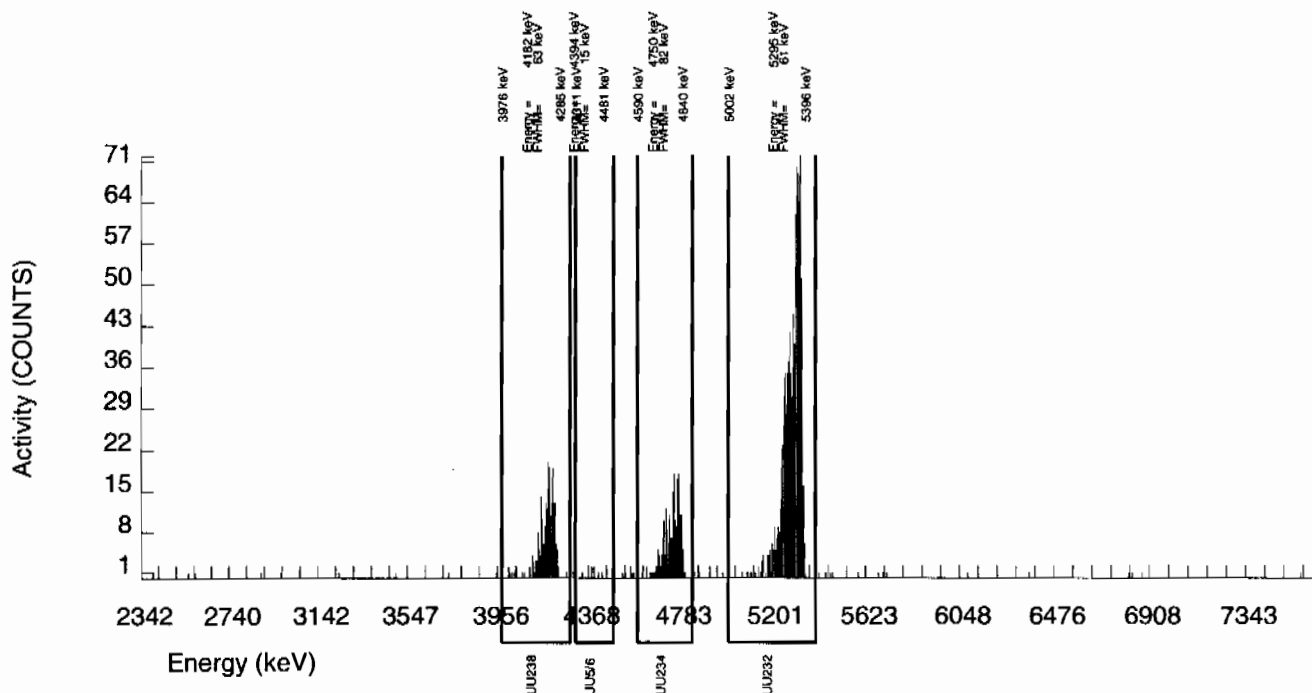
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	228.000	227.047	0.000	6.0782	100.0000	9.48E-01	9.26E-02	5.91E-02	1.29E-01	6.29E-02
U232	5302.100	943.000	942.000	1.000	1.0000	100.0000	3.94E+00	3.10E-01	9.72E-03	3.08E-02	1.28E-01
U-235	4391.000	8.000	8.000	0.000	2.7628	80.90000	4.13E-02	1.49E-02	3.32E-02	8.04E-02	1.46E-02
U-238	4184.730	232.000	232.000	0.000	3.2810	100.0000	9.69E-01	9.41E-02	3.19E-02	7.51E-02	6.36E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 15-JAN-2010 00:00:00		SAMPLE ID : S1202014800_UU SAMPLE QTY: 1.000 G	
DETECTOR NUMBER :80008 AVERAGE %EFFICIENCY :25.6996 % YIELD : 96.608		COUNT DATE:20-JAN-2010 20:15:29 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50779 dpm RESULTS : 4.35489 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B131.CNF;440 BKG DATE : 17-JAN-2010 EFF FILE : W131.CNF;132 CAL DATE : 18-JAN-2010

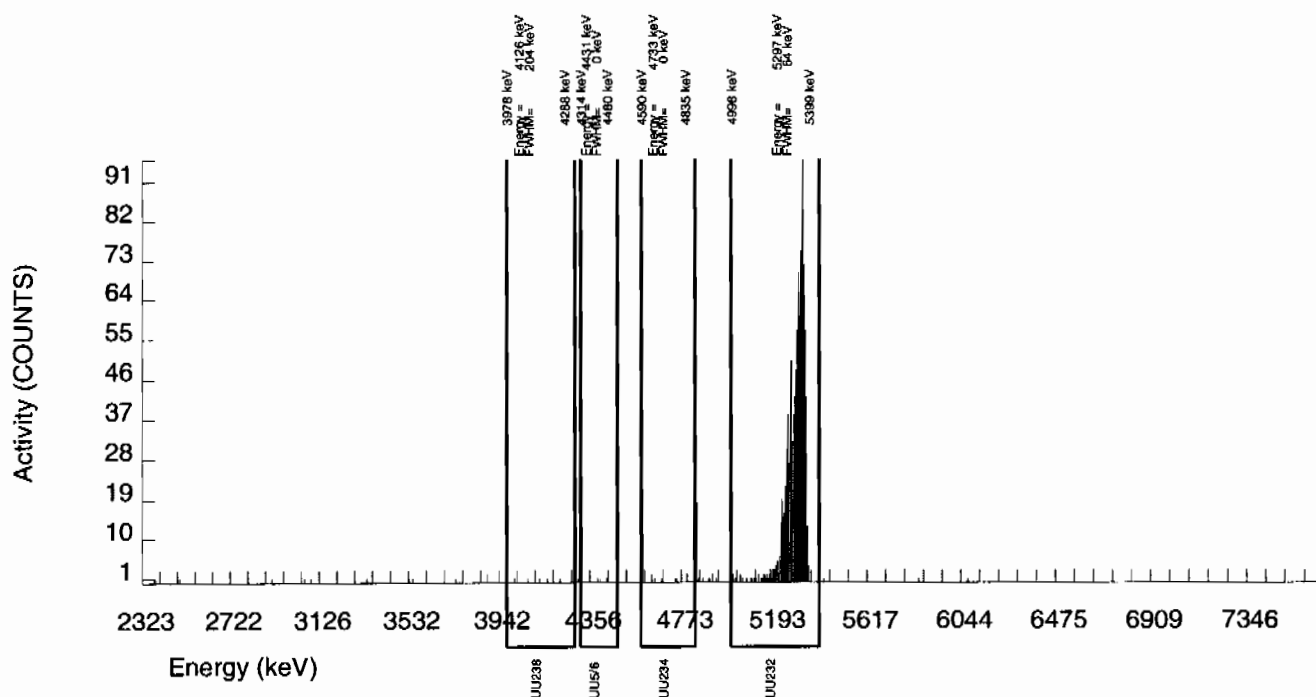
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	13.000	11.868	0.000	6.0782	100.0000	2.15E-02	6.43E-03	2.57E-02	5.62E-02	6.25E-03
U232	5302.100	1120.000	1119.000	1.000	1.0000	100.0000	2.03E+00	1.55E-01	4.22E-03	1.34E-02	6.08E-02
U-235	4391.000	4.000	4.000	0.000	2.7628	80.90000	8.97E-03	4.53E-03	1.44E-02	3.49E-02	4.49E-03
U-238	4184.730	5.000	4.000	1.000	3.2810	100.0000	7.26E-03	4.47E-03	1.38E-02	3.26E-02	4.44E-03

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 8-JAN-2010 00:00:00.		SAMPLE ID : S1202014801_UU SAMPLE QTY: 0.523 G	
DETECTOR NUMBER :67579 AVERAGE %EFFICIENCY :24.9091 % YIELD : 93.706		COUNT DATE:20-JAN-2010 20:15:31 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50866 dpm RESULTS : 4.22490 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B132.CNF;434 BKG DATE : 17-JAN-2010 EFF FILE : W132.CNF;130 CAL DATE : 18-JAN-2010

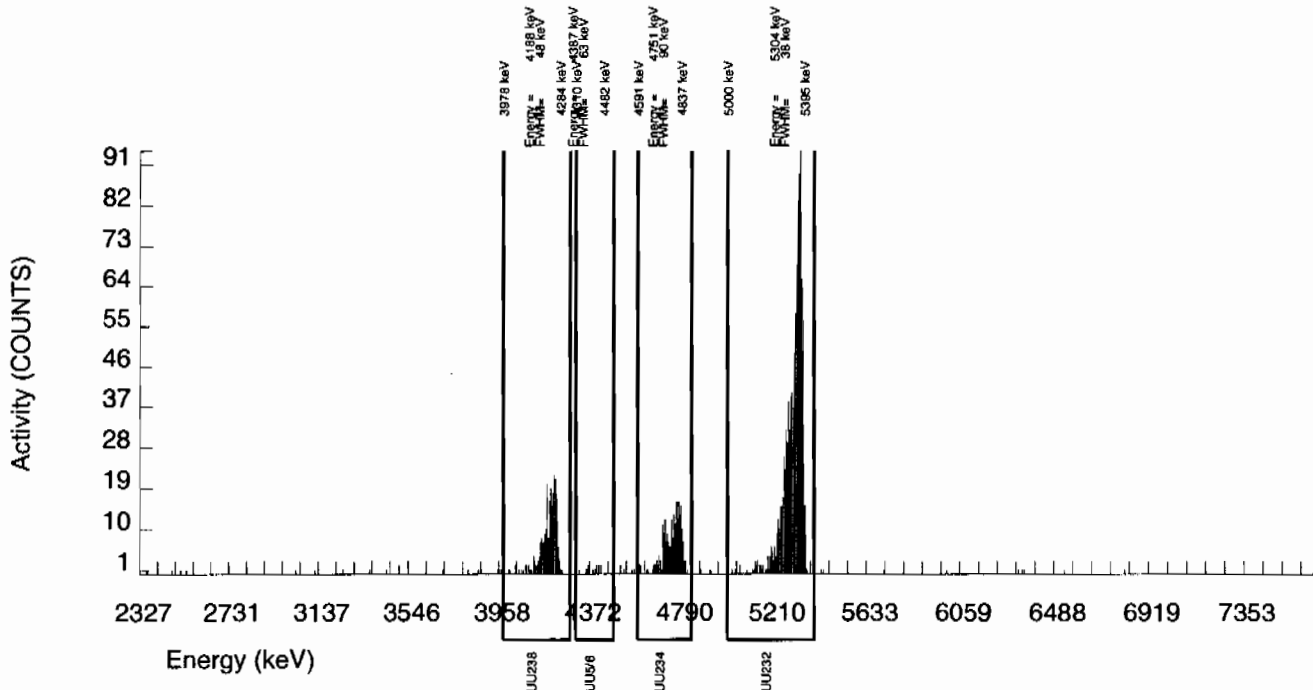
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	238.000	236.936	0.000	6.0782	100.0000	8.74E-01	8.40E-02	5.22E-02	1.14E-01	5.68E-02
U232	5302.100	1054.000	1052.000	2.000	1.4142	100.0000	3.88E+00	3.00E-01	1.21E-02	3.43E-02	1.20E-01
U-235	4391.000	15.000	15.000	0.000	2.7628	80.90000	6.84E-02	1.83E-02	2.93E-02	7.10E-02	1.77E-02
U-238	4184.730	259.000	259.000	0.000	3.2810	100.0000	9.56E-01	9.00E-02	2.82E-02	6.63E-02	5.94E-02

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



GEL Laboratories LLC  
ALPHA SPECTROSCOPY REPORT

BATCH NUMBER: 941354 SAMPLE DATE : 15-JAN-2010 00:00:00		SAMPLE ID : S1202014802_UU SAMPLE QTY: 0.111 G	
DETECTOR NUMBER :78902 AVERAGE %EFFICIENCY :26.1394 % YIELD : 93.030		COUNT DATE:20-JAN-2010 13:15:15 ELAPSED LIVE TIME(SEC): 60000.00 ANALYST :MXE1	
MS/MSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	LCS/LCSD ID : 0244-A ISOTOPE : U-238 PCI/G : 5.750E+00	TRACER ID : 1283-H ISOTOPE : U232 NOMINAL : 4.50779 dpm RESULTS : 4.19358 dpm	LIB FILE : ENV_ALPHA_UU.N BKG FILE : B201.CNF;92 BKG DATE : 19-JAN-2010 EFF FILE : W201.CNF;46 CAL DATE : 21-DEC-2009

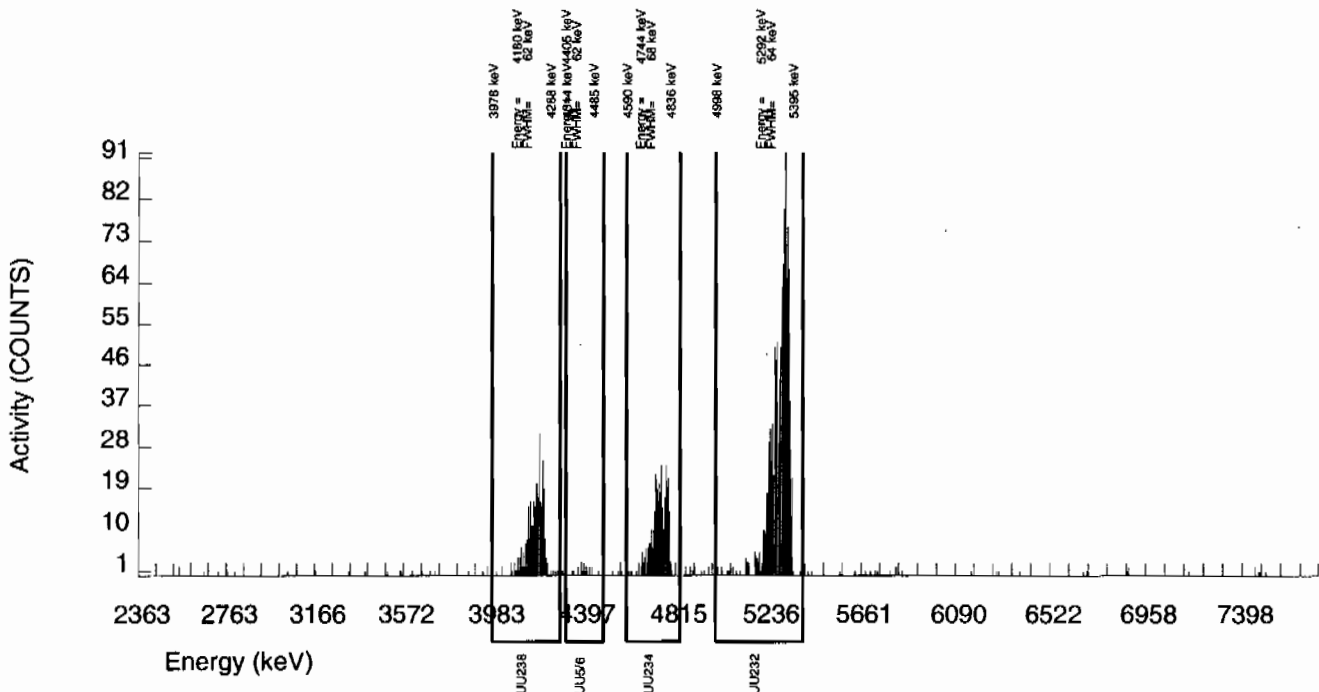
NUCLIDE ACTIVITY SUMMARY

NUCLIDE	ENERGY	GROSS AREA	NET AREA	BKG AREA	BKG Sg	%ABUN	ACTIVITY pCi/G	TPU 1-SIGMA	DLC pCi/G	MDC pCi/G	UNC pCi/G
U-3/4	4763.020	333.000	329.892	2.000	6.0782	100.0000	5.51E+00	5.18E-01	2.36E-01	5.17E-01	3.05E-01
U232	5302.100	1096.000	1096.000	0.000	0.0000	100.0000	1.83E+01	1.50E+00	0.00E+00	4.52E-02	5.53E-01
U-235	4391.000	18.000	18.000	0.000	2.7628	80.90000	3.71E-01	9.20E-02	1.33E-01	3.21E-01	8.75E-02
U-238	4184.730	322.000	321.000	1.000	3.2810	100.0000	5.36E+00	5.06E-01	1.27E-01	3.00E-01	3.00E-01

NOTE: Sg calculated via blank population (updated 5-JAN-2010)

NOTE: Sg of U232 calculated as sqrt(BKG AREA)

NOTE: Corrections made to U-3/4 net area due to tracer impurity



## Radiochemistry Batch Checklist, Rev10

Batch#

941242

Product:

XS/LAWL

Date:

1/25/10

Criteria:	Yes	No	Comments
Sample Solius are less than or equal to 100 mg for GAB.			NA
Samples have been blank corrected (if required)			NA
If activity less 10* MDA/ MDC, error is 150% or less of sample activity. If greater 10* MDA/ MDC, error is 40% or less. If below the MDA/ MDC, error is okay.	✓		
Instrument source check is within limits.	✓		
Instrument bkg check is within limits.	✓		
Method RDL/ LLD has been met	✓		
If duplicate activities are less 5* MDA/ MDC, then RPD is 100% or less. If greater 5* MDA/ MDC, then RPD 20% or less. If below the MDA/ MDC, the RPD is 0%.	✓		
Or meets the client's required RER acceptance criteria.			
Tracer yield is 15-125% . Carrier yield 25-125%.			NA
Or meets the client's contract acceptance criteria.			
Method blank is less than the RDU/ LLD.	✓		
(If rad samples, < 5% of lowest activity)	✓		
Sample was run within hold time.	✓		
Sample was correctly preserved if required.			NA
Smears Taken for Radioactive batches.			NA
Method Spike and LCS are within 75-125% or meets the client's contract acceptance criteria.	✓		
No blank spaces on data forms.	✓		
All line outs initialed and dated.	✓		
No transcription errors are apparent.			
Aux data is correct.			NA
Client Special requirements page has been checked.	✓		
Raw Data and/ or spectrum are included and properly stasured.	✓		
OC data entered into OC database and/ batch is in REVW	✓		
Hit notification complete (if necessary)			NA
Batch entered into Case Narrative.	✓		
Batch Data Exception Reports (DER) completed, if applicable.			NA
Batch Data Exception Reports (DER) second reviewed and disposition verified to be completed.			NA
Aliquot Correction completed if required.			NA
Review sample historical results if available (if REMP, results above MDC have been verified by historical results, recount or re-analysis.)	✓		

GEL Laboratories, LLC

RADchecklistrev10, revised 1/13/2010

Primary Review Performed By:

1/25/10

Secondary Review Performed By:

1/24/10



# Gamma Spec Que Sheet

1.6. - 1/21/10

01/13/2010

Batch #: 941242 Analyst: MXR1 First Client Due Date: 02/06/2010 Internal Due Date: 01/26/2010  
 Gamma Spike Isotope: Mixed Gamma Spike Code: n/a Expiration Date: n/a Vol: n/a Nominal Concentration: n/a  
 Gamma LCS Isotope: Mixed Gamma LCS Code: 1032-A Expiration Date: 12/2/10 Vol: 1.0mL Nominal Concentration: 1.0mL 16.30; 0.5<sup>17</sup> 5.705  
 Initials: MS Prep Date: 1/14/10 Library: SOLID Witness: n/a

Sample ID	Client Description / Container ID	Type	Hazard Code	Client	Matrix	Collect Date	Geometry	(1/g) F	Detector	Sealing Date/Time (if Applicable)
244231001-1	RE12-10-7709	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF	CAN	134.08	2	1/14/10
244231002-1	RE12-10-7711	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		122.78	6	
244231003-1	RE12-10-7712	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		131.22	11	
244231004-1	RE12-10-7716	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		151.95	12	
244231005-1	RE12-10-7718	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		120.54	13	
244231006-1	RE12-10-7713	SAMPLE	LANL010	SOIL	06-JAN-10 12:00:00	RF		135.40	20	
244515001-1	RE46-10-10025	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		128.27	15	
244515002-1	RE46-10-10026	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		128.74	17	
244515003-1	RE46-10-10018	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		120.54	19	
244515004-1	RE46-10-10022	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		120.35	25	
244515005-1	RE46-10-10053	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		135.17	18	
244515006-1	RE46-10-10024	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		130.16	21	
244515007-1	RE46-10-10021	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		129.42	5	
244515008-1	RE46-10-10023	SAMPLE	LANL010	SOIL	08-JAN-10 12:00:00	RF		122.45	22	
1202014513-1	MB	MB	QC ACCOUNT	SOIL	1/14/10	RF		161.95	2	
1202014514-1	DUP RE46-10-10025(244515001)	DUP	QC ACCOUNT	SOIL	1/14/10	RF		128.27	17	
1202014515-1	LCS	LCS	QC ACCOUNT	SOIL	1/14/10	RF		151.73	13	

GEL Laboratories LLC, Radiochemistry Division

Data Reviewed By: *[Signature]* 1/25/10  
*[Signature]* 1/26/10 Page 1 of 1

# Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
941242	244231001	SAMPLE	21-JAN-10		Americium-241	0.05819	0.3133	0.200
					Cerium-139	0.0019	0.05163	0.050
					Sodium-22	-0.03705	0.08084	0.080
					Thorium-234	2.107	2.443	2.00
941242	244231002	SAMPLE	21-JAN-10		Americium-241	0.1129	0.3665	0.200
					Cerium-139	0.00152	0.05914	0.050
					Cesium-134	0.06844	0.1039	0.100
					Europium-152	-0.0287	0.2046	0.200
941242	244231003	SAMPLE	21-JAN-10					
941242	244231004	SAMPLE	21-JAN-10		Americium-241	0.00725	0.221	0.200
941242	244231005	SAMPLE	21-JAN-10		Cesium-134	0.09105	0.1036	0.100
					Sodium-22	-0.04541	0.085	0.080
941242	244231006	SAMPLE	21-JAN-10					
941242	244515001	SAMPLE	21-JAN-10		Americium-241	-0.1583	0.53	0.200
					Cerium-139	0.03974	0.06649	0.050
					Cesium-134	0.07079	0.1067	0.100
					Sodium-22	-0.01642	0.08216	0.080
					Thorium-234	1.922	4.309	2.00
941242	244515002	SAMPLE	21-JAN-10		Cesium-134	0.07753	0.1121	0.100
					Sodium-22	-0.0246	0.09787	0.080
941242	244515003	SAMPLE	21-JAN-10		Americium-241	0.05633	0.2864	0.200
					Cerium-139	-0.00201	0.05425	0.050
					Thorium-234	2.002	2.352	2.00
941242	244515004	SAMPLE	21-JAN-10		Sodium-22	-0.05804	0.08374	0.080
941242	244515005	SAMPLE	21-JAN-10		Americium-241	-0.06607	0.2806	0.200
					Thorium-234	0.6344	2.321	2.00
941242	244515006	SAMPLE	21-JAN-10		Sodium-22	-0.06807	0.09332	0.080
941242	244515007	SAMPLE	21-JAN-10		Cerium-139	0.00838	0.05797	0.050
					Sodium-22	0.00218	0.1008	0.080
941242	244515008	SAMPLE	21-JAN-10		Americium-241	0.077	0.2332	0.200
					Cerium-139	0.0099	0.05255	0.050
941242	1202014513	MB	21-JAN-10					
941242	1202014514	DUP	21-JAN-10		Cerium-139	0.01438	0.05446	0.050
					Cesium-134	0.02877	0.1188	0.100
					Sodium-22	-0.04221	0.09724	0.080
941242	1202014515	LCS	21-JAN-10		Cerium-139	0.02567	0.08772	0.050
					Cesium-134	0.1133	0.2084	0.100
					Europium-152	0.0335	0.3564	0.200
					Mercury-203	0.05783	0.1218	0.100
					Potassium-40	0.6881	1.209	1.00
					Ruthenium-106	0.1291	1.329	0.800
					Sodium-22	0.06782	0.1331	0.080
					Tin-113	0.00239	0.1633	0.100
					Uranium-235	-0.1211	0.5949	0.500

## Failed RDL Report

Batch Id	Samp Id	Sample Type	Run Date	YIELD	Parmname	Result	MDA	RDL
941242	1202014515	LCS	21-JAN-10		Yttrium-88	0.03782	0.1082	0.100

# GEL QUALS

Batch ID: 941242

Report run on: January 25, 2010 4:57 PM

Sample Id	Parname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244231001-1 21-JAN-2010 09:01	Bismuth-211	UI	UI	Data rejected due to interference.		3.406			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.166			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1048		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		3.852			
244231002-1 21-JAN-2010 09:01	Bismuth-211	UI	UI	Data rejected due to interference.		3.893			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.421			
	Radium-224	UI	UI	Data rejected due to interference.		4.376			
244231003-1 21-JAN-2010 09:02	Bismuth-211	UI	UI	Data rejected due to interference.		4.29			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.482			
	Radium-224	UI	UI	Data rejected due to interference.		5.284			
244231004-1 21-JAN-2010 09:02	Bismuth-211	UI	UI	Data rejected due to interference.		3.283			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.775			
	Cesium-134	UI	UI	Data rejected due to low abundance.		.08483		.1	.1
	Radium-224	UI	UI	Data rejected due to interference.		3.917			
244231005-1 21-JAN-2010 09:03	Bismuth-211	UI	UI	Data rejected due to interference.		4.042			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.159			
	Radium-224	UI	UI	Data rejected due to interference.		2.478			
244231006-1 21-JAN-2010 09:03	Bismuth-211	UI	UI	Data rejected due to interference.		3.525			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.406			

# GEL QUALS

Batch ID: 941242

Report run on: January 25, 2010 4:57 PM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244231006-1 21-JAN-2010 08:03	Radium-224	UI	UI	Data rejected due to interference.		4.971			
244515001-1 21-JAN-2010 09:17	Bismuth-211	UI	UI	Data rejected due to interference.		4.017			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.991			
	Radium-224	UI	UI	Data rejected due to interference.		4.098			
244515002-1 21-JAN-2010 09:17	Bismuth-211	UI	UI	Data rejected due to interference.		4.257			
	Cadmium-109	UI	UI	Data rejected due to interference.		3.186			
	Radium-224	UI	UI	Data rejected due to interference.		5.435			
244515003-1 21-JAN-2010 09:18	Bismuth-211	UI	UI	Data rejected due to interference.		4.943		.1	.1
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1058			
	Radium-224	UI	UI	Data rejected due to interference.		4.689			
	Strontium-85	UI	UI	Data rejected due to low abundance.		.08988			
244515004-1 21-JAN-2010 09:18	Bismuth-211	UI	UI	Data rejected due to interference.		5.095			
	Cadmium-109	UI	UI	Data rejected due to interference.		4.415		.1	.1
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1121			
	Radium-224	UI	UI	Data rejected due to interference.		5.772			
244515005-1 21-JAN-2010 09:27	Bismuth-211	UI	UI	Data rejected due to interference.		4.053			
	Cadmium-109	UI	UI	Data rejected due to interference.		2.967		.1	.1
	Cesium-134	UI	UI	Data rejected due to low abundance.		.1023			
	Radium-224	UI	UI	Data rejected due to interference.		5.289			

# GEL QUALS

Batch ID: 941242

Report run on: January 25, 2010 4:57 PM

Samp Id	Parmname	Cofa	Edd	Qual Comments	Auto	Result	MDA	Uncert	SQL
244515005-1 21-JAN-2010 09:27	Strontium-85	UI	UI	UI Data rejected due to low abundance.		.101			
244515006-1 21-JAN-2010 09:28	Bismuth-211	UI	UI	UI Data rejected due to interference.		4.184			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		4.007			
	Cesium-134	UI	UI	UI Data rejected due to low abundance.		.1726		.1	.1
	Radium-224	UI	UI	UI Data rejected due to interference.		5.601			
244515007-1 21-JAN-2010 09:59	Bismuth-211	UI	UI	UI Data rejected due to interference.		4.224			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		4.491			
	Cesium-134	UI	UI	UI Data rejected due to low abundance.		.1364		.1	.1
	Mercury-203	UI	UI	UI Data rejected due to interference.		.124		.1	.1
	Radium-224	UI	UI	UI Data rejected due to interference.		4.278			
244515008-1 21-JAN-2010 10:00	Bismuth-211	UI	UI	UI Data rejected due to interference.		4.992			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		4.108			
	Cesium-134	UI	UI	UI Data rejected due to low abundance.		.1231		.1	.1
	Radium-224	UI	UI	UI Data rejected due to interference.		4.899			
	Strontium-85	UI	UI	UI Data rejected due to low abundance.		.1445			
1202014514-1 DUP 21-JAN-2010 11:24	Bismuth-211	UI	UI	UI Data rejected due to interference.		4.672			
	Cadmium-109	UI	UI	UI Data rejected due to interference.		4.594			
	Radium-224	UI	UI	UI Data rejected due to interference.		5.08			

## Gamma Review Report based on Result &gt; MDA for Batch:941242

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue	
244231001	06-JAN-10 12:00	21-JAN-10 09:01	14.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP	
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err (%)	Qual	Qual Comment	
Actinium-228	NR	1.256	0.18	pCi/g	0.2357	N	910.7	3	1.804	IDENTIFIED 12.9	<input type="checkbox"/>
Americium-243	NT	0.3402	0.04261	pCi/g	0.08914	N	74.55	1	1.084	IDENTIFIED 11.74	<input type="checkbox"/>
Annihilation Rad.	HE	0.08336	0.0359	pCi/g	0.05293	N	510.7	1	1.792	IDENTIFIED 42.78	<input type="checkbox"/>
Barium-137m	NR	0.6618	0.05629	pCi/g	0.06445	N	661.2	2	1.575	IDENTIFIED 7.333	<input type="checkbox"/>
Bismuth-211	NT	3.406	0.3016	pCi/g	0.3426	Y	351.6	4	1.287	IDENTIFIED 6.724	<input checked="" type="checkbox"/> UI
Bismuth-212	HE	1.107	0.292	pCi/g	0.6955	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214	✓	0.9914	0.09566	pCi/g	0.115	0.200	609	4	1.445	IDENTIFIED 8.073	<input type="checkbox"/>
Cadmium-109	NT	3.166	0.4479	pCi/g	1.22	Y	86.85	3	1.217	IDENTIFIED 13.25	<input checked="" type="checkbox"/> UI
Cerium-143		684.7	114.1	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Cesium-134	LA	0.1048	0.02609	pCi/g	0.0983	0.100	0	10	0	NOT_IDENTI 0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Cesium-135	HE	0.3903	0.1189	pCi/g	0.2598	N	269.6	1	1.525	IDENTIFIED 29.74	<input type="checkbox"/>
Cesium-137	✓	0.6996	0.05953	pCi/g	0.06813	0.100	661.2	2	1.575	IDENTIFIED 7.333	<input type="checkbox"/>
Gross Gamma		9.094	1.449	pCi/g	2.801	N	0				<input type="checkbox"/>
Iodine-133	HE	1934	2756	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Iodine-135	HE	1.83E+15	1.70E+15	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	1.466	0.1077	pCi/g	0.09287	0.100	238.4	4	1.088	IDENTIFIED 3.798	<input type="checkbox"/>
Lead-214	✓	1.185	0.1094	pCi/g	0.1194	0.100	351.6	4	1.287	IDENTIFIED 6.724	<input type="checkbox"/>
Lutetium-177	HE	2.425	0.805	pCi/g	2.118	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	NT	0.9142	0.1601	pCi/g	0.3691	N	86.85	3	1.217	IDENTIFIED 13.25	<input type="checkbox"/>
Niobium-97	HE	75770	45890	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Polonium-212	NR	1.466	0.1077	pCi/g	0.09287	N	238.4	4	1.088	IDENTIFIED 3.798	<input type="checkbox"/>
Polonium-214	NR	1.185	0.1094	pCi/g	0.1194	N	351.6	4	1.287	IDENTIFIED 6.724	<input type="checkbox"/>
Polonium-216	NR	1.466	0.1077	pCi/g	0.09287	N	238.4	4	1.088	IDENTIFIED 3.798	<input type="checkbox"/>
Polonium-218	NR	1.185	0.1094	pCi/g	0.1194	N	351.6	4	1.287	IDENTIFIED 6.724	<input type="checkbox"/>
Potassium-40	✓	31.02	1.75	pCi/g	0.4221	1.00	1460	1	2.42	IDENTIFIED 3.038	<input type="checkbox"/>
Radium-224	NT	3.852	0.7615	pCi/g	1.057	Y	241.4	1	1.893	IDENTIFIED 18.87	<input checked="" type="checkbox"/> UI
Radium-226	✓	0.9914	0.09566	pCi/g	0.115	Y	609	4	1.445	IDENTIFIED 8.073	<input type="checkbox"/>
Radium-228	✓	1.256	0.18	pCi/g	0.2357	0.500	910.7	3	1.804	IDENTIFIED 12.9	<input type="checkbox"/>
Thallium-200	HE	122	217.7	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208	✓	0.4417	0.04571	pCi/g	0.06448	0.080	582.8	1	1.473	IDENTIFIED 9.053	<input type="checkbox"/>
Thorium-228	NR	1.488	0.1093	pCi/g	0.09426	N	238.4	4	1.088	IDENTIFIED 3.798	<input type="checkbox"/>
Thorium-230	NR	0.9914	0.09566	pCi/g	0.115	N	609	4	1.445	IDENTIFIED 8.073	<input type="checkbox"/>
Thorium-232	NR	1.256	0.18	pCi/g	0.2357	N	910.7	3	1.804	IDENTIFIED 12.9	<input type="checkbox"/>
Tin-126	NT	0.3113	0.04404	pCi/g	0.1206	N	86.85	3	1.217	IDENTIFIED 13.25	<input type="checkbox"/>
Titanium-44	LA	0.3207	0.02696	pCi/g	0.07085	N	0	10	0	FAIL_ABUND 0	<input type="checkbox"/>
Total Uranium		6.413	3.69E-06	ug/g	3.637	N	0				<input type="checkbox"/>
Uranium-234	NR	0.9914	0.09566	pCi/g	0.115	N	609	4	1.445	IDENTIFIED 8.073	<input type="checkbox"/>
Zirconium-97	HE	1.21E+06	9.29E+05	pCi/g	0	N	0	10	0	SHORT_HLIF 0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244231002	06-JAN-10 12:00	21-JAN-10 09:01	14.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
* Actinium-228	ML 1.561	0.2024	pCi/g	0.2734	N	910.9	3	1.406	IDENTIFIED	11.92 <input type="checkbox"/>
- Americium-243	WT 0.3678	0.05208	pCi/g	0.121	N	74.46	1	1.385	IDENTIFIED	13.42 <input type="checkbox"/>
Annihilation Rad.	HE 0.1007	0.04283	pCi/g	0.05758	N	510.3	1	1.71	IDENTIFIED	42.44 <input type="checkbox"/>
Barium-137m	ML 0.658	0.05122	pCi/g	0.07397	N	661.2	2	1.458	IDENTIFIED	7.381 <input type="checkbox"/>
* Bismuth-211	WT 3.893	0.2591	pCi/g	0.4013	Y	351.7	4	1.277	IDENTIFIED	5.823 <input checked="" type="checkbox"/> UT
Bismuth-212	HE 1.344	0.34	pCi/g	0.8598	N	0	11	0	FAIL_ABUND	0 <input type="checkbox"/>
* Bismuth-214	✓ 1.265	0.1047	pCi/g	0.1397	0.200	609	4	1.314	IDENTIFIED	7.414 <input type="checkbox"/>
- Cadmium-109	WT 2.421	0.6253	pCi/g	1.624	Y	87.05	3	1.142	IDENTIFIED	25.36 <input checked="" type="checkbox"/> UT

Cerium-143		883	136.4	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Cesium-135	HE	0.3719	0.1172	pCi/g 0.3672	N	0	11	0	NOT_IDENTI 0	<input type="checkbox"/>
Cesium-137	✓	0.6956	0.05417	pCi/g 0.0782	0.100	661.2	2	1.458	IDENTIFIED 7.381	<input type="checkbox"/>
Gross Gamma		10.02	1.496	pCi/g 3.415	N		0			<input type="checkbox"/>
Iodine-133	HE	5540	3175	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	1.541	0.08358	pCi/g 0.1225	0.100	238.4	4	1.158	IDENTIFIED 3.978	<input type="checkbox"/>
Lead-214	✓	1.354	0.09681	pCi/g 0.1394	0.100	351.7	4	1.277	IDENTIFIED 5.823	<input type="checkbox"/>
Lutetium-177	HE	2.735	1.03	pCi/g 2.531	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	HE	0.6992	0.1944	pCi/g 0.4775	N	87.05	3	1.142	IDENTIFIED 25.36	<input type="checkbox"/>
Niobium-95m	LA	0.5718	0.09892	pCi/g 0.3215	N	0	11	0	NOT_IDENTI 0	<input type="checkbox"/>
Niobium-97		1.88E+05	59900	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Polonium-212	NR	1.541	0.08358	pCi/g 0.1225	N	238.4	4	1.158	IDENTIFIED 3.978	<input type="checkbox"/>
Polonium-214	NR	1.354	0.09681	pCi/g 0.1394	N	351.7	4	1.277	IDENTIFIED 5.823	<input type="checkbox"/>
Polonium-216	NR	1.541	0.08358	pCi/g 0.1225	N	238.4	4	1.158	IDENTIFIED 3.978	<input type="checkbox"/>
Polonium-218	NR	1.354	0.09681	pCi/g 0.1394	N	351.7	4	1.277	IDENTIFIED 5.823	<input type="checkbox"/>
Potassium-40	✓	32.59	1.486	pCi/g 0.5304	1.00	1460	1	2.184	IDENTIFIED 3.139	<input type="checkbox"/>
Radium-224	INT	4.376	0.7919	pCi/g 1.394	Y	241.2	1	1.782	IDENTIFIED 17.86	<input checked="" type="checkbox"/> ✓
Radium-226	✓	1.265	0.1047	pCi/g 0.1397	Y	609	4	1.314	IDENTIFIED 7.414	<input type="checkbox"/>
Radium-228	✓	1.561	0.2024	pCi/g 0.2734	0.500	910.9	3	1.406	IDENTIFIED 11.92	<input type="checkbox"/>
Technetium-99m		5.62E+15	0	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-200	HE	116.1	233.3	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>
Thallium-208	✓	0.5411	0.05173	pCi/g 0.07014	0.080	582.9	1	1.329	IDENTIFIED 9.022	<input type="checkbox"/>
Thorium-228	NR	1.564	0.08482	pCi/g 0.1243	N	238.4	4	1.158	IDENTIFIED 3.978	<input type="checkbox"/>
Thorium-230	NR	1.265	0.1047	pCi/g 0.1397	N	609	4	1.314	IDENTIFIED 7.414	<input type="checkbox"/>
Thorium-232	NR	1.561	0.2024	pCi/g 0.2734	N	910.9	3	1.406	IDENTIFIED 11.92	<input type="checkbox"/>
Thorium-234	✓	3.648	1.209	pCi/g 3.023	2.00	63	2	0.9474	IDENTIFIED 31.86	<input type="checkbox"/>
Tin-126	HE	0.2381	0.06149	pCi/g 0.1605	N	87.05	3	1.142	IDENTIFIED 25.36	<input type="checkbox"/>
Titanium-44	LA	0.3867	0.03558	pCi/g 0.09718	N	0	11	0	FAIL_ABUND 0	<input type="checkbox"/>
Total Uranium		10.888	3.60E-06	ug/g 4.5011	N		0			<input type="checkbox"/>
Uranium-234	NR	1.265	0.1047	pCi/g 0.1397	N	609	4	1.314	IDENTIFIED 7.414	<input type="checkbox"/>
Uranium-238	HE	3.648	1.209	pCi/g 3.023	N	63	2	0.9474	IDENTIFIED 31.86	<input type="checkbox"/>
Zirconium-97		3.77E+06	1.01E+06	pCi/g 0	N	0	11	0	SHORT_HLIF 0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244231003	06-JAN-10 12:00	21-JAN-10 09:02	14.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	NR	1.95	0.1864	pCi/g 0.1922	N	911.6	3	1.473	IDENTIFIED 7.366	<input type="checkbox"/>
Americium-243	INT	0.4337	0.03552	pCi/g 0.06711	N	74.76	1	1.049	IDENTIFIED 7.119	<input type="checkbox"/>
Annihilation Rad.		0.1226	0.03242	pCi/g 0.04406	N	510.9	1	1.485	IDENTIFIED 25.89	<input type="checkbox"/>
Bismuth-211	INT	4.29	0.356	pCi/g 0.2996	Y	351.9	4	1.174	IDENTIFIED 5.062	<input checked="" type="checkbox"/> ✓
Bismuth-212	LA	1.203	0.2132	pCi/g 0.6429	N	0	7	0	FAIL_ABUND 0	<input type="checkbox"/>
Bismuth-214	✓	1.231	0.1083	pCi/g 0.1049	0.200	609.6	4	1.181	IDENTIFIED 6.744	<input type="checkbox"/>
Cadmium-109	INT	4.482	0.5176	pCi/g 1.015	Y	87.16	3	1.166	IDENTIFIED 10.55	<input checked="" type="checkbox"/> ✓
Cerium-143		374.7	78.58	pCi/g 0	N	0	7	0	SHORT_HLIF 0	<input type="checkbox"/>
Gross Gamma		11.01	1.534	pCi/g 3.186	N		0			<input type="checkbox"/>
Iodine-135	HE	2.21E+15	1.63E+15	pCi/g 0	N	0	7	0	SHORT_HLIF 0	<input type="checkbox"/>
Lead-212	✓	2.002	0.1509	pCi/g 0.08015	0.100	238.6	4	0.9857	IDENTIFIED 2.793	<input type="checkbox"/>
Lead-214	✓	1.492	0.1298	pCi/g 0.1044	0.100	351.9	4	1.174	IDENTIFIED 5.062	<input type="checkbox"/>
Lutetium-177	HE	3.388	0.8219	pCi/g 1.914	N	0	7	0	FAIL_ABUND 0	<input type="checkbox"/>
Neptunium-237	INT	1.294	0.2004	pCi/g 0.2841	N	87.16	3	1.166	IDENTIFIED 10.55	<input type="checkbox"/>
Polonium-212	NR	2.002	0.1509	pCi/g 0.08015	N	238.6	4	0.9857	IDENTIFIED 2.793	<input type="checkbox"/>
Polonium-214	NR	1.492	0.1298	pCi/g 0.1044	N	351.9	4	1.174	IDENTIFIED 5.062	<input type="checkbox"/>
Polonium-216	NR	2.002	0.1509	pCi/g 0.08015	N	238.6	4	0.9857	IDENTIFIED 2.793	<input type="checkbox"/>
Polonium-218	NR	1.492	0.1298	pCi/g 0.1044	N	351.9	4	1.174	IDENTIFIED 5.062	<input type="checkbox"/>
Potassium-40	✓	35.88	1.804	pCi/g 0.4268	1.00	1461	1	1.822	IDENTIFIED 2.568	<input type="checkbox"/>
Radium-224	INT	5.284	0.7292	pCi/g 0.9123	Y	241.6	1	1.659	IDENTIFIED 12.06	<input checked="" type="checkbox"/> ✓
Radium-226	✓	1.231	0.1083	pCi/g 0.1049	Y	609.6	4	1.181	IDENTIFIED 6.744	<input type="checkbox"/>



Radium-228	✓	1.95	0.1864	pCi/g	0.1922	0.500	911.6	3	1.473	IDENTIFIED	7.366	<input type="checkbox"/>
Sodium-24	HE	61650	2.47E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.573	0.05052	pCi/g	0.05159	0.080	583.2	1	1.411	IDENTIFIED	6.969	<input type="checkbox"/>
Thorium-228	NR	2.031	0.1532	pCi/g	0.08134	N	238.6	4	0.9857	IDENTIFIED	2.793	<input type="checkbox"/>
Thorium-230	NR	1.231	0.1083	pCi/g	0.1049	N	609.6	4	1.181	IDENTIFIED	6.744	<input type="checkbox"/>
Thorium-232	NR	1.95	0.1864	pCi/g	0.1922	N	911.6	3	1.473	IDENTIFIED	7.366	<input type="checkbox"/>
Thorium-234	✓	1.696	0.6929	pCi/g	1.648	2.00	63.26	2	1.172	IDENTIFIED	39.92	<input type="checkbox"/>
Tin-126	INT	0.4407	0.05089	pCi/g	0.1002	N	87.16	3	1.166	IDENTIFIED	10.55	<input type="checkbox"/>
Titanium-44	LA	0.4621	0.02809	pCi/g	0.06146	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		5.0553	2.06E-06	ug/g	2.4542	N		0				<input type="checkbox"/>
Uranium-234	NR	1.231	0.1083	pCi/g	0.1049	N	609.6	4	1.181	IDENTIFIED	6.744	<input type="checkbox"/>
Uranium-238	HE	1.696	0.6929	pCi/g	1.648	N	63.26	2	1.172	IDENTIFIED	39.92	<input type="checkbox"/>
Zirconium-97	HE	8.47E+05	6.64E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244231004	06-JAN-10 12:00	21-JAN-10 09:02	14.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	NR	1.359	0.136	pCi/g	0.1781	N	910.7	3	1.317	IDENTIFIED 8.369
Americium-243	INT	0.3238	0.03364	pCi/g	0.08243	N	74.72	1	1.038	IDENTIFIED 9.819
Annihilation Rad.	HE	0.05633	0.02802	pCi/g	0.04812	N	510.9	1	1.422	IDENTIFIED 49.66
Bismuth-211	INT	3.283	0.2295	pCi/g	0.2943	Y	351.6	4	1.302	IDENTIFIED 6.244
Bismuth-212	HE	0.9938	0.2463	pCi/g	0.6107	N	0	10	0	FAIL_ABUND 0
Bismuth-214	✓	0.9949	0.088	pCi/g	0.1025	0.200	609	4	1.31	IDENTIFIED 7.83
Cadmium-109	INT	3.775	0.4787	pCi/g	1.224	Y	86.98	3	1.197	IDENTIFIED 12.1
Cerium-143		571.9	88.1	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Cesium-134	LA	0.08483	0.02577	pCi/g	0.08369	0.100	0	10	0	FAIL_ABUND 0
Gross Gamma		8.809	1.288	pCi/g	3.01	N	0			
Iodine-123	HE	1.82E+06	1.74E+06	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Iodine-133	HE	2631	2286	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Iodine-135	HE	4.90E+14	1.38E+15	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Lead-212	✓	1.586	0.07542	pCi/g	0.07922	0.100	238.4	4	1.099	IDENTIFIED 3.164
Lead-214	✓	1.142	0.08522	pCi/g	0.1026	0.100	351.6	4	1.302	IDENTIFIED 6.244
Lawrencium-177	HE	2.53	0.5803	pCi/g	1.796	N	0	10	0	FAIL_ABUND 0
Neptunium-237	INT	1.09	0.1782	pCi/g	0.3592	N	86.98	3	1.197	IDENTIFIED 12.1
Polonium-212	NR	1.586	0.07542	pCi/g	0.07922	N	238.4	4	1.099	IDENTIFIED 3.164
Polonium-214	NR	1.142	0.08522	pCi/g	0.1026	N	351.6	4	1.302	IDENTIFIED 6.244
Polonium-216	NR	1.586	0.07542	pCi/g	0.07922	N	238.4	4	1.099	IDENTIFIED 3.164
Polonium-218	NR	1.142	0.08522	pCi/g	0.1026	N	351.6	4	1.302	IDENTIFIED 6.244
Potassium-40	✓	28.78	1.305	pCi/g	0.5531	1.00	1460	1	2.144	IDENTIFIED 2.798
Radium-224	INT	3.917	0.5827	pCi/g	0.9014	Y	241.4	1	1.722	IDENTIFIED 14.62
Radium-226	✓	0.9949	0.088	pCi/g	0.1025	Y	609	4	1.31	IDENTIFIED 7.83
Radium-228	✓	1.359	0.136	pCi/g	0.1781	0.500	910.7	3	1.317	IDENTIFIED 8.369
Thallium-200	HE	127.2	164.7	pCi/g	0	N	0	10	0	SHORT_HLIF 0
Thallium-208	✓	0.5005	0.04127	pCi/g	0.04862	0.080	582.9	1	1.258	IDENTIFIED 7.428
Thorium-228	NR	1.61	0.07654	pCi/g	0.0804	N	238.4	4	1.099	IDENTIFIED 3.164
Thorium-230	NR	0.9948	0.088	pCi/g	0.1025	N	609	4	1.31	IDENTIFIED 7.83
Thorium-232	NR	1.359	0.136	pCi/g	0.1781	N	910.7	3	1.317	IDENTIFIED 8.369
Tin-126	INT	0.3712	0.04707	pCi/g	0.1209	N	86.98	3	1.197	IDENTIFIED 12.1
Titanium-44	LA	0.3714	0.02574	pCi/g	0.06952	N	0	10	0	FAIL_ABUND 0
Total Uranium		5.6356	2.20E-06	ug/g	2.916	N		0		
Uranium-234	NR	0.9948	0.088	pCi/g	0.1025	N	609	4	1.31	IDENTIFIED 7.83
Zirconium-97	HE	1.01E+06	7.81E+05	pCi/g	0	N	0	10	0	SHORT_HLIF 0

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244231005	06-JAN-10 12:00	21-JAN-10 09:03	14.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	NR	1.799	0.1815	pCi/g 0.2622	N	910.8 3	1.671	IDENTIFIED	8.647	☐	
Americium-243	INT	0.4	0.0309	pCi/g 0.05648	N	74.71 1	1.108	IDENTIFIED	6.406	☐	
Annihilation Rad.	HE	0.1175	0.04541	pCi/g 0.0532	N	511.2 1	2.102	IDENTIFIED	38.48	☐	
Barium-137m	NR	0.2151	0.03215	pCi/g 0.06896	N	661.2 2	1.92	IDENTIFIED	14.38	☐	
Bismuth-210	HE	1.566	0.4237	pCi/g 0.764	N	46.32 3	0.9173	IDENTIFIED	26.75	☐	
Bismuth-211	INT	4.042	0.2806	pCi/g 0.36	Y	351.6 4	1.292	IDENTIFIED	5.911	☑	✓
Bismuth-212	HE	0.8428	0.2271	pCi/g 0.7246	N	0 11 0		FAIL_ABUND	0	☐	
Bismuth-214	✓	1.317	0.1091	pCi/g 0.1236	0.200	609.1 4	1.643	IDENTIFIED	6.84	☐	
Cadmium-109	INT	4.159	0.4564	pCi/g 0.9482	Y	87.05 3	1.301	IDENTIFIED	10.23	☑	✓
Cerium-143		740.6	112.6	pCi/g 0	N	0 11 0		SHORT_HLIF	0	☐	
Cesium-135	NR	0.5401	0.145	pCi/g 0.2414	N	269.6 1	1.549	IDENTIFIED	26.45	☐	
Cesium-137	✓	0.2274	0.03399	pCi/g 0.0729	0.100	661.2 2	1.92	IDENTIFIED	14.38	☐	
Gross Gamma		10.29	1.535	pCi/g 3.061	N	0				☐	
Iodine-123	HE	8.05E+05	2.11E+06	pCi/g 0	N	0 11 0		SHORT_HLIF	0	☐	
Iodine-133	HE	650.6	2860	pCi/g 0	N	0 11 0		SHORT_HLIF	0	☐	
Lead-210	HE	1.566	0.4237	pCi/g 0.764	N	46.32 3	0.9173	IDENTIFIED	26.75	☐	
Lead-212	✓	1.529	0.09602	pCi/g 0.1255	0.100	238.4 4	1.281	IDENTIFIED	4.338	☐	
Lead-214	✓	1.406	0.1043	pCi/g 0.1255	0.100	351.6 4	1.292	IDENTIFIED	5.911	☐	
Lutetium-177	LA	5.918	0.8666	pCi/g 1.931	N	0 11 0		FAIL_ABUND	0	☐	
Neptunium-237	INT	1.201	0.1809	pCi/g 0.2726	N	87.05 3	1.301	IDENTIFIED	10.23	☐	
Niobium-95	HE	0.09813	0.02595	pCi/g 0.09438	N	0 11 0		NOT_IDENTI	0	☐	
Niobium-95m	LA	0.4008	0.07114	pCi/g 0.2296	N	0 11 0		NOT_IDENTI	0	☐	
Niobium-97		1.25E+05	53580	pCi/g 0	N	0 11 0		SHORT_HLIF	0	☐	
Polonium-210	HE	1.566	0.4226	pCi/g 0.764	N	46.32 3	0.9173	IDENTIFIED	26.75	☐	
Polonium-212	NR	1.529	0.09602	pCi/g 0.1255	N	238.4 4	1.281	IDENTIFIED	4.338	☐	
Polonium-214	NR	1.406	0.1043	pCi/g 0.1255	N	351.6 4	1.292	IDENTIFIED	5.911	☐	
Polonium-216	NR	1.529	0.09602	pCi/g 0.1255	N	238.4 4	1.281	IDENTIFIED	4.338	☐	
Polonium-218	NR	1.406	0.1043	pCi/g 0.1255	N	351.6 4	1.292	IDENTIFIED	5.911	☐	
Potassium-40	✓	36.5	1.469	pCi/g 0.5905	1.00	1460 1	2.284	IDENTIFIED	2.617	☐	
Radium-224	INT	2.478	0.4056	pCi/g 1.118	Y	241.6 1	1.294	IDENTIFIED	15.89	☑	✓
Radium-226	✓	1.317	0.1091	pCi/g 0.1236	Y	609.1 4	1.643	IDENTIFIED	6.84	☐	
Radium-228	✓	1.799	0.1815	pCi/g 0.2622	0.500	910.8 3	1.671	IDENTIFIED	8.647	☐	
Thallium-200	HE	238.3	216.5	pCi/g 0	N	0 11 0		SHORT_HLIF	0	☐	
Thallium-208	✓	0.5696	0.04815	pCi/g 0.0694	0.080	582.8 1	1.618	IDENTIFIED	7.371	☐	
Thorium-228	NR	1.552	0.09746	pCi/g 0.1274	N	238.4 4	1.281	IDENTIFIED	4.338	☐	
Thorium-230	NR	1.317	0.1091	pCi/g 0.1236	N	609.1 4	1.643	IDENTIFIED	6.84	☐	
Thorium-232	NR	1.799	0.1815	pCi/g 0.2622	N	910.8 3	1.671	IDENTIFIED	8.647	☐	
Thorium-234	✓	2.187	0.5547	pCi/g 0.9588	2.00	63.1 2	1.272	IDENTIFIED	23.65	☐	
Tin-126	INT	0.4089	0.04487	pCi/g 0.09311	N	87.05 3	1.301	IDENTIFIED	10.23	☐	
Titanium-44	LA	0.4037	0.02577	pCi/g 0.05252	N	0 11 0		FAIL_ABUND	0	☐	
Total Uranium		6.5909	1.65E-06	ug/g 1.4295	N	0				☐	
Uranium-234	NR	1.317	0.1091	pCi/g 0.1236	N	609.1 4	1.643	IDENTIFIED	6.84	☐	
Uranium-238	NR	2.187	0.5547	pCi/g 0.9588	N	63.1 2	1.272	IDENTIFIED	23.65	☐	
Zirconium-97		2.82E+06	1.00E+06	pCi/g 0	N	0 11 0		SHORT_HLIF	0	☐	

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project	Quals	Zero?	quene
244231006	06-JAN-10 12:00	21-JAN-10 09:03	14.9	SAMPLE	LOAD	1	LANL	LANL01004GEL		N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	NR	1.644	0.1571	pCi/g 0.1722	N	911 3	1.939	IDENTIFIED	7.336	☐	
Americium-243	INT	0.3556	0.03373	pCi/g 0.07364	N	74.91 1	1.228	IDENTIFIED	8.584	☐	
Annihilation Rad.		0.1115	0.02966	pCi/g 0.042	N	510.7 1	1.998	IDENTIFIED	26.2	☐	
Barium-137m	NR	0.6866	0.05587	pCi/g 0.05855	N	661.5 2	1.474	IDENTIFIED	6.406	☐	
Bismuth-211	INT	3.525	0.2609	pCi/g 0.2998	Y	351.7 4	1.219	IDENTIFIED	5.648	☑	✓
Bismuth-212	LA	1.294	0.1922	pCi/g 0.6173	N	0 9 0		FAIL_ABUND	0	☐	
Bismuth-214	✓	1.137	0.1017	pCi/g 0.1121	0.200	609.4 4	1.48	IDENTIFIED	7.003	☐	
Cadmium-109	INT	3.406	0.4837	pCi/g 1.034	Y	87.35 3	1.267	IDENTIFIED	13.41	☑	✓



Technetium-99m	HE	1.75E+13	5.03E+13	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.4886	0.05124	pCi/g	0.07043	0.080	582.5	1	1.531	IDENTIFIED	9.992	<input type="checkbox"/>
Thorium-228	NR	1.737	0.09996	pCi/g	0.1179	N	238	4	1.381	IDENTIFIED	4.001	<input type="checkbox"/>
Thorium-230	NR	1.185	0.1075	pCi/g	0.1383	N	608.8	4	1.794	IDENTIFIED	8.278	<input type="checkbox"/>
Thorium-232	NR	1.774	0.194	pCi/g	0.2094	N	910.7	3	1.785	IDENTIFIED	9.413	<input type="checkbox"/>
Tin-126	HE	0.295	0.05707	pCi/g	0.1866	N	86.56	3	1.365	IDENTIFIED	18.48	<input type="checkbox"/>
Titanium-44	LA	0.207	0.03254	pCi/g	0.1039	N	0	7	0	NOT_IDENTI	0	<input type="checkbox"/>
Uranium-234	NR	1.185	0.1075	pCi/g	0.1383	N	608.8	4	1.794	IDENTIFIED	8.278	<input type="checkbox"/>
Zirconium-97		9.89E+05	1.61E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244515002	08-JAN-10 12:00	21-JAN-10 09:17	12.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	NR	2.149	0.2431	pCi/g	0.2375	N	910.6	3	1.562	IDENTIFIED	9.792	<input type="checkbox"/>
Americium-243	INT	0.4283	0.03425	pCi/g	0.06061	N	74.86	1	0.9861	IDENTIFIED	6.334	<input type="checkbox"/>
Annihilation Rad.	HE	0.08314	0.04645	pCi/g	0.0605	N	510.6	1	1.685	IDENTIFIED	55.69	<input type="checkbox"/>
Bismuth-210	HE	1.073	0.3878	pCi/g	0.8822	N	46.5	3	0.9154	IDENTIFIED	35.72	<input type="checkbox"/>
Bismuth-211	INT	4.257	0.3065	pCi/g	0.3702	Y	351.7	4	1.217	IDENTIFIED	5.486	✓
Bismuth-212	HE	1.268	0.2374	pCi/g	0.8254	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>
Bismuth-214	✓	1.458	0.1216	pCi/g	0.1469	0.200	608.8	4	1.347	IDENTIFIED	6.603	<input type="checkbox"/>
Cadmium-109	INT	3.186	0.4475	pCi/g	1.099	Y	87.13	3	1.145	IDENTIFIED	13.17	✓
Cerium-143		229.3	38.78	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Gross Gamma		10.41	1.625	pCi/g	5.006	N	0	0				<input type="checkbox"/>
Iodine-123	HE	48970	1.80E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Lead-210	HE	1.073	0.3878	pCi/g	0.8822	N	46.5	3	0.9154	IDENTIFIED	35.72	<input type="checkbox"/>
Lead-212	✓	1.871	0.1145	pCi/g	0.09455	0.100	238.5	4	1.011	IDENTIFIED	3.472	<input type="checkbox"/>
Lead-214	✓	1.481	0.1134	pCi/g	0.1333	0.100	351.7	4	1.217	IDENTIFIED	5.486	<input type="checkbox"/>
Neptunium-237	INT	0.9227	0.1608	pCi/g	0.3545	N	87.13	3	1.145	IDENTIFIED	13.17	<input type="checkbox"/>
Polonium-210	HE	1.073	0.3872	pCi/g	0.8822	N	46.5	3	0.9154	IDENTIFIED	35.72	<input type="checkbox"/>
Polonium-212	NR	1.871	0.1145	pCi/g	0.09455	N	238.5	4	1.011	IDENTIFIED	3.472	<input type="checkbox"/>
Polonium-214	NR	1.481	0.1134	pCi/g	0.1333	N	351.7	4	1.217	IDENTIFIED	5.486	<input type="checkbox"/>
Polonium-216	NR	1.871	0.1145	pCi/g	0.09455	N	238.5	4	1.011	IDENTIFIED	3.472	<input type="checkbox"/>
Polonium-218	NR	1.481	0.1134	pCi/g	0.1333	N	351.7	4	1.217	IDENTIFIED	5.486	<input type="checkbox"/>
Potassium-40	✓	29.22	1.68	pCi/g	0.6271	1.00	1459	1	1.875	IDENTIFIED	3.655	<input type="checkbox"/>
Radium-224	INT	5.435	0.7424	pCi/g	1.077	Y	241.5	1	1.76	IDENTIFIED	12.89	✓
Radium-226	✓	1.458	0.1216	pCi/g	0.1469	Y	608.8	4	1.347	IDENTIFIED	6.603	<input type="checkbox"/>
Radium-228	✓	2.149	0.2431	pCi/g	0.2375	0.500	910.6	3	1.562	IDENTIFIED	9.792	<input type="checkbox"/>
Sodium-24	HE	24290	38000	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-200	HE	86.23	60.95	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>
Thallium-208	✓	0.5738	0.06174	pCi/g	0.08136	0.080	582.8	1	1.217	IDENTIFIED	9.665	<input type="checkbox"/>
Thorium-228	NR	1.895	0.116	pCi/g	0.09578	N	238.5	4	1.011	IDENTIFIED	3.472	<input type="checkbox"/>
Thorium-230	NR	1.458	0.1216	pCi/g	0.1469	N	608.8	4	1.347	IDENTIFIED	6.603	<input type="checkbox"/>
Thorium-232	NR	2.149	0.2431	pCi/g	0.2375	N	910.6	3	1.562	IDENTIFIED	9.792	<input type="checkbox"/>
Thorium-234	✓	1.434	0.6029	pCi/g	1.073	2.00	63.19	2	1.054	IDENTIFIED	40.99	<input type="checkbox"/>
Tin-126	INT	0.3142	0.04413	pCi/g	0.1082	N	87.13	3	1.145	IDENTIFIED	13.17	<input type="checkbox"/>
Titanium-44	LA	0.4182	0.02756	pCi/g	0.06591	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		4.2521	1.79E-06	ug/g	1.5996	N	0					<input type="checkbox"/>
Uranium-234	NR	1.458	0.1216	pCi/g	0.1469	N	608.8	4	1.347	IDENTIFIED	6.603	<input type="checkbox"/>
Uranium-238	HE	1.434	0.6029	pCi/g	1.073	N	63.19	2	1.054	IDENTIFIED	40.99	<input type="checkbox"/>
Zirconium-97		4.18E+05	1.36E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244515003	08-JAN-10 12:00	21-JAN-10 09:18	12.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy	***	FWHM	Comb Act	Rpt Err(%)	Qual	Qual Comment
Actinium-228	NR	1.913	0.1852	pCi/g	0.2358	N	911.5	3	2.016	IDENTIFIED	7.859	<input type="checkbox"/>
Americium-243	INT	0.4866	0.05752	pCi/g	0.1083	N	74.92	1	1.609	IDENTIFIED	11.13	<input type="checkbox"/>

Annihilation Rad.	HE	0.1135	0.03505	pCi/g	0.05499	N	510.5	1	1.777	IDENTIFIED	30.73	<input type="checkbox"/>	
Bismuth-211	INT	4.943	0.3195	pCi/g	0.3737	Y	351.8	4	1.465	IDENTIFIED	5.619	<input checked="" type="checkbox"/>	✓
Bismuth-212	LA	1.408	0.2038	pCi/g	0.7772	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.406	0.1107	pCi/g	0.1373	0.200	609.4	4	1.312	IDENTIFIED	6.822	<input type="checkbox"/>	
Cerium-143		374.4	51.51	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Cesium-134	LA	0.1058	0.03859	pCi/g	0.1045	0.100	0	13	0	FAIL_ABUND	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gross Gamma		10.81	1.68	pCi/g	3.873	N		0				<input type="checkbox"/>	
Iodine-123	HE	11910	2.04E+05	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-133	HE	958.5	541.3	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135		2.55E+13	1.11E+13	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Krypton-85	HE	17.95	4.34	pCi/g	14.76	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Lead-212	✓	1.912	0.09422	pCi/g	0.1056	0.100	238.6	4	1.284	IDENTIFIED	3.355	<input type="checkbox"/>	
Lead-214	✓	1.72	0.1198	pCi/g	0.1302	0.100	351.8	4	1.465	IDENTIFIED	5.619	<input type="checkbox"/>	
Lutetium-177	HE	2.225	0.6967	pCi/g	1.882	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Niobium-95m	LA	0.4762	0.08829	pCi/g	0.2829	N	0	13	0	NOT_IDENTI	0	<input type="checkbox"/>	
Polonium-212	NR	1.912	0.09422	pCi/g	0.1056	N	238.6	4	1.284	IDENTIFIED	3.355	<input type="checkbox"/>	
Polonium-214	NR	1.72	0.1198	pCi/g	0.1302	N	351.8	4	1.465	IDENTIFIED	5.619	<input type="checkbox"/>	
Polonium-216	NR	1.912	0.09422	pCi/g	0.1056	N	238.6	4	1.284	IDENTIFIED	3.355	<input type="checkbox"/>	
Polonium-218	NR	1.72	0.1198	pCi/g	0.1302	N	351.8	4	1.465	IDENTIFIED	5.619	<input type="checkbox"/>	
Potassium-40	✓	34.08	1.63	pCi/g	0.4749	1.00	1461	1	1.956	IDENTIFIED	3.004	<input type="checkbox"/>	
Radium-224	INT	4.689	0.767	pCi/g	1.201	Y	241.6	1	1.798	IDENTIFIED	16.11	<input checked="" type="checkbox"/>	✓
Radium-226	✓	1.406	0.1107	pCi/g	0.1373	Y	609.4	4	1.312	IDENTIFIED	6.822	<input type="checkbox"/>	
Radium-228	✓	1.913	0.1852	pCi/g	0.2358	0.500	911.5	3	2.016	IDENTIFIED	7.859	<input type="checkbox"/>	
Sodium-24	HE	28950	32800	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	
Strontium-85	LA	0.08988	0.02174	pCi/g	0.07391	Y	0	13	0	NOT_IDENTI	0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Thallium-208	✓	0.622	0.04828	pCi/g	0.06767	0.080	583.3	1	1.555	IDENTIFIED	6.978	<input type="checkbox"/>	
Thorium-228	NR	1.937	0.09544	pCi/g	0.1069	N	238.6	4	1.284	IDENTIFIED	3.355	<input type="checkbox"/>	
Thorium-230	NR	1.406	0.1107	pCi/g	0.1373	N	609.4	4	1.312	IDENTIFIED	6.822	<input type="checkbox"/>	
Thorium-232	NR	1.913	0.1852	pCi/g	0.2358	N	911.5	3	2.016	IDENTIFIED	7.859	<input type="checkbox"/>	
Titanium-44	LA	0.4266	0.03267	pCi/g	0.09798	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>	
Total Uranium		5.9948	3.23E-06	ug/g	3.5017	N		0				<input type="checkbox"/>	
Uranium-234	NR	1.406	0.1107	pCi/g	0.1373	N	609.4	4	1.312	IDENTIFIED	6.822	<input type="checkbox"/>	
Zirconium-97		5.08E+05	1.27E+05	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244515004	08-JAN-10 12:00	21-JAN-10 09:18	12.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228	2.067	0.1961	pCi/g	0.2549	N	911.2	3	1.374	IDENTIFIED	7.396
Americium-243	0.432	0.032	pCi/g	0.04981	N	74.86	1	0.9213	IDENTIFIED	5.39
Annihilation Rad.	0.1895	0.03405	pCi/g	0.05324	N	510.6	1	1.72	IDENTIFIED	17.22
Bismuth-210	1.943	0.4437	pCi/g	0.6926	N	46.69	3	0.9184	IDENTIFIED	22.25
Bismuth-211	5.095	0.3755	pCi/g	0.3265	Y	351.8	4	1.113	IDENTIFIED	5.163
Bismuth-212	1.493	0.3434	pCi/g	0.8029	N	0	9	0	FAIL_ABUND	0
Bismuth-214	1.707	0.1443	pCi/g	0.1147	0.200	609.2	4	1.405	IDENTIFIED	5.921
Cadmium-109	4.415	0.4417	pCi/g	0.7695	Y	87.26	3	1.112	IDENTIFIED	8.45
Cerium-143	151.2	29.4	pCi/g	0	N	0	9	0	SHORT_HLIF	0
Cesium-134	0.1121	0.03214	pCi/g	0.1075	0.100	0	9	0	FAIL_ABUND	0
Gold-195	0.3842	0.08777	pCi/g	0.2988	N	0	9	0	FAIL_ABUND	0
Gross Gamma	11.93	1.401	pCi/g	3.47	N		0			
Iodine-133	54.79	575.7	pCi/g	0	N	0	9	0	SHORT_HLIF	0
Iodine-135	8.03E+12	1.34E+13	pCi/g	0	N	0	9	0	SHORT_HLIF	0
Lead-210	1.943	0.4437	pCi/g	0.6926	N	46.69	3	0.9184	IDENTIFIED	22.25
Lead-212	2.032	0.1298	pCi/g	0.08889	0.100	238.7	4	0.9992	IDENTIFIED	2.895
Lead-214	1.772	0.1386	pCi/g	0.1138	0.100	351.8	4	1.113	IDENTIFIED	5.163
Lutetium-177	3.032	0.6146	pCi/g	1.612	N	0	9	0	FAIL_ABUND	0
Neptunium-237	1.279	0.1837	pCi/g	0.2478	N	87.26	3	1.112	IDENTIFIED	8.45
Polonium-210	1.943	0.4421	pCi/g	0.6926	N	46.69	3	0.9184	IDENTIFIED	22.25



Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244515006	08-JAN-10 12:00	21-JAN-10 09:28	12.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 NR	1.815	0.2132	pCi/g	0.3417	N	910.8 3	1.497	IDENTIFIED 10.29	<input type="checkbox"/>	
Americium-243 NT	0.3973	0.02747	pCi/g	0.04864	N	74.91 1	0.821	IDENTIFIED 5.458	<input type="checkbox"/>	
Annihilation Rad.	0.1704	0.04214	pCi/g	0.05455	N	510.9 1	1.768	IDENTIFIED 24.26	<input type="checkbox"/>	
Bismuth-210 NR	1.502	0.3611	pCi/g	0.6404	N	46.3 3	0.6577	IDENTIFIED 23.56	<input type="checkbox"/>	
Bismuth-211 NT	4.184	0.3188	pCi/g	0.3613	Y	351.7 4	1.079	IDENTIFIED 6.143	<input checked="" type="checkbox"/>	✓
Bismuth-212 HE	1.003	0.3883	pCi/g	0.8942	N	0 11 0		FAIL_ABUND 0	<input type="checkbox"/>	
Bismuth-214 ✓	1.386	0.1319	pCi/g	0.1206	0.200	609.1 4	1.197	IDENTIFIED 7.458	<input type="checkbox"/>	
Cadmium-109 NT	4.007	0.3999	pCi/g	0.8054	Y	87.22 3	0.9449	IDENTIFIED 8.819	<input checked="" type="checkbox"/>	✓
Cerium-143	140.7	29.71	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Cesium-134 LA	0.1726	0.04375	pCi/g	0.1289	0.100	0 11 0		FAIL_ABUND 0	<input checked="" type="checkbox"/>	UI Data rejected due to low abundance.
Gold-195 HE	0.3468	0.1067	pCi/g	0.2731	N	0 11 0		FAIL_ABUND 0	<input type="checkbox"/>	
Gross Gamma	10.9	1.576	pCi/g	4.532	N	0			<input type="checkbox"/>	
Iodine-123 HE	9559	1.52E+05	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Iodine-135 HE	9.85E+12	1.41E+13	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Lead-210 NR	1.502	0.3611	pCi/g	0.6404	N	46.3 3	0.6577	IDENTIFIED 23.56	<input type="checkbox"/>	
Lead-212 ✓	1.974	0.1149	pCi/g	0.08985	0.100	238.5 4	0.8773	IDENTIFIED 3.028	<input type="checkbox"/>	
Lead-214 ✓	1.455	0.1172	pCi/g	0.126	0.100	351.7 4	1.079	IDENTIFIED 6.143	<input type="checkbox"/>	
Lutetium-177 LA	3.287	0.7028	pCi/g	1.669	N	0 11 0		FAIL_ABUND 0	<input type="checkbox"/>	
Neptunium-237 NT	1.16	0.1666	pCi/g	0.2319	N	87.22 3	0.9449	IDENTIFIED 8.819	<input type="checkbox"/>	
Niobium-97 HE	3633	6780	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Polonium-210 NR	1.502	0.3599	pCi/g	0.6404	N	46.3 3	0.6577	IDENTIFIED 23.56	<input type="checkbox"/>	
Polonium-212 NR	1.974	0.1149	pCi/g	0.08985	N	238.5 4	0.8773	IDENTIFIED 3.028	<input type="checkbox"/>	
Polonium-214 NR	1.455	0.1172	pCi/g	0.126	N	351.7 4	1.079	IDENTIFIED 6.143	<input type="checkbox"/>	
Polonium-216 NR	1.974	0.1149	pCi/g	0.08985	N	238.5 4	0.8773	IDENTIFIED 3.028	<input type="checkbox"/>	
Polonium-218 NR	1.455	0.1172	pCi/g	0.126	N	351.7 4	1.079	IDENTIFIED 6.143	<input type="checkbox"/>	
Potassium-40 ✓	31.49	1.736	pCi/g	0.5918	1.00	1460 1	1.83	IDENTIFIED 3.492	<input type="checkbox"/>	
Radium-224 NT	5.601	0.8029	pCi/g	1.025	Y	241.4 1	1.728	IDENTIFIED 13.63	<input checked="" type="checkbox"/>	✓
Radium-226 ✓	1.386	0.1319	pCi/g	0.1206	Y	609.1 4	1.197	IDENTIFIED 7.458	<input type="checkbox"/>	
Radium-228 ✓	1.815	0.2132	pCi/g	0.3417	0.500	910.8 3	1.497	IDENTIFIED 10.29	<input type="checkbox"/>	
Technetium-99m HE	5.50E+13	3.64E+13	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	
Thallium-208 ✓	0.6529	0.06024	pCi/g	0.06484	0.080	582.9 1	1.2	IDENTIFIED 7.447	<input type="checkbox"/>	
Thorium-228 NR	1.999	0.1164	pCi/g	0.09101	N	238.5 4	0.8773	IDENTIFIED 3.028	<input type="checkbox"/>	
Thorium-230 NR	1.386	0.1319	pCi/g	0.1206	N	609.1 4	1.197	IDENTIFIED 7.458	<input type="checkbox"/>	
Thorium-232 NR	1.815	0.2132	pCi/g	0.3417	N	910.8 3	1.497	IDENTIFIED 10.29	<input type="checkbox"/>	
Thorium-234 ✓	1.685	0.4376	pCi/g	0.792	2.00	63.38 2	0.7888	IDENTIFIED 24.43	<input type="checkbox"/>	
Tin-126 NT	0.3952	0.03944	pCi/g	0.07929	N	87.22 3	0.9449	IDENTIFIED 8.819	<input type="checkbox"/>	
Titanium-44 LA	0.436	0.0248	pCi/g	0.04144	N	0 11 0		FAIL_ABUND 0	<input type="checkbox"/>	
Total Uranium	5.0058	1.30E-06	ug/g	1.1808	N	0			<input type="checkbox"/>	
Uranium-234 NR	1.386	0.1319	pCi/g	0.1206	N	609.1 4	1.197	IDENTIFIED 7.458	<input type="checkbox"/>	
Uranium-238 NR	1.685	0.4376	pCi/g	0.792	N	63.38 2	0.7888	IDENTIFIED 24.43	<input type="checkbox"/>	
Zirconium-97 HE	80870	1.27E+05	pCi/g	0	N	0 11 0		SHORT_HLIF 0	<input type="checkbox"/>	

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
244515007	08-JAN-10 12:00	21-JAN-10 09:59	12.9	SAMPLE	LOAD	1	LANL	LANL01004GEL	N	RGSP
Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb Act Rpt Err(%)	Qual	Qual Comment
Actinium-228 NR	2.221	0.231	pCi/g	0.2951	N	910.1 3	2.047	IDENTIFIED 8.357	<input type="checkbox"/>	
Americium-243 NT	0.4638	0.03686	pCi/g	0.06637	N	74.64 1	1.452	IDENTIFIED 6.915	<input type="checkbox"/>	
Annihilation Rad.	0.1795	0.04221	pCi/g	0.05508	N	510.5 1	2.014	IDENTIFIED 23.29	<input type="checkbox"/>	
Bismuth-211 NT	4.224	0.3093	pCi/g	0.3989	Y	351.7 4	1.418	IDENTIFIED 6.163	<input checked="" type="checkbox"/>	✓
Bismuth-212 NR	1.198	0.3009	pCi/g	0.5534	N	726.5 1	1.949	IDENTIFIED 24.71	<input type="checkbox"/>	
Bismuth-214 ✓	1.282	0.1151	pCi/g	0.1428	0.200	608.5 4	1.639	IDENTIFIED 7.937	<input type="checkbox"/>	
Cadmium-109 NT	4.491	0.4719	pCi/g	1.093	Y	87.17 3	1.251	IDENTIFIED 9.794	<input checked="" type="checkbox"/>	✓
Cerium-143	418.1	62.87	pCi/g	0	N	0 9 0		SHORT_HLIF 0	<input type="checkbox"/>	





Polonium-214	NR	1.737	0.1334	pCi/g	0.1064	N	352	4	1.378	IDENTIFIED	4.293	<input type="checkbox"/>
Polonium-216	NR	2.226	0.1584	pCi/g	0.09334	N	238.7	4	1.327	IDENTIFIED	2.645	<input type="checkbox"/>
Polonium-218	NR	1.737	0.1334	pCi/g	0.1064	N	352	4	1.378	IDENTIFIED	4.293	<input type="checkbox"/>
Potassium-40	✓	38.15	1.945	pCi/g	0.535	1.00	1461	1	2.694	IDENTIFIED	2.238	<input type="checkbox"/>
Radium-224	WT	4.899	0.7169	pCi/g	1.061	Y	241.8	1	1.886	IDENTIFIED	13.22	<input checked="" type="checkbox"/> UI
Radium-226	✓	1.328	0.1094	pCi/g	0.1081	Y	609.5	4	1.407	IDENTIFIED	5.836	<input type="checkbox"/>
Radium-228	✓	2.105	0.2082	pCi/g	0.2102	0.500	911.3	3	2.002	IDENTIFIED	7.347	<input type="checkbox"/>
Strontium-85	LA	0.1445	0.02212	pCi/g	0.07162	Y	0	13	0	NOT_IDENTI	0	<input checked="" type="checkbox"/> UI Data rejected due to low abundance.
Thallium-208	✓	0.603	0.04982	pCi/g	0.05492	0.080	583.2	1	1.687	IDENTIFIED	6.234	<input type="checkbox"/>
Thorium-228	NR	2.255	0.1605	pCi/g	0.09455	N	238.7	4	1.327	IDENTIFIED	2.645	<input type="checkbox"/>
Thorium-230	NR	1.328	0.1094	pCi/g	0.1081	N	609.5	4	1.407	IDENTIFIED	5.836	<input type="checkbox"/>
Thorium-232	NR	2.105	0.2082	pCi/g	0.2102	N	911.3	3	2.002	IDENTIFIED	7.347	<input type="checkbox"/>
Thorium-234	✓	3.175	0.9409	pCi/g	1.903	2.00	63.5	2	0.97	IDENTIFIED	28.32	<input type="checkbox"/>
Tin-126	WT	0.4051	0.05528	pCi/g	0.1138	N	87.24	3	1.3	IDENTIFIED	12.81	<input type="checkbox"/>
Titanium-44	LA	0.4516	0.03064	pCi/g	0.07988	N	0	13	0	FAIL_ABUND	0	<input type="checkbox"/>
Total Uranium		9.4543	2.80E-06	ug/g	2.8343	N		0				<input type="checkbox"/>
Uranium-234	NR	1.328	0.1094	pCi/g	0.1081	N	609.5	4	1.407	IDENTIFIED	5.836	<input type="checkbox"/>
Uranium-238	HE	3.175	0.9409	pCi/g	1.903	N	63.5	2	0.97	IDENTIFIED	28.32	<input type="checkbox"/>
Zirconium-97		8.41E+05	1.29E+05	pCi/g	0	N	0	13	0	SHORT_HLIF	0	<input type="checkbox"/>

\*\*\* = Number of isotopes identified with a keyline at this energy.

Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202014513		21-JAN-10 11:03	0	MB	LOAD	1		GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Iodine-133 HE	3.46	3.873	pCi/g	0	N	0	1	0	SHORT_HLIF	0		<input type="checkbox"/>	

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Sample ID	Collect Date	Run Date	Days Past	Sample Type	Status	Instance	Client	Project Quals	Zero?	queue
1202014514	08-JAN-10 12:00	21-JAN-10 11:24	13	DUP	LOAD	1		LANL01004GEL	N	RGSP

Name	Result	Uncert.	Units	MDA	RDL	Energy ***	FWHM	Comb	Act	Rpt	Err(%)	Qual	Qual Comment
Actinium-228	NR	1.764	0.2387	pCi/g	0.2875	N	910.5	3	1.389	IDENTIFIED	12.29	<input type="checkbox"/>	
Americium-243	WT	0.3876	0.0312	pCi/g	0.06191	N	74.87	1	0.9043	IDENTIFIED	6.401	<input type="checkbox"/>	
Annihilation Rad.	HE	0.1186	0.04283	pCi/g	0.05292	N	510.5	1	1.333	IDENTIFIED	35.83	<input type="checkbox"/>	
Bismuth-210	HE	0.914	0.4986	pCi/g	0.896	N	46.81	3	1.033	IDENTIFIED	54.29	<input type="checkbox"/>	
Bismuth-211	WT	4.672	0.3392	pCi/g	0.3701	Y	351.7	4	1.097	IDENTIFIED	5.564	<input checked="" type="checkbox"/> UI	
Bismuth-212	HE	1.42	0.329	pCi/g	0.8794	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>	
Bismuth-214	✓	1.525	0.12	pCi/g	0.1349	0.200	609	4	1.371	IDENTIFIED	6.008	<input type="checkbox"/>	
Cadmium-109	WT	4.594	0.4701	pCi/g	0.9884	Y	87.31	3	1.181	IDENTIFIED	8.995	<input checked="" type="checkbox"/> UI	
Cerium-143		250.7	42.09	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	
Gross Gamma		9.935	1.655	pCi/g	4.313	N		0				<input type="checkbox"/>	
Iodine-123	HE	2.46E+05	2.03E+05	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	
Iodine-135	HE	1.07E+13	1.88E+13	pCi/g	0	N	0	7	0	SHORT_HLIF	0	<input type="checkbox"/>	
Lead-210	HE	0.914	0.4986	pCi/g	0.896	N	46.81	3	1.033	IDENTIFIED	54.29	<input type="checkbox"/>	
Lead-212	✓	1.849	0.1127	pCi/g	0.09231	0.100	238.5	4	1.034	IDENTIFIED	3.429	<input type="checkbox"/>	
Lead-214	✓	1.625	0.1254	pCi/g	0.1291	0.100	351.7	4	1.097	IDENTIFIED	5.564	<input type="checkbox"/>	
Lutetium-177	HE	2.322	0.7001	pCi/g	1.835	N	0	7	0	FAIL_ABUND	0	<input type="checkbox"/>	
Neptunium-237	WT	1.33	0.1933	pCi/g	0.2849	N	87.31	3	1.181	IDENTIFIED	8.995	<input type="checkbox"/>	
Polonium-210	HE	0.914	0.4983	pCi/g	0.896	N	46.81	3	1.033	IDENTIFIED	54.29	<input type="checkbox"/>	
Polonium-212	NR	1.849	0.1127	pCi/g	0.09231	N	238.5	4	1.034	IDENTIFIED	3.429	<input type="checkbox"/>	
Polonium-214	NR	1.625	0.1254	pCi/g	0.1291	N	351.7	4	1.097	IDENTIFIED	5.564	<input type="checkbox"/>	
Polonium-216	NR	1.849	0.1127	pCi/g	0.09231	N	238.5	4	1.034	IDENTIFIED	3.429	<input type="checkbox"/>	
Polonium-218	NR	1.625	0.1254	pCi/g	0.1291	N	351.7	4	1.097	IDENTIFIED	5.564	<input type="checkbox"/>	
Potassium-40	✓	27.44	1.595	pCi/g	0.696	1.00	1459	1	1.977	IDENTIFIED	3.754	<input type="checkbox"/>	
Radium-224	WT	5.08	0.811	pCi/g	1.051	Y	241.4	1	1.728	IDENTIFIED	15.31	<input checked="" type="checkbox"/> UI	
Radium-226	✓	1.525	0.12	pCi/g	0.1349	Y	609	4	1.371	IDENTIFIED	6.008	<input type="checkbox"/>	
Radium-228	✓	1.764	0.2387	pCi/g	0.2875	0.500	910.5	3	1.389	IDENTIFIED	12.29	<input type="checkbox"/>	
Thallium-208	✓	0.6005	0.05558	pCi/g	0.07195	0.080	582.8	1	1.501	IDENTIFIED	7.957	<input type="checkbox"/>	
Thorium-228	NR	1.873	0.1142	pCi/g	0.09351	N	238.5	4	1.034	IDENTIFIED	3.429	<input type="checkbox"/>	



# Result Greater Than DL

Batch Id	Sample Id	Sample Type	Run Date	Paramname	Result	Uncertainty	Units	DL	RDL
941242	244515008	SAMPLE	21-JAN-10	Lead-214	1.737	0.1334	pCi/g	0.05321	0.100
				Mercury-203	0.06122	0.02205	pCi/g	0.03725	0.100
				Potassium-40	38.15	1.945	pCi/g	0.2677	1.00
				Radium-224	4.899	0.7169	pCi/g	0.5308	Y
				Radium-226	1.328	0.1094	pCi/g	0.05407	Y
				Radium-228	2.105	0.2082	pCi/g	0.1052	0.500
				Strontium-85	0.1445	0.02212	pCi/g	0.03583	Y
				Thallium-208	0.603	0.04982	pCi/g	0.02747	0.080
				Thorium-234	3.175	0.9409	pCi/g	0.9522	2.00
				Zirconium-97	8.41E+05	1.29E+05	pCi/g	0	N

MLP  
1/25/10

941242 1202014513 MB 21-JAN-10

941242	1202014514	DUP	21-JAN-10	Bismuth-211	4.672	0.3392	pCi/g	0.1852	Y
				Bismuth-214	1.525	0.12	pCi/g	0.06751	0.200
				Cadmium-109	4.594	0.4701	pCi/g	0.4945	Y
				Cerium-143	250.7	42.09	pCi/g	0	N
				Gross Gamma	9.935	1.655	pCi/g	2.091	N
				Iodine-123	2.46E+05	2.03E+05	pCi/g	0	N
				Iodine-135	1.07E+13	1.88E+13	pCi/g	0	N
				Krypton-85	8.889	4.605	pCi/g	7.375	N
				Lead-212	1.849	0.1127	pCi/g	0.04618	0.100
				Lead-214	1.625	0.1254	pCi/g	0.06457	0.100
				Potassium-40	27.44	1.595	pCi/g	0.3482	1.00
				Radium-224	5.08	0.811	pCi/g	0.5259	Y
				Radium-226	1.525	0.12	pCi/g	0.06751	Y
				Radium-228	1.764	0.2387	pCi/g	0.1438	0.500
				Strontium-85	0.04346	0.02308	pCi/g	0.03697	Y
				Thallium-208	0.6005	0.05558	pCi/g	0.036	0.080
				Thorium-234	0.8183	0.5505	pCi/g	0.5393	2.00
				Yttrium-88	0.03534	0.01596	pCi/g	0.03267	0.100
				Zirconium-97	2.72E+05	1.35E+05	pCi/g	0	N

941242 1202014515 LCS 21-JAN-10

941242	1202014515	LCS	21-JAN-10	Americium-241	14.49	0.7581	pCi/g	0.1133	0.200
				Barium-137m	5.54	0.2684	pCi/g	0.07	N
				Bismuth-211	2.586	0.3815	pCi/g	0.3696	Y
				Bismuth-214	0.9915	0.1508	pCi/g	0.1154	0.200
				Cadmium-109	38.97	1.869	pCi/g	0.909	Y
				Cerium-143	15.02	3.269	pCi/g	5.082	N
				Cesium-134	0.1133	0.05768	pCi/g	0.1042	0.100

MLP  
1/25/10

VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:01:59.01

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231001.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:01:33
Sample ID          : G244231001      Sample quantity   : 1.34080E+02 GRAM
Detector name      : GAM02            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:02.72  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941242            Detector SN#     :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	62.93*	72	473	0.96	125.06	121	9	1.00E-02	58.2	
2	2	74.55	325	398	1.08	148.31	141	18	4.51E-02	11.7	1.65E+00
3	2	76.91*	482	283	0.91	153.03	141	18	6.69E-02	7.1	
4	0	83.78*	80	356	1.15	166.78	164	6	1.12E-02	40.0	
5	3	86.85	215	278	1.22	172.91	170	20	2.98E-02	13.3	2.60E+00
6	3	89.69	147	328	1.04	178.60	170	20	2.04E-02	21.1	
7	3	92.43*	409	372	1.17	184.08	170	20	5.68E-02	10.3	
8	0	185.56*	173	450	1.21	370.44	366	10	2.40E-02	25.8	
9	0	208.80	100	295	0.99	416.94	413	9	1.39E-02	32.7	
10	5	238.39*	1041	167	1.09	476.15	469	20	1.45E-01	3.8	1.25E+00
11	5	241.37*	240	238	1.89	482.12	469	20	3.33E-02	18.9	
12	0	269.61	91	199	1.53	538.63	535	9	1.26E-02	29.7	
13	1	294.91*	330	146	1.37	589.25	583	12	4.58E-02	8.6	6.01E+00
14	1	296.16*	43	100	1.37	591.75	583	12	5.94E-03	55.9	
15	0	299.75	72	134	1.55	598.93	595	8	9.94E-03	30.4	
16	0	338.30	167	225	1.13	676.09	669	12	2.32E-02	19.6	
17	0	351.57*	528	175	1.29	702.63	697	12	7.33E-02	6.7	
18	0	462.72	33	127	1.67	925.07	920	10	4.54E-03	66.9	
19	0	510.69*	76	164	1.79	1021.06	1016	13	1.05E-02	42.8	
20	0	582.77*	305	105	1.47	1165.31	1160	12	4.23E-02	9.1	
21	0	608.97*	363	115	1.45	1217.75	1212	12	5.04E-02	8.1	
22	0	661.25*	440	125	1.58	1322.36	1315	14	6.11E-02	7.3	
23	0	727.14	89	92	1.40	1454.23	1446	15	1.24E-02	25.9	
24	0	910.73*	195	71	1.80	1821.66	1812	19	2.71E-02	12.9	
25	1	964.30	55	43	1.99	1928.86	1924	20	7.62E-03	25.3	5.52E-01
26	1	968.55*	115	36	1.97	1937.36	1924	20	1.60E-02	15.3	
27	0	1119.87*	90	48	2.07	2240.22	2233	15	1.25E-02	19.6	
28	0	1460.24*	1215	23	2.42	2921.48	2912	18	1.69E-01	3.0	
29	0	1728.45	20	12	1.92	3458.34	3449	16	2.82E-03	44.0	
30	0	1763.82*	67	16	1.05	3529.16	3519	16	9.25E-03	18.9	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 11:02:02

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231001.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 21-JAN-2010 09:01:33
Sample ID        : G244231001             Sample quantity  : 134.08 GRAM
Sample type      : SOLID                   Sample geometry  :
Detector name    : GAMMA2                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00          Elapsed real time: 0 02:00:02.72   0.0%
Peak Width (FWHM): 3.00                   Confidence level : 5.00 %
Energy tolerance : 1.50 keV               Half life ratio  : 8.00
Errors propagated: Yes                    Systematic Error : 0.00 %
Efficiency type  : Empirical              Efficiencies at  : Peak Energy
Abundance limit  : 75.00                 WTM error limit  : 3.00

```

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.102E+01	3.500E+00	4.213E-01	4.005E-02	73.634
CD-109	+	88.03	*	3.166E+00	8.959E-01	1.158E+00	1.163E-01	2.734
SN-126	+	64.28		8.340E-01	9.781E-01	8.988E-01	1.333E-01	0.928
	+	86.94		1.294E+00	6.389E-01	4.799E-01	1.999E-01	2.697
	+	87.57	*	3.113E-01	8.809E-02	1.145E-01	1.145E-02	2.719
CS-135	+	268.24	*	3.903E-01	2.378E-01	2.515E-01	3.327E-02	1.552
BA-137M	+	661.65	*	6.618E-01	1.126E-01	6.340E-02	5.462E-03	10.439
CS-137	+	661.65	*	6.996E-01	1.191E-01	6.702E-02	5.785E-03	10.439
TL-208		277.35		6.598E-01	4.235E-01	7.402E-01	1.125E-01	0.891
	+	510.84		3.859E-01	3.340E-01	2.399E-01	3.107E-02	1.609
	+	583.14	*	4.417E-01	9.141E-02	6.328E-02	6.339E-03	6.981
		860.37		5.364E-01	3.563E-01	6.388E-01	6.733E-02	0.840
BI-211		72.87		6.558E+00	3.048E+00	5.428E+00	4.672E-01	1.208
	+	351.07	*	3.406E+00	6.031E-01	3.332E-01	3.844E-02	10.221
PB-212	+	74.81		2.098E+00	5.611E-01	5.187E-01	6.643E-02	4.045
	+	77.11		1.738E+00	2.922E-01	2.910E-01	2.602E-02	5.973
	+	87.30		1.440E+00	4.321E-01	5.315E-01	7.502E-02	2.709
	+	238.63	*	1.466E+00	2.155E-01	8.972E-02	1.129E-02	16.342
	+	300.09		1.558E+00	9.716E-01	1.171E+00	1.583E-01	1.331
PO-212	+	74.81		2.098E+00	5.611E-01	5.187E-01	6.643E-02	4.045
	+	77.11		1.738E+00	2.922E-01	2.910E-01	2.602E-02	5.973
	+	87.30		1.440E+00	4.321E-01	5.315E-01	7.502E-02	2.709
		115.19		-4.642E-02	3.598E+00	5.940E+00	4.995E-01	-0.008
	+	238.63	*	1.466E+00	2.155E-01	8.972E-02	1.129E-02	16.342
	+	300.09		1.558E+00	9.716E-01	1.171E+00	1.583E-01	1.331
BI-214	+	609.31	*	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
	+	1120.29		1.281E+00	5.213E-01	5.228E-01	5.692E-02	2.451
	+	1764.49		1.311E+00	5.077E-01	3.569E-01	3.024E-02	3.673
PB-214	+	74.81		3.615E+00	9.445E-01	8.938E-01	1.025E-01	4.045
	+	77.11		2.980E+00	5.499E-01	4.988E-01	5.860E-02	5.973
	+	87.30		2.467E+00	7.234E-01	9.104E-01	1.147E-01	2.709
	+	241.98		2.032E+00	8.113E-01	5.407E-01	7.073E-02	3.757
	+	295.21		1.261E+00	2.784E-01	2.062E-01	2.833E-02	6.116
	+	351.92	*	1.185E+00	2.187E-01	1.162E-01	1.469E-02	10.199

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		3.615E+00	9.445E-01	8.938E-01	1.025E-01	4.045
	+	77.11		2.980E+00	5.499E-01	4.988E-01	5.860E-02	5.973
	+	87.30		2.467E+00	7.234E-01	9.104E-01	1.147E-01	2.709
	+	241.98		2.032E+00	8.113E-01	5.407E-01	7.073E-02	3.757
	+	295.21		1.261E+00	2.784E-01	2.062E-01	2.833E-02	6.116
PO-216	+	351.92	*	1.185E+00	2.187E-01	1.162E-01	1.469E-02	10.199
	+	74.81		2.098E+00	5.611E-01	5.187E-01	6.643E-02	4.045
	+	77.11		1.738E+00	2.922E-01	2.910E-01	2.602E-02	5.973
	+	87.30		1.440E+00	4.321E-01	5.315E-01	7.502E-02	2.709
	+	238.63	*	1.466E+00	2.155E-01	8.972E-02	1.129E-02	16.342
PO-218	+	300.09		1.558E+00	9.716E-01	1.171E+00	1.583E-01	1.331
	+	74.81		3.615E+00	9.445E-01	8.938E-01	1.025E-01	4.045
	+	77.11		2.980E+00	5.499E-01	4.988E-01	5.860E-02	5.973
	+	87.30		2.467E+00	7.234E-01	9.104E-01	1.147E-01	2.709
	+	241.98		2.032E+00	8.113E-01	5.407E-01	7.073E-02	3.757
RA-224	+	295.21		1.261E+00	2.784E-01	2.062E-01	2.833E-02	6.116
	+	351.92	*	1.185E+00	2.187E-01	1.162E-01	1.469E-02	10.199
	+	240.98	*	3.852E+00	1.523E+00	1.022E+00	1.206E-01	3.771
	+	609.31	*	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
	+	1120.29		1.281E+00	5.213E-01	5.228E-01	5.692E-02	2.451
AC-228	+	1764.49		1.311E+00	5.077E-01	3.569E-01	3.024E-02	3.673
	+	338.32		1.189E+00	6.821E-01	4.138E-01	1.736E-01	2.873
	+	911.07	*	1.256E+00	3.600E-01	2.332E-01	2.908E-02	5.387
	+	969.11		1.312E+00	5.087E-01	3.962E-01	9.440E-02	3.312
	+	338.32		1.189E+00	6.821E-01	4.138E-01	1.736E-01	2.873
RA-228	+	911.07	*	1.256E+00	3.600E-01	2.332E-01	2.908E-02	5.387
	+	969.11		1.312E+00	5.087E-01	3.962E-01	9.440E-02	3.312
	+	74.81		2.129E+00	5.341E-01	5.265E-01	4.647E-02	4.045
	+	77.11		1.764E+00	2.965E-01	2.953E-01	2.641E-02	5.974
	+	87.30		1.461E+00	4.135E-01	5.394E-01	5.374E-02	2.709
TH-228	+	238.63	*	1.488E+00	2.187E-01	9.106E-02	1.146E-02	16.342
	+	300.09		1.582E+00	1.351E+00	1.188E+00	7.119E-01	1.331
	+	609.31	*	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
	+	1120.29		1.281E+00	5.213E-01	5.228E-01	5.692E-02	2.451
	+	1764.49		1.311E+00	5.077E-01	3.569E-01	3.024E-02	3.673
TH-230	+	338.32		1.189E+00	4.850E-01	4.138E-01	4.758E-02	2.873
	+	911.07	*	1.256E+00	3.600E-01	2.332E-01	2.908E-02	5.387
	+	969.11		1.312E+00	5.087E-01	3.962E-01	9.440E-02	3.312
	+	63.29	*	2.107E+00	2.479E+00	2.307E+00	4.073E-01	0.913
	+	92.38		3.792E+00	1.050E+00	7.443E-01	1.379E-01	5.095
U-234	+	609.31	*	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
	+	1120.29		1.281E+00	5.213E-01	5.228E-01	5.692E-02	2.451
	+	1764.49		1.311E+00	5.077E-01	3.569E-01	3.024E-02	3.673
	+	86.50	*	9.142E-01	3.202E-01	3.505E-01	8.017E-02	2.609
	+	95.87		-7.151E-01	1.079E+00	1.504E+00	3.737E-01	-0.475
U-238	+	63.29	*	2.107E+00	2.479E+00	2.307E+00	4.073E-01	0.913
	+	92.38		3.792E+00	8.603E-01	7.443E-01	7.087E-02	5.095
	+	74.67	*	3.402E-01	8.522E-02	8.442E-02	7.382E-03	4.030
	+	86.72		3.428E+01	9.700E+00	1.275E+01	1.262E+00	2.689

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-3.354E+00	3.814E+00	6.038E+00	5.059E-01	-0.556
		142.18		-2.256E+01	1.908E+01	2.926E+01	2.647E+00	-0.771
ANH-511	+	511.00	*	8.336E-02	7.180E-02	5.183E-02	5.138E-03	1.608

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	5.345E-02	3.753E-01	6.117E-01	6.487E-02	0.087
NA-22		1274.54	*	-3.705E-02	5.261E-02	8.048E-02	7.136E-03	-0.460
NA-24		1368.53	*	-5.045E-01	5.261E-02	Half-Life too short		
AL-26		1129.67		8.916E-01	1.804E+00	3.131E+00	2.675E-01	0.285
		1808.65	*	-2.407E-02	2.919E-02	3.887E-02	3.218E-03	-0.619
TI-44		67.85		3.656E-04	5.083E-02	7.761E-02	6.402E-03	0.005
	+	78.38	*	3.207E-01	5.392E-02	6.715E-02	6.079E-03	4.776
SC-46		889.25	*	1.267E-02	4.429E-02	7.372E-02	7.495E-03	0.172
	+	1120.51		2.189E-01	8.787E-02	1.294E-01	1.118E-02	1.691
V-48		944.10		1.111E-02	9.797E-01	1.582E+00	1.584E-01	0.007
		983.50	*	-4.529E-02	7.795E-02	1.174E-01	1.148E-02	-0.386
		1312.09		-3.982E-02	8.674E-02	1.345E-01	1.232E-02	-0.296
CR-51		320.08	*	-2.827E-01	3.980E-01	6.328E-01	7.721E-02	-0.447
MN-52		744.21		-1.717E-01	2.569E-01	3.986E-01	3.672E-02	-0.431
		848.13		2.423E+00	7.011E+00	1.178E+01	1.168E+00	0.206
		935.52		-4.587E-02	2.704E-01	4.292E-01	4.315E-02	-0.107
		1246.25		-1.171E+00	8.511E+00	1.386E+01	1.197E+00	-0.084
		1333.61		6.275E+00	5.047E+00	9.437E+00	8.793E-01	0.665
		1434.06	*	9.881E-02	2.622E-01	4.476E-01	4.164E-02	0.221
MN-54		834.83	*	-1.864E-02	4.361E-02	6.857E-02	6.737E-03	-0.272
CO-56		846.75	*	-2.510E-03	4.123E-02	6.677E-02	6.611E-03	-0.038
		977.42		-1.029E+00	3.231E+00	5.020E+00	4.929E-01	-0.205
		1037.82		-2.627E-01	3.280E-01	5.052E-01	4.959E-02	-0.520
		1175.09		-8.541E-01	2.532E+00	4.069E+00	3.283E-01	-0.210
		1238.25		8.605E-02	1.060E-01	1.846E-01	1.629E-02	0.466
		1360.21		9.503E-01	9.798E-01	1.804E+00	1.682E-01	0.527
		1771.40		-3.966E-01	3.107E-01	4.070E-01	3.437E-02	-0.974
CO-57		122.06	*	2.682E-03	2.436E-02	4.030E-02	3.369E-03	0.067
		136.48		-1.405E-01	2.119E-01	3.359E-01	3.172E-02	-0.418
CO-58		810.76	*	2.556E-02	3.911E-02	6.780E-02	6.566E-03	0.377
FE-59		142.65		-1.753E+00	2.899E+00	4.580E+00	4.153E-01	-0.383
		192.34		-1.335E-01	9.967E-01	1.585E+00	2.366E-01	-0.084
		1099.22	*	-2.394E-02	1.030E-01	1.680E-01	1.602E-02	-0.142
		1291.56		7.661E-02	1.399E-01	2.420E-01	2.448E-02	0.317
CO-60		1173.22		-2.460E-02	5.244E-02	8.335E-02	6.712E-03	-0.295
		1332.49	*	2.629E-02	3.983E-02	7.047E-02	6.566E-03	0.373
ZN-65		1115.52	*	4.180E-02	1.086E-01	1.634E-01	1.422E-02	0.256
GE-68		1077.35	*	1.391E+00	1.350E+00	2.447E+00	2.217E-01	0.568
AS-73		53.44	*	-6.965E-01	1.110E+00	1.854E+00	1.535E-01	-0.376
AS-74		595.88	*	-4.649E-02	9.125E-02	1.469E-01	1.371E-02	-0.317
		634.78		-8.056E-02	3.514E-01	5.752E-01	5.142E-02	-0.140

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75		66.05		1.677E+00	5.352E+00	8.303E+00	8.326E-01	0.202
		96.73		2.296E-01	8.340E-01	1.264E+00	1.765E-01	0.182
		121.11		7.233E-02	1.320E-01	2.222E-01	2.448E-02	0.326
		136.00		-5.941E-03	3.967E-02	6.447E-02	5.706E-03	-0.092
		198.60		2.925E-01	1.962E+00	3.123E+00	3.657E-01	0.094
		264.65	*	5.997E-02	4.711E-02	7.863E-02	9.611E-03	0.763
		279.53		-7.506E-02	1.187E-01	1.925E-01	2.430E-02	-0.390
		303.91		-1.521E+00	2.445E+00	3.403E+00	4.865E-01	-0.447
		400.65		4.635E-01	2.949E-01	5.184E-01	6.345E-02	0.894
BR-77	+	87.88		6.379E+02	1.805E+02	2.984E+02	2.993E+01	2.138
		200.40		-6.506E+01	1.658E+02	2.595E+02	2.851E+01	-0.251
	+	239.00		2.195E+02	3.072E+01	3.509E+01	4.128E+00	6.256
		249.79		-1.287E+01	6.058E+01	1.013E+02	1.211E+01	-0.127
		281.68		-7.255E+01	8.710E+01	1.390E+02	1.721E+01	-0.522
	+	297.23		5.873E+01	6.599E+01	9.509E+01	1.161E+01	0.618
		303.76		-1.490E+02	1.959E+02	2.695E+02	3.267E+01	-0.553
		439.47		1.250E+02	1.515E+02	2.588E+02	2.607E+01	0.483
		484.57		-7.968E+01	2.372E+02	3.724E+02	3.727E+01	-0.214
		520.65	*	1.569E+00	1.068E+01	1.731E+01	1.708E+00	0.091
		574.64		9.223E+01	2.003E+02	3.474E+02	3.307E+01	0.265
		578.91		8.023E-01	9.830E+01	1.440E+02	1.366E+01	0.006
		585.48		5.219E+02	2.000E+02	3.487E+02	3.288E+01	1.497
		755.35		9.562E+01	1.658E+02	2.854E+02	2.652E+01	0.335
		817.79		2.390E+01	1.140E+02	1.904E+02	1.849E+01	0.126
SR-82		698.33		-2.294E+01	3.680E+01	5.790E+01	5.144E+00	-0.396
		776.49	*	-2.069E-01	4.014E-01	6.277E-01	5.923E-02	-0.330
		1395.20		2.799E+00	1.142E+01	1.926E+01	1.795E+00	0.145
RB-83		520.41	*	7.812E-03	7.625E-02	1.232E-01	1.216E-02	0.063
		529.64		5.204E-02	1.180E-01	1.951E-01	1.916E-02	0.267
		552.65		5.871E-02	2.003E-01	3.447E-01	3.337E-02	0.170
RB-84		881.50	*	2.575E-02	7.935E-02	1.326E-01	1.342E-02	0.194
KR-85		513.99	*	4.792E+00	8.669E+00	1.279E+01	1.266E+00	0.375
SR-85		513.99	*	2.451E-02	4.433E-02	6.542E-02	6.476E-03	0.375
RB-86		1076.63	*	1.122E+00	8.604E-01	1.587E+00	1.439E-01	0.707
Y-88		898.02		2.765E-02	4.684E-02	7.987E-02	8.191E-03	0.346
		1836.01	*	1.056E-02	3.870E-02	6.696E-02	5.462E-03	0.158
ZR-88		392.90	*	-2.450E-02	3.397E-02	5.294E-02	5.297E-03	-0.463
Y-91		1204.90	*	6.471E+00	2.052E+01	3.484E+01	2.893E+00	0.186
NB-94		702.63	*	-1.794E-02	3.450E-02	5.460E-02	4.868E-03	-0.329
		871.10		1.290E-02	3.775E-02	6.327E-02	6.361E-03	0.204
NB-95		765.79	*	2.793E-02	5.052E-02	8.541E-02	7.997E-03	0.327
NB-95M		235.69	*	9.613E-02	1.339E-01	2.087E-01	2.640E-02	0.461
ZR-95		724.18		1.261E-01	1.142E-01	1.818E-01	1.779E-02	0.694
		756.15	*	6.174E-03	7.651E-02	1.267E-01	1.281E-02	0.049
NB-97		657.90	*	7.577E-02	7.651E-02	Half-Life too short		
		1024.50		-2.092E+00	7.651E-02	Half-Life too short		
ZR-97		254.15		1.366E+00	7.651E-02	Half-Life too short		
		355.39		7.002E-01	7.651E-02	Half-Life too short		
		507.63	*	1.212E+00	7.651E-02	Half-Life too short		



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	602.52			-2.462E+00	7.651E-02	Half-Life	too short	
	1021.30			-3.515E+00	7.651E-02	Half-Life	too short	
	1147.95			-1.707E-01	7.651E-02	Half-Life	too short	
	1362.66			6.777E+00	7.651E-02	Half-Life	too short	
	1750.46			3.348E+00	7.651E-02	Half-Life	too short	
MO-99	140.51			-1.705E+01	2.597E+01	3.992E+01	1.110E+01	-0.427
	181.06			-1.153E+01	1.977E+01	2.710E+01	5.227E+00	-0.426
	366.43			1.738E+01	8.919E+01	1.486E+02	1.603E+01	0.117
	739.58	*		1.112E+01	1.209E+01	2.118E+01	3.285E+00	0.525
	778.00			-2.193E+00	3.346E+01	5.458E+01	5.156E+00	-0.040
TC-99M	140.51	*		-1.354E+10	3.346E+01	Half-Life	too short	
RH-101	127.23			1.253E-02	3.158E-02	5.270E-02	4.473E-03	0.238
	198.01	*		-8.172E-03	3.639E-02	5.691E-02	6.225E-03	-0.144
	325.23			-4.914E-02	2.389E-01	3.924E-01	4.617E-02	-0.125
RH-102	418.52			-6.405E-03	3.193E-01	5.201E-01	5.233E-02	-0.012
	475.06	*		-4.083E-03	3.414E-02	5.466E-02	5.483E-03	-0.075
	631.29			-2.540E-02	5.197E-02	8.299E-02	7.452E-02	-0.306
	697.49			3.090E-02	8.423E-02	1.432E-01	1.271E-02	0.216
	766.84			1.126E-01	1.315E-01	2.261E-01	2.119E-02	0.498
	1046.59			-4.201E-02	1.341E-01	2.184E-01	2.036E-02	-0.192
	1112.84			2.274E-01	2.620E-01	4.183E-01	3.647E-02	0.544
RU-103	497.08	*		-9.589E-03	4.576E-02	7.241E-02	1.088E-02	-0.132
+	610.33			1.066E+01	2.499E+00	2.835E+00	4.817E-01	3.760
RH-106	511.85	+		4.162E-01	3.585E-01	4.700E-01	4.657E-02	0.885
	621.84	*		-2.896E-01	3.413E-01	5.294E-01	7.231E-02	-0.547
	1050.47			1.137E+00	2.455E+00	4.274E+00	3.971E-01	0.266
RU-106	511.85	+		4.162E-01	3.585E-01	4.700E-01	4.657E-02	0.885
	621.84	*		-2.896E-01	3.401E-01	5.294E-01	4.807E-02	-0.547
	1050.47			1.137E+00	2.455E+00	4.274E+00	3.971E-01	0.266
AG-108M	433.93	*		1.462E-02	3.648E-02	6.089E-02	6.312E-03	0.240
	614.37			-6.084E-02	4.752E-02	5.889E-02	5.582E-03	-1.033
	722.95			2.955E-02	4.950E-02	7.556E-02	7.091E-03	0.391
AG-110M	657.75	*		2.415E-02	4.090E-02	6.294E-02	5.615E-03	0.384
	677.61			6.502E-02	3.382E-01	5.695E-01	5.110E-02	0.114
	706.67			-1.711E-02	2.161E-01	3.552E-01	3.259E-02	-0.048
	763.93			-1.494E-01	1.908E-01	2.937E-01	2.812E-02	-0.509
	884.67			-1.418E-02	5.700E-02	9.033E-02	9.372E-03	-0.157
	937.48			-1.189E-01	1.178E-01	1.683E-01	1.736E-02	-0.706
	1384.27			2.203E-02	1.583E-01	2.635E-01	2.516E-02	0.084
IN-111	171.28			1.627E-02	9.931E-01	1.603E+00	1.662E-01	0.010
	245.39	*		-1.916E-01	1.060E+00	1.564E+00	1.858E-01	-0.122
IN-113M	391.69	*		-7.733E-03	4.934E-02	8.005E-02	8.192E-03	-0.097
SN-113	391.69	*		-7.733E-03	4.934E-02	8.005E-02	8.192E-03	-0.097
IN-114M	190.27	*		-8.402E-03	2.089E-01	2.971E-01	3.200E-02	-0.028
CD-115	260.90			-5.532E+01	1.210E+02	1.989E+02	2.414E+01	-0.278
	492.35			-2.724E+01	3.721E+01	5.629E+01	5.620E+00	-0.484
	527.90	*		7.379E+00	1.098E+01	1.847E+01	1.816E+00	0.399
SN-117M	156.02			-4.839E-01	2.316E+00	3.722E+00	3.616E-01	-0.130
	158.56	*		-6.424E-02	5.459E-02	8.289E-02	8.166E-03	-0.775

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SB-122	563.90	*		3.970E-01	2.010E+00	3.430E+00	3.293E-01	0.116
	692.80			-6.233E+00	4.379E+01	7.175E+01	6.346E+00	-0.087
I-123	159.00	*		-4.895E+00	4.379E+01	Half-Life	too short	
	528.96			1.362E+02	4.379E+01	Half-Life	too short	
TE-123M	159.00	*		-3.277E-02	2.885E-02	4.393E-02	4.359E-03	-0.746
I-124	602.71	*		-2.068E-01	7.543E-01	1.068E+00	9.902E-02	-0.194
	722.78			2.755E+00	4.952E+00	7.530E+00	6.823E-01	0.366
	1325.50			-2.525E+01	3.290E+01	4.803E+01	4.449E+00	-0.526
	1376.25			3.593E+01	3.309E+01	6.031E+01	5.624E+00	0.596
	1509.49			-1.922E+00	1.518E+01	2.407E+01	2.219E+00	-0.080
	1691.02			-5.442E-01	3.650E+00	5.906E+00	5.173E-01	-0.092
SB-124	602.71			-1.248E-02	4.550E-02	6.441E-02	5.974E-03	-0.194
	645.85			5.069E-01	5.536E-01	9.799E-01	9.131E-02	0.517
	709.31			1.063E+00	2.839E+00	4.836E+00	4.335E-01	0.220
	713.82			-6.308E-01	1.717E+00	2.748E+00	3.383E-01	-0.230
	722.78			2.409E-01	4.330E-01	6.584E-01	6.083E-02	0.366
+	968.20			1.347E+01	4.329E+00	6.754E+00	6.669E-01	1.995
	1045.16			9.123E-01	2.811E+00	4.832E+00	4.511E-01	0.189
	1325.50			-2.359E+00	3.072E+00	4.486E+00	4.155E-01	-0.526
	1368.21			-1.873E+00	1.763E+00	2.369E+00	3.302E-01	-0.791
	1436.60			1.257E+00	4.485E+00	7.555E+00	7.027E-01	0.166
	1691.02	*		-1.122E-02	7.528E-02	1.218E-01	1.108E-02	-0.092
SB-125	427.89	*		-2.541E-02	1.009E-01	1.613E-01	1.647E-02	-0.158
+	463.38			3.267E-01	4.385E-01	5.630E-01	5.990E-02	0.580
	600.56			8.561E-02	1.836E-01	3.175E-01	3.139E-02	0.270
	635.90			1.013E-01	2.680E-01	4.605E-01	4.421E-02	0.220
TE-125M	109.28	*		-2.695E+00	9.412E+00	1.540E+01	1.580E+00	-0.175
I-126	388.63			1.076E-01	2.259E-01	3.808E-01	3.848E-02	0.283
	666.33	*		4.649E-02	2.066E-01	3.059E-01	2.646E-02	0.152
	753.82			1.057E+00	1.623E+00	2.804E+00	2.602E-01	0.377
SB-126	223.80			3.860E-01	4.177E+00	6.651E+00	7.632E-01	0.058
	278.60			3.484E+00	2.664E+00	4.681E+00	5.801E-01	0.744
+	296.50			1.612E+00	1.812E+00	3.404E+00	4.160E-01	0.474
	414.70			-2.066E-02	8.267E-02	1.327E-01	1.334E-02	-0.156
	415.30			-7.762E-01	6.868E+00	1.112E+01	1.119E+00	-0.070
	555.20			-1.307E+00	3.713E+00	6.082E+00	5.878E-01	-0.215
	573.80			2.515E-01	1.070E+00	1.828E+00	1.741E-01	0.138
	593.00			1.800E-01	8.856E-01	1.509E+00	1.413E-01	0.119
	656.30			1.465E+00	3.734E+00	5.644E+00	4.901E-01	0.259
	666.33			1.942E-02	8.631E-02	1.278E-01	1.105E-02	0.152
	675.00			1.063E+00	2.084E+00	3.594E+00	3.132E-01	0.296
	695.00			5.989E-02	8.252E-02	1.438E-01	1.274E-02	0.416
	697.00			1.784E-01	2.887E-01	4.992E-01	4.430E-02	0.357
	720.50	*		-4.826E-02	1.755E-01	2.431E-01	2.199E-02	-0.198
	856.80			-3.134E-01	5.561E-01	8.602E-01	8.572E-02	-0.364
	989.30			7.215E-01	1.337E+00	2.265E+00	2.207E-01	0.319
	1034.80			-4.400E+00	9.128E+00	1.457E+01	1.372E+00	-0.302
	1213.00			-3.500E-01	5.067E+00	8.321E+00	6.963E-01	-0.042
SB-127	61.10			2.527E+00	6.591E+01	1.014E+02	1.052E+01	0.025

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127	252.40			2.702E+00	4.315E+00	7.245E+00	3.104E+00	0.373
	290.80			-5.560E-01	2.270E+01	3.341E+01	4.722E+00	-0.017
	411.60			-4.229E+00	1.342E+01	2.145E+01	3.541E+00	-0.197
	444.90			-4.886E+00	1.022E+01	1.598E+01	2.159E+00	-0.306
	473.00			-1.120E-01	1.866E+00	3.001E+00	4.141E-01	-0.037
	543.00			2.521E+00	1.663E+01	2.690E+01	4.046E+00	0.094
	603.60			-4.543E+00	1.347E+01	1.894E+01	2.444E+00	-0.240
	685.20	*		1.262E+00	1.466E+00	2.573E+00	2.944E-01	0.491
	698.50			-8.613E+00	1.575E+01	2.487E+01	3.958E+00	-0.346
	722.20			7.244E+00	3.454E+01	5.062E+01	5.787E+00	0.143
	783.80			4.680E-01	3.754E+00	6.219E+00	8.067E-01	0.075
	57.60			-2.215E+00	7.239E+00	1.222E+01	9.399E-01	-0.181
	145.22			2.280E-01	7.163E-01	1.183E+00	1.086E-01	0.193
	172.10			-3.245E-02	1.261E-01	2.009E-01	2.086E-02	-0.162
	202.84	*		-1.384E-02	5.149E-02	8.104E-02	8.948E-03	-0.171
I-131	374.96			-9.247E-02	2.021E-01	3.217E-01	3.390E-02	-0.287
	80.18			-7.942E-01	5.764E+00	6.865E+00	6.361E-01	-0.116
	284.30			1.064E-01	1.473E+00	2.479E+00	3.142E-01	0.043
	364.48	*		1.913E-02	1.236E-01	2.056E-01	2.306E-02	0.093
TE-132	636.97			4.790E-01	1.481E+00	2.535E+00	2.377E-01	0.189
	722.89			4.734E+00	8.154E+00	1.243E+01	1.133E+00	0.381
	49.72			-8.062E+00	2.913E+01	4.450E+01	4.859E+00	-0.181
	111.76			1.003E+01	2.998E+01	4.903E+01	5.233E+00	0.205
BA-133	116.30			-1.369E+00	2.596E+01	4.277E+01	4.538E+00	-0.032
	228.16	*		1.232E-01	7.341E-01	1.171E+00	2.045E-01	0.105
	53.15			-2.783E+00	4.846E+00	8.112E+00	6.750E-01	-0.343
	79.62			-6.284E-02	1.432E+00	1.978E+00	3.074E-01	-0.032
I-133	81.00			-1.018E-02	1.251E-01	1.496E-01	2.431E-02	-0.068
	276.40			4.133E-01	4.111E-01	7.117E-01	1.206E-01	0.581
	302.84			1.820E-02	1.579E-01	2.341E-01	3.699E-02	0.078
	356.01	*		7.854E-03	4.927E-02	7.238E-02	1.080E-02	0.109
I-133 +	383.85			-1.868E-01	3.233E-01	5.090E-01	7.013E-02	-0.367
	510.53			6.995E-01	3.233E-01	Half-Life	too short	
	529.87	*		1.934E-03	3.233E-01	Half-Life	too short	
	706.58			-4.100E-02	3.233E-01	Half-Life	too short	
CS-134	856.28			-6.240E-01	3.233E-01	Half-Life	too short	
	875.33			2.943E-02	3.233E-01	Half-Life	too short	
	1236.41			3.352E-01	3.233E-01	Half-Life	too short	
	1298.22			-2.320E-01	3.233E-01	Half-Life	too short	
I-135	475.35			5.848E-02	2.232E+00	3.610E+00	3.621E-01	0.016
	563.23			-3.854E-02	3.596E-01	6.008E-01	5.816E-02	-0.064
	569.32			-1.669E-01	2.222E-01	3.394E-01	3.281E-02	-0.492
	604.70			-6.723E-03	4.036E-02	5.783E-02	5.364E-03	-0.116
I-135	795.84	*		1.048E-01	5.218E-02	9.702E-02	9.336E-03	1.080
	801.93			-2.254E-01	4.386E-01	6.782E-01	6.545E-02	-0.332
	1038.57			-2.001E+00	3.995E+00	6.357E+00	5.968E-01	-0.315
	1167.94			1.016E+00	2.878E+00	4.909E+00	3.984E-01	0.207
I-135	1365.15			-7.455E-01	1.208E+00	1.785E+00	1.729E-01	-0.418
	288.45			-7.177E+09	1.208E+00	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		417.63		2.874E+08	1.208E+00	Half-Life	too short	
		546.56		-7.940E+09	1.208E+00	Half-Life	too short	
		836.80		9.622E+09	1.208E+00	Half-Life	too short	
		1038.76		-5.035E+09	1.208E+00	Half-Life	too short	
		1124.00		5.838E+09	1.208E+00	Half-Life	too short	
		1131.51		6.370E+08	1.208E+00	Half-Life	too short	
		1260.41	*	1.827E+09	1.208E+00	Half-Life	too short	
		1457.56		5.238E+11	1.208E+00	Half-Life	too short	
		1678.03		1.011E+09	1.208E+00	Half-Life	too short	
		1706.46		-4.932E+09	1.208E+00	Half-Life	too short	
		1791.20		-1.877E+09	1.208E+00	Half-Life	too short	
CS-136		66.91		7.462E-01	8.448E-01	1.335E+00	2.028E-01	0.559
	+	86.29		4.012E+00	1.198E+00	1.957E+00	2.682E-01	2.050
		153.22		3.430E-01	6.946E-01	1.150E+00	1.207E-01	0.298
		163.89		4.802E-01	1.108E+00	1.825E+00	2.014E-01	0.263
		176.55		-1.314E-01	3.841E-01	6.080E-01	6.621E-02	-0.216
		273.65		-8.721E-01	5.753E-01	7.517E-01	9.569E-02	-1.160
		340.57		8.812E-02	1.460E-01	2.217E-01	2.580E-02	0.397
		818.51		-8.557E-03	6.885E-02	1.110E-01	1.079E-02	-0.077
		1048.07	*	6.186E-02	1.183E-01	2.067E-01	1.995E-02	0.299
		1235.34		5.448E-01	6.953E-01	1.207E+00	1.424E-01	0.451
CE-139		165.85	*	1.896E-03	3.058E-02	4.957E-02	5.084E-03	0.038
BA-140		162.64		1.713E-01	7.903E-01	1.255E+00	1.318E-01	0.137
		304.84		2.843E-03	1.353E+00	2.096E+00	6.138E-01	0.001
		423.70		1.422E-01	2.077E+00	3.398E+00	1.116E+00	0.042
		537.32	*	7.668E-02	2.526E-01	4.127E-01	1.381E-01	0.186
LA-140		328.77		3.574E-02	3.138E-01	5.240E-01	6.319E-02	0.068
		432.53		3.214E-01	2.212E+00	3.635E+00	3.792E-01	0.088
		487.03		1.053E-01	1.480E-01	2.506E-01	2.622E-02	0.420
		751.79		2.879E-01	1.912E+00	3.184E+00	3.224E-01	0.090
		815.85		-2.651E-01	2.986E-01	4.373E-01	4.632E-02	-0.606
		867.82		-2.177E-01	1.549E+00	2.486E+00	2.592E-01	-0.088
		919.63		-3.798E-01	3.096E+00	4.641E+00	5.523E-01	-0.082
		925.24		4.153E-01	1.135E+00	1.904E+00	2.012E-01	0.218
		1596.49	*	-8.328E-03	9.594E-02	1.587E-01	1.435E-02	-0.052
CE-141		145.44	*	4.351E-03	6.429E-02	1.051E-01	9.815E-03	0.041
CE-143		57.37		-4.451E-04	6.429E-02	Half-Life	too short	
		231.56		-2.176E-04	6.429E-02	Half-Life	too short	
		293.26	*	6.847E-04	6.429E-02	Half-Life	too short	
	+	350.59		2.391E-02	6.429E-02	Half-Life	too short	
		490.36		-5.005E-04	6.429E-02	Half-Life	too short	
		664.57		2.073E-03	6.429E-02	Half-Life	too short	
		721.93		1.419E-04	6.429E-02	Half-Life	too short	
CE-144		80.11		-3.186E-01	2.710E+00	3.233E+00	2.978E-01	-0.099
		133.54	*	9.170E-02	2.018E-01	3.363E-01	5.249E-02	0.273
PM-144		476.78		1.247E-02	7.853E-02	1.282E-01	1.375E-02	0.097
		618.01		2.239E-02	3.474E-02	5.924E-02	5.537E-03	0.378
		696.49	*	2.561E-02	3.799E-02	6.590E-02	5.848E-03	0.389
		778.57		-6.994E-02	2.419E+00	3.960E+00	3.743E-01	-0.018

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PR-144		696.49	*	1.735E+00	2.574E+00	4.465E+00	3.961E-01	0.389
		1489.15		-7.672E+00	1.069E+01	1.475E+01	1.364E+00	-0.520
PM-146		453.90	*	4.417E-02	4.839E-02	8.289E-02	9.878E-03	0.533
		633.02		-1.483E-01	1.345E+00	2.223E+00	8.325E-01	-0.067
		735.90		-4.610E-02	1.641E-01	2.634E-01	7.577E-02	-0.175
		747.13		6.446E-02	9.993E-02	1.724E-01	2.487E-02	0.374
ND-147	+	91.11		1.879E+00	4.315E-01	5.859E-01	6.033E-02	3.207
		319.41		-1.471E+00	3.469E+00	5.623E+00	6.678E-01	-0.262
		439.89		7.093E+00	6.234E+00	1.085E+01	1.093E+00	0.654
		531.02	*	2.540E-01	6.291E-01	1.008E+00	1.579E-01	0.252
PM-149		285.90	*	-1.519E+01	8.524E+01	1.414E+02	2.528E+01	-0.107
EU-152		121.78		1.488E-02	7.105E-02	1.180E-01	1.145E-02	0.126
		244.69		1.405E-01	3.401E-01	5.227E-01	6.203E-02	0.269
		344.27	*	-5.564E-03	1.038E-01	1.654E-01	1.944E-02	-0.034
		443.98		-1.310E+00	1.072E+00	1.572E+00	1.583E-01	-0.834
		778.89		1.418E-02	2.770E-01	4.566E-01	4.316E-02	0.031
		867.32		3.558E-01	9.249E-01	1.555E+00	1.560E-01	0.229
	+	964.01		7.180E-01	3.698E-01	6.372E-01	6.308E-02	1.127
		1085.78		4.743E-01	4.172E-01	7.642E-01	6.863E-02	0.621
		1112.02		2.195E-01	3.654E-01	5.846E-01	5.101E-02	0.375
		1407.95		6.506E-02	1.981E-01	3.365E-01	3.136E-02	0.193
GD-153		69.67		-7.276E-01	1.767E+00	2.636E+00	2.208E-01	-0.276
	+	83.37		2.144E+01	1.728E+01	2.606E+01	2.484E+00	0.823
		97.43	*	-1.549E-02	9.043E-02	1.331E-01	1.209E-02	-0.116
		103.18		-3.149E-02	1.069E-01	1.754E-01	1.536E-02	-0.180
EU-154		123.07		-3.899E-02	4.994E-02	7.895E-02	8.825E-03	-0.494
		247.94		-1.506E-01	3.613E-01	5.767E-01	8.148E-02	-0.261
		591.81		1.621E-01	6.017E-01	1.030E+00	1.261E-01	0.157
		723.30		1.201E-01	2.113E-01	3.212E-01	3.190E-02	0.374
		756.87		-2.920E-01	8.467E-01	1.351E+00	1.685E-01	-0.216
		873.19		-1.438E-01	3.392E-01	5.282E-01	7.026E-02	-0.272
		996.32		-2.751E-01	4.767E-01	7.216E-01	1.321E-01	-0.381
		1004.76		-3.189E-01	2.448E-01	3.585E-01	4.450E-02	-0.890
		1274.45	*	-1.072E-01	1.469E-01	2.236E-01	2.570E-02	-0.479
EU-155		48.70		-2.444E+00	4.002E+00	6.004E+00	5.315E-01	-0.407
		60.01		1.760E+00	5.961E+00	9.294E+00	7.013E-01	0.189
	+	86.54		3.749E-01	1.062E-01	1.831E-01	1.823E-02	2.047
		105.31	*	3.545E-02	1.130E-01	1.867E-01	1.637E-02	0.190
TB-160	+	86.79		9.993E-01	2.827E-01	4.857E-01	4.811E-02	2.057
		197.04		-3.026E-01	6.127E-01	9.442E-01	1.031E-01	-0.320
		215.65		-1.944E-01	7.983E-01	1.251E+00	1.415E-01	-0.155
	+	298.57		2.262E-01	1.404E-01	2.003E-01	2.443E-02	1.129
		879.36	*	5.170E-02	1.571E-01	2.626E-01	2.654E-02	0.197
		962.29		1.431E+00	6.801E-01	1.154E+00	1.143E-01	1.240
		966.15		9.520E-01	2.871E-01	5.356E-01	5.295E-02	1.778
		1177.93		1.538E-01	3.988E-01	6.823E-01	5.520E-02	0.225
		1271.85		-1.657E-01	8.572E-01	1.384E+00	1.223E-01	-0.120
HO-166M		80.57		-1.174E-01	3.501E-01	4.101E-01	3.795E-02	-0.286
	+	184.41		1.272E-01	6.695E-02	8.338E-02	8.875E-03	1.526

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		280.46		-9.929E-02	9.261E-02	1.458E-01	1.806E-02	-0.681
		410.95		3.332E-01	2.774E-01	4.825E-01	4.848E-02	0.691
		711.68	*	-1.508E-02	6.318E-02	1.024E-01	9.193E-03	-0.147
		752.31		1.206E-01	3.021E-01	5.128E-01	4.753E-02	0.235
		810.29		3.428E-02	5.856E-02	1.010E-01	9.759E-03	0.339
		51.35		1.337E+01	4.244E+01	7.365E+01	6.322E+00	0.182
		52.39		1.382E+01	2.153E+01	3.773E+01	3.182E+00	0.366
		59.40		-7.167E+00	3.353E+01	5.098E+01	3.815E+00	-0.141
		66.72	*	2.803E+01	3.106E+01	4.941E+01	4.037E+00	0.567
		88.36		4.869E-01	2.107E-01	3.364E-01	3.362E-02	1.447
LU-176	+	201.83		-2.712E-02	3.197E-02	4.870E-02	5.367E-03	-0.557
		306.84	*	-5.784E-03	2.595E-02	4.274E-02	5.163E-03	-0.135
		401.10		8.376E+00	7.708E+00	1.335E+01	1.339E+00	0.627
		112.95		7.225E-01	1.692E+00	2.775E+00	2.344E-01	0.260
LU-177	+	208.36	*	2.425E+00	1.610E+00	2.041E+00	2.278E-01	1.188
		52.97		-1.158E+00	2.205E+00	3.700E+00	3.089E-01	-0.313
LU-177M		54.07		-1.722E-02	1.131E+00	1.936E+00	1.584E-01	-0.009
		61.30		3.140E-01	1.780E+00	2.755E+00	2.122E-01	0.114
		121.62		6.493E-02	3.663E-01	6.078E-01	5.075E-02	0.107
		147.16		-1.332E+00	6.865E-01	1.003E+00	9.301E-02	-1.328
		171.86		-5.346E-02	5.078E-01	8.150E-01	8.458E-02	-0.066
		218.09		-3.864E-01	9.200E-01	1.426E+00	1.620E-01	-0.271
	+	268.79		1.959E+00	1.190E+00	1.517E+00	1.859E-01	1.291
		319.02		-7.943E-02	2.771E-01	4.533E-01	5.386E-02	-0.175
		367.43		5.457E-01	1.001E+00	1.700E+00	1.828E-01	0.321
		413.65	*	5.524E-03	1.974E-01	3.228E-01	3.245E-02	0.017
HF-181		56.28		8.532E-01	1.171E+00	2.052E+00	1.614E-01	0.416
		57.53		-1.869E-01	6.104E-01	1.030E+00	7.934E-02	-0.181
		65.20		-3.025E-01	1.051E+00	1.583E+00	1.276E-01	-0.191
		133.02		-1.909E-02	6.445E-02	1.042E-01	9.042E-03	-0.183
		136.25		-2.483E-01	4.648E-01	7.418E-01	6.529E-02	-0.335
		345.85		7.840E-02	2.209E-01	3.303E-01	3.741E-02	0.237
		482.03	*	-3.324E-02	4.705E-02	7.157E-02	7.168E-03	-0.464
W-181		56.28		3.338E-01	4.595E-01	8.051E-01	6.333E-02	0.415
		57.53		-7.340E-02	2.397E-01	4.046E-01	3.116E-02	-0.181
		65.20	*	-1.179E-01	4.093E-01	6.169E-01	4.970E-02	-0.191
TA-182		67.75		1.509E-02	1.139E-01	1.857E-01	1.531E-02	0.081
		100.10		-2.641E-02	1.772E-01	2.931E-01	2.613E-02	-0.090
		152.43		1.366E-01	3.593E-01	5.928E-01	5.651E-02	0.231
		222.10		-1.368E-01	3.679E-01	5.710E-01	6.533E-02	-0.240
		1001.68		2.024E+00	2.487E+00	4.401E+00	4.252E-01	0.460
RE-183	+	1121.28		6.049E-01	2.428E-01	3.498E-01	3.019E-02	1.729
		1189.05		3.854E-01	3.462E-01	6.232E-01	5.097E-02	0.618
		1221.42	*	-1.460E-01	2.268E-01	3.537E-01	2.983E-02	-0.413
		1230.97		-4.560E-01	5.632E-01	8.660E-01	7.371E-02	-0.527
		57.98		-7.141E-02	2.456E-01	3.960E-01	3.028E-02	-0.180
		59.32		-2.452E-02	1.371E-01	2.088E-01	1.565E-02	-0.117
		67.20		8.777E-02	2.187E-01	3.404E-01	2.793E-02	0.258
		162.32	*	3.440E-02	1.182E-01	1.884E-01	1.895E-02	0.183

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184	+	208.81		2.230E+00	1.480E+00	1.863E+00	2.081E-01	1.197
		291.72		1.526E-01	1.077E+00	1.604E+00	1.969E-01	0.095
		57.98		-2.635E-01	9.062E-01	1.461E+00	1.117E-01	-0.180
		59.32		-9.040E-02	5.054E-01	7.698E-01	5.768E-02	-0.117
		67.20		3.238E-01	8.068E-01	1.256E+00	1.030E-01	0.258
		161.27		4.517E-02	3.769E-01	5.961E-01	5.960E-02	0.076
		216.55		-1.094E-02	2.828E-01	4.482E-01	5.078E-02	-0.024
		252.85	*	1.614E-01	2.283E-01	3.977E-01	4.775E-02	0.406
		318.01		7.749E-02	4.793E-01	8.045E-01	9.574E-02	0.096
		792.07		-7.506E-01	1.136E+00	1.757E+00	1.676E-01	-0.427
OS-185		903.28		-1.220E-01	1.261E+00	1.739E+00	1.774E-01	-0.070
		920.93		-3.540E-01	4.767E-01	7.068E-01	7.154E-02	-0.501
		59.72		1.047E-01	3.572E-01	5.570E-01	4.180E-02	0.188
		61.14		1.292E-02	1.955E-01	3.010E-01	2.313E-02	0.043
		69.30		-1.616E-01	3.194E-01	4.742E-01	3.960E-02	-0.341
		592.07		5.711E-01	2.475E+00	4.225E+00	3.960E-01	0.135
		646.12	*	4.393E-02	4.693E-02	8.323E-02	7.331E-03	0.528
		717.42		-6.735E-02	9.310E-01	1.529E+00	1.379E-01	-0.044
		874.81		3.820E-01	6.401E-01	1.096E+00	1.105E-01	0.349
		880.27		2.122E-01	8.769E-01	1.455E+00	1.471E-01	0.146
RE-188		155.03	*	1.554E-01	1.780E-01	2.987E-01	2.887E-02	0.520
		477.96		1.475E+00	3.528E+00	5.857E+00	5.871E-01	0.252
		633.10		-3.376E-01	2.708E+00	4.471E+00	4.006E-01	-0.075
W-188	+	63.58		8.448E+01	9.851E+01	1.080E+02	8.561E+00	0.782
		227.08		1.826E+00	1.374E+01	2.189E+01	2.526E+00	0.083
IR-192	+	290.67	*	-7.221E-01	8.163E+00	1.195E+01	1.469E+00	-0.060
		295.96		1.249E-01	1.403E-01	2.858E-01	3.508E-02	0.437
		308.46		6.776E-03	1.005E-01	1.682E-01	2.034E-02	0.040
		316.51	*	1.854E-02	3.651E-02	6.235E-02	7.445E-03	0.297
		468.07		-3.458E-02	8.635E-02	1.170E-01	1.238E-02	-0.296
AU-195		604.41		-1.849E-01	5.524E-01	7.773E-01	1.045E-01	-0.238
		612.46		3.705E-01	7.427E-01	1.140E+00	1.184E-01	0.325
		65.12		-6.625E-02	1.895E-01	2.847E-01	2.292E-02	-0.233
		66.83		9.071E-02	1.024E-01	1.628E-01	1.331E-02	0.557
	+	75.70		1.100E+00	2.755E-01	4.455E-01	3.932E-02	2.469
		98.88	*	-2.642E-02	2.373E-01	3.862E-01	3.472E-02	-0.068
		129.76		2.054E+00	2.822E+00	4.761E+00	4.078E-01	0.431
TL-200		367.94	*	1.220E-04	2.822E+00	Half-Life	too short	
		579.30		6.552E-04	2.822E+00	Half-Life	too short	
		828.27		-1.789E-03	2.822E+00	Half-Life	too short	
		1205.75		8.797E-05	2.822E+00	Half-Life	too short	
TL-201		68.90		-2.751E+00	4.873E+00	7.213E+00	6.003E-01	-0.381
		70.82		-4.236E-01	2.658E+00	4.015E+00	3.396E-01	-0.106
		80.30		-1.979E+00	6.138E+00	7.200E+00	6.644E-01	-0.275
		135.34		1.268E+01	2.391E+01	3.999E+01	3.505E+00	0.317
TL-202		167.43	*	-6.892E+00	6.873E+00	1.051E+01	1.082E+00	-0.656
		68.90		-2.578E-01	4.567E-01	6.760E-01	5.626E-02	-0.381
		70.82		-3.959E-02	2.484E-01	3.753E-01	3.174E-02	-0.105
		80.30		-1.850E-01	5.739E-01	6.731E-01	6.211E-02	-0.275

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203		439.56	*	9.538E-02	7.579E-02	1.325E-01	1.335E-02	0.720
		70.83		-1.618E-01	1.088E+00	1.644E+00	2.220E-01	-0.098
		72.87		1.300E+00	6.180E-01	1.076E+00	1.419E-01	1.208
+ BI-207		82.60		1.589E+00	1.292E+00	1.864E+00	2.662E-01	0.853
		279.20	*	2.317E-02	4.332E-02	7.442E-02	9.356E-03	0.311
		72.80		3.291E-01	1.752E-01	3.109E-01	2.675E-02	1.058
+ TL-207		74.97		6.106E-01	1.530E-01	2.233E-01	1.958E-02	2.734
		84.90		2.775E-01	2.236E-01	3.217E-01	3.118E-02	0.863
		569.67		-2.615E-02	3.418E-02	5.206E-02	4.976E-03	-0.502
1063.62			*	7.139E-02	5.639E-02	1.040E-01	9.545E-03	0.687
		1770.23		-2.321E+00	8.304E-01	8.158E-01	6.894E-02	-2.845
		81.07		-6.526E-03	2.753E-01	3.306E-01	3.075E-02	-0.020
+ TL-207		83.78		1.830E-01	1.474E-01	2.179E-01	2.086E-02	0.840
		94.90		1.021E-01	2.515E-01	3.762E-01	3.493E-02	0.271
		122.32		-3.362E-01	1.679E+00	2.739E+00	2.466E-01	-0.123
144.24				1.149E+00	7.385E-01	1.257E+00	1.271E-01	0.915
		154.21		1.170E-01	4.201E-01	6.899E-01	7.175E-02	0.170
		269.46		4.591E-01	2.789E-01	3.700E-01	4.585E-02	1.241
+ PO-209		323.87	*	-2.549E-01	7.258E-01	1.180E+00	2.296E-01	-0.216
		338.28		4.964E+00	2.072E+00	2.501E+00	3.620E-01	1.985
		445.03		-1.012E+00	2.497E+00	3.928E+00	5.170E-01	-0.258
260.50				-2.396E+00	9.568E+00	1.592E+01	1.931E+00	-0.150
		262.80		-1.147E+01	2.706E+01	4.456E+01	5.422E+00	-0.257
		896.60	*	2.025E-01	8.428E+00	1.369E+01	1.398E+00	0.015
BI-210		46.50	*	6.296E+00	6.259E+00	1.003E+01	9.614E-01	0.627
PB-210		46.50	*	6.296E+00	6.259E+00	1.003E+01	9.614E-01	0.627
PO-210		46.50	*	6.296E+00	6.254E+00	1.003E+01	8.759E-01	0.627
PB-211		404.84	*	-9.549E-01	1.213E+00	1.623E+00	1.021E+00	-0.588
427.08				9.917E-01	2.330E+00	3.767E+00	2.349E+00	0.263
		831.96		2.723E-02	1.346E+00	2.200E+00	1.382E+00	0.012
		727.18	*	1.107E+00	5.840E-01	6.853E-01	7.139E-02	1.616
+ BI-212		785.46		7.897E-01	1.894E+00	3.211E+00	3.049E-01	0.246
		1620.62		7.908E-01	1.193E+00	2.202E+00	1.977E-01	0.359
		81.07		-6.526E-03	2.753E-01	3.306E-01	3.075E-02	-0.020
+ PO-215		83.78		1.830E-01	1.474E-01	2.179E-01	2.086E-02	0.840
		94.90		1.021E-01	2.515E-01	3.762E-01	3.493E-02	0.271
		122.32		-3.362E-01	1.679E+00	2.739E+00	2.466E-01	-0.123
144.24				1.149E+00	7.385E-01	1.257E+00	1.271E-01	0.915
		154.21		1.170E-01	4.201E-01	6.899E-01	7.175E-02	0.170
		269.46		4.591E-01	2.789E-01	3.700E-01	4.585E-02	1.241
+ RN-219		323.87	*	-2.549E-01	7.258E-01	1.180E+00	2.296E-01	-0.216
		338.28		4.964E+00	2.072E+00	2.501E+00	3.620E-01	1.985
		445.03		-1.012E+00	2.497E+00	3.928E+00	5.170E-01	-0.258
271.23				3.416E-01	2.949E-01	4.638E-01	6.275E-02	0.737
		401.81	*	3.072E-01	4.763E-01	8.052E-01	1.278E-01	0.382
		549.76	*	1.335E+01	2.827E+01	4.683E+01	4.542E+00	0.285
RA-223		81.07		-6.526E-03	2.753E-01	3.306E-01	3.075E-02	-0.020
+ RA-223		83.78		1.830E-01	1.474E-01	2.179E-01	2.086E-02	0.840
		94.90		1.021E-01	2.515E-01	3.762E-01	3.493E-02	0.271



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-3.362E-01	1.679E+00	2.739E+00	2.466E-01	-0.123
		144.24		1.149E+00	7.385E-01	1.257E+00	1.271E-01	0.915
		154.21		1.170E-01	4.201E-01	6.899E-01	7.175E-02	0.170
	+	269.46		4.591E-01	2.789E-01	3.700E-01	4.585E-02	1.241
		323.87	*	-2.549E-01	7.258E-01	1.180E+00	2.296E-01	-0.216
	+	338.28		4.964E+00	2.072E+00	2.501E+00	3.620E-01	1.985
		445.03		-1.012E+00	2.497E+00	3.928E+00	5.170E-01	-0.258
		79.80		-1.844E-01	2.105E+00	2.518E+00	5.472E-01	-0.073
		236.00		6.394E-01	2.830E-01	4.521E-01	6.594E-02	1.414
		256.20	*	-2.205E-01	3.764E-01	6.131E-01	1.074E-01	-0.360
		286.10		-4.181E-01	1.533E+00	2.528E+00	4.016E-01	-0.165
	+	299.80		2.888E+00	1.846E+00	2.646E+00	5.158E-01	1.091
TH-227		304.40		-4.125E-01	2.120E+00	3.063E+00	6.220E-01	-0.135
		334.20		-1.161E+00	2.825E+00	3.969E+00	8.295E-01	-0.293
		79.80		-1.844E-01	2.105E+00	2.518E+00	5.541E-01	-0.073
		94.00		9.393E+00	3.092E+00	3.951E+00	8.726E-01	2.377
		236.00		6.394E-01	2.811E-01	4.521E-01	6.157E-02	1.414
		256.20	*	-2.205E-01	3.770E-01	6.131E-01	1.222E-01	-0.360
		286.10		-4.181E-01	1.588E+00	2.528E+00	2.548E+00	-0.165
	+	299.80		2.888E+00	1.846E+00	2.646E+00	5.158E-01	1.091
		304.40		-4.125E-01	2.120E+00	3.063E+00	6.220E-01	-0.135
		334.20		-1.161E+00	2.825E+00	3.969E+00	8.295E-01	-0.293
	+	85.43		6.981E-01	1.975E-01	3.176E-01	3.097E-02	2.198
	+	88.47		2.803E-01	1.213E-01	1.915E-01	1.911E-02	1.464
PA-231		100.00		4.116E-02	1.821E-01	3.056E-01	2.726E-02	0.135
		193.63	*	-6.034E-02	5.404E-01	8.600E-01	9.325E-02	-0.070
		210.97		-9.964E-02	8.663E-01	1.215E+00	1.363E-01	-0.082
		283.67	*	2.912E-01	1.543E+00	2.611E+00	4.591E-01	0.111
		301.29		8.393E-01	6.398E-01	1.014E+00	1.515E-01	0.828
TH-231		81.07		-6.526E-03	2.753E-01	3.306E-01	3.075E-02	-0.020
	+	83.78		1.830E-01	1.474E-01	2.179E-01	2.086E-02	0.840
		94.90		1.021E-01	2.515E-01	3.762E-01	3.493E-02	0.271
		122.32		-3.362E-01	1.679E+00	2.739E+00	2.466E-01	-0.123
		144.24		1.149E+00	7.385E-01	1.257E+00	1.271E-01	0.915
U-231		154.21		1.170E-01	4.201E-01	6.899E-01	7.175E-02	0.170
	+	269.46		4.591E-01	2.789E-01	3.700E-01	4.585E-02	1.241
		323.87	*	-2.549E-01	7.258E-01	1.180E+00	2.296E-01	-0.216
	+	338.28		4.964E+00	2.072E+00	2.501E+00	3.620E-01	1.985
		445.03		-1.012E+00	2.497E+00	3.928E+00	5.170E-01	-0.258
	+	84.21		7.572E+00	6.101E+00	8.936E+00	8.596E-01	0.847
	+	92.29		1.391E+01	3.155E+00	4.915E+00	4.685E-01	2.829
		95.87	*	-7.788E-01	1.161E+00	1.638E+00	1.508E-01	-0.475
		108.00		-4.249E-01	2.016E+00	3.314E+00	2.840E-01	-0.128
	+	75.28		1.782E+01	5.005E+00	6.661E+00	1.029E+00	2.675
	+	86.59		6.095E+00	2.317E+00	2.975E+00	8.106E-01	2.049
	+	300.12		8.051E-01	5.092E-01	7.404E-01	1.272E-01	1.087
PA-233		311.98	*	7.257E-03	6.724E-02	1.127E-01	1.373E-02	0.064
		340.50		4.410E-01	7.313E-01	1.101E+00	2.751E-01	0.401
		398.62		-1.586E+00	2.495E+00	3.864E+00	1.048E+00	-0.410

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		-2.393E-02	1.855E+00	3.024E+00	6.703E-01	-0.008
		63.00		2.456E+00	2.881E+00	3.309E+00	4.996E-01	0.742
		94.67		2.397E-01	1.832E-01	2.823E-01	3.638E-02	0.849
		98.44		-6.277E-03	9.642E-02	1.571E-01	8.777E-02	-0.040
		99.86		-1.229E-01	4.834E-01	7.808E-01	6.972E-02	-0.157
		111.00		-1.374E-02	1.899E-01	3.133E-01	3.758E-02	-0.044
		131.20		-1.158E-01	1.066E-01	1.658E-01	1.428E-02	-0.699
		152.70		1.773E-01	3.484E-01	5.758E-01	1.010E-01	0.308
		186.00		4.580E+00	2.774E+00	3.043E+00	9.689E-01	1.505
		226.40		-3.235E-02	4.367E-01	6.886E-01	1.051E-01	-0.047
		227.20		5.935E-02	4.650E-01	7.409E-01	8.552E-02	0.080
		248.90		-1.044E-01	7.828E-01	1.314E+00	3.140E-01	-0.079
		293.70		6.052E+00	1.571E+00	1.799E+00	3.484E-01	3.364
		369.80		-1.105E-01	9.503E-01	1.553E+00	3.521E-01	-0.071
		568.70		-3.480E-01	1.129E+00	1.789E+00	1.711E-01	-0.195
		569.50		-2.507E-01	3.062E-01	4.648E-01	4.443E-02	-0.539
		574.00		4.384E-01	1.563E+00	2.678E+00	2.551E-01	0.164
		699.00		-1.817E-01	7.554E-01	1.226E+00	2.354E-01	-0.148
		706.10		-4.896E-01	1.104E+00	1.723E+00	7.696E-01	-0.284
		733.00		1.134E-01	4.347E-01	6.406E-01	1.435E-01	0.177
		742.81		-2.109E+00	2.094E+00	2.242E+00	1.509E+00	-0.941
		796.30		1.163E+00	1.074E+00	1.826E+00	4.998E-01	0.637
		805.60		2.565E-01	1.080E+00	1.799E+00	5.566E-01	0.143
		819.60		2.520E-01	1.167E+00	1.943E+00	7.439E-01	0.130
		826.30		-2.346E-01	9.216E-01	1.460E+00	6.567E-01	-0.161
		831.60		1.011E-01	6.994E-01	1.154E+00	3.487E-01	0.088
		876.40		-4.743E-01	1.078E+00	1.488E+00	1.532E+00	-0.319
		880.51		1.279E-01	3.169E-01	5.332E-01	5.393E-02	0.240
		883.24		2.829E-02	3.294E-01	5.380E-01	3.628E-01	0.053
		899.00		9.602E-01	1.031E+00	1.664E+00	7.329E-01	0.577
		925.00		4.951E-01	1.200E+00	2.023E+00	2.044E-01	0.245
		926.50		-4.250E-02	1.907E-01	3.006E-01	7.762E-02	-0.141
		946.00	*	1.112E-01	3.428E-01	5.691E-01	1.106E-01	0.195
		949.00		5.527E-01	4.878E-01	8.670E-01	8.655E-02	0.637
		980.50		1.513E-01	7.711E-01	1.266E+00	1.240E-01	0.120
		1394.10		3.460E-02	1.204E+00	1.972E+00	1.286E+00	0.018
PA-234M		766.42		1.422E+01	1.535E+01	2.367E+01	1.204E+01	0.601
		1001.03	*	3.916E+00	5.809E+00	1.015E+01	1.104E+00	0.386
U-235	+	89.95		2.813E+00	1.475E+00	1.893E+00	5.908E-01	1.486
	+	93.35		4.559E+00	1.596E+00	1.507E+00	4.261E-01	3.026
		105.00		8.585E-01	1.125E+00	1.842E+00	5.502E-01	0.466
		143.76	*	3.128E-01	2.306E-01	3.832E-01	6.805E-02	0.816
		163.35		-4.982E-02	5.167E-01	8.096E-01	1.603E-01	-0.062
	+	185.71		1.696E-01	8.926E-02	1.127E-01	1.203E-02	1.505
		205.31		5.957E-02	6.561E-01	9.321E-01	1.894E-01	0.064
NP-236		94.67		1.834E-01	1.381E-01	2.143E-01	1.994E-02	0.856
		98.44		-4.745E-03	7.284E-02	1.188E-01	1.071E-02	-0.040
		111.00		-1.039E-02	1.436E-01	2.370E-01	2.011E-02	-0.044
		160.31	*	-1.172E-02	8.057E-02	1.296E-01	1.289E-02	-0.090

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		2.379E-02	1.615E-01	2.652E-01	2.373E-02	0.090
		117.00	*	-1.254E-01	1.878E-01	3.004E-01	2.519E-02	-0.417
	+	209.75		1.763E+00	1.171E+00	1.446E+00	1.617E-01	1.220
		228.18		4.537E-02	2.528E-01	4.037E-01	4.667E-02	0.112
		277.60		3.424E-01	2.017E-01	3.568E-01	4.417E-02	0.960
AM-241		334.30		-7.373E-01	1.593E+00	2.234E+00	2.588E-01	-0.330
		59.54	*	5.819E-02	1.894E-01	2.956E-01	2.422E-02	0.197
CM-243		99.55		2.448E-02	1.662E-01	2.729E-01	2.442E-02	0.090
		103.76	*	3.681E-02	1.017E-01	1.684E-01	1.470E-02	0.219
		117.00		-1.290E-01	1.932E-01	3.091E-01	2.592E-02	-0.417
	+	209.75		1.738E+00	1.154E+00	1.425E+00	1.594E-01	1.220
		228.18		4.584E-02	2.555E-01	4.079E-01	4.716E-02	0.112
AM-246		277.60		3.452E-01	2.033E-01	3.597E-01	4.452E-02	0.960
		798.80		-2.784E-01	1.607E-01	2.189E-01	2.098E-02	-1.272
		1036.00		-1.588E-01	3.061E-01	4.859E-01	4.571E-02	-0.327
		1062.04		1.820E-01	2.474E-01	4.394E-01	4.040E-02	0.414
		1078.86	*	-7.305E-02	1.617E-01	2.588E-01	2.341E-02	-0.282
CM-247		278.00		1.316E+00	8.296E-01	1.465E+00	1.815E-01	0.898
		287.40		-1.750E-02	1.230E+00	2.060E+00	2.539E-01	-0.008
		402.60	*	-1.585E-03	4.295E-02	7.009E-02	7.032E-03	-0.023
CF-249		252.85		6.063E-01	8.573E-01	1.494E+00	1.794E-01	0.406
		333.44		3.801E-02	2.044E-01	3.022E-01	3.506E-02	0.126
		387.95	*	2.986E-02	4.409E-02	7.514E-02	7.610E-03	0.397
CF-251		176.60	*	-4.415E-02	1.342E-01	2.126E-01	2.228E-02	-0.208
		227.00		5.645E-02	4.132E-01	6.587E-01	7.601E-02	0.086
		285.00		7.550E-01	1.760E+00	3.013E+00	3.721E-01	0.251

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231001      *
* Acquisition date   : 21-JAN-2010 09:01:33 Detector SN#                   *
* Detector ID        : GAM02 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:02.72 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244231001 Analyst initials: MXR1                 *
* Batch Number       : 941242 Sample Quantity : 1.3408E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 29-OCT-2009 10:28:07 MS Isotope                    *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM           : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.102E+01	3.430E+00	4.221E-01	0.000E+00
CD-109	3.166E+00	8.780E-01	1.220E+00	0.000E+00
SN-126	3.113E-01	8.633E-02	1.206E-01	0.000E+00
CS-135	3.903E-01	2.330E-01	2.598E-01	0.000E+00
BA-137M	6.618E-01	1.103E-01	6.445E-02	0.000E+00
CS-137	6.996E-01	1.167E-01	6.813E-02	0.000E+00
TL-208	4.417E-01	8.958E-02	6.448E-02	0.000E+00
BI-211	3.406E+00	5.911E-01	3.426E-01	0.000E+00
PB-212	1.466E+00	2.112E-01	9.287E-02	0.000E+00
PO-212	1.466E+00	2.112E-01	9.287E-02	0.000E+00
BI-214	9.914E-01	1.875E-01	1.150E-01	0.000E+00
PB-214	1.185E+00	2.144E-01	1.194E-01	0.000E+00
PO-214	1.185E+00	2.144E-01	1.194E-01	0.000E+00
PO-216	1.466E+00	2.112E-01	9.287E-02	0.000E+00
PO-218	1.185E+00	2.144E-01	1.194E-01	0.000E+00
RA-224	3.852E+00	1.493E+00	1.057E+00	0.000E+00
RA-226	9.914E-01	1.875E-01	1.150E-01	0.000E+00
AC-228	1.256E+00	3.528E-01	2.357E-01	0.000E+00
RA-228	1.256E+00	3.528E-01	2.357E-01	0.000E+00
TH-228	1.488E+00	2.143E-01	9.426E-02	0.000E+00
TH-230	9.914E-01	1.875E-01	1.150E-01	0.000E+00
TH-232	1.256E+00	3.528E-01	2.357E-01	0.000E+00
TH-234	2.107E+00	2.430E+00	2.443E+00	0.000E+00
U-234	9.914E-01	1.875E-01	1.150E-01	0.000E+00
NP-237	9.142E-01	3.138E-01	3.691E-01	0.000E+00
U-238	2.107E+00	2.430E+00	2.443E+00	0.000E+00
AM-243	3.402E-01	8.352E-02	8.914E-02	0.000E+00
ANH-511	8.336E-02	7.037E-02	5.293E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	5.345E-02	3.678E-01	6.255E-01	0.000E+00	NOT IDENT.
NA-22	-3.705E-02	5.156E-02	8.084E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	5.594E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-2.407E-02	2.861E-02	3.879E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.284E-02	7.085E-02	0.000E+00	FAIL ABUN
SC-46	1.267E-02	4.340E-02	7.454E-02	0.000E+00	FAIL ABUN
V-48	-4.529E-02	7.639E-02	1.185E-01	0.000E+00	NOT IDENT.
CR-51	-2.827E-01	3.900E-01	6.517E-01	0.000E+00	NOT IDENT.
MN-52	9.881E-02	2.570E-01	4.486E-01	0.000E+00	NOT IDENT.
MN-54	-1.864E-02	4.274E-02	6.942E-02	0.000E+00	NOT IDENT.
CO-56	-2.510E-03	4.040E-02	6.758E-02	0.000E+00	NOT IDENT.
CO-57	2.682E-03	2.388E-02	4.221E-02	0.000E+00	NOT IDENT.
CO-58	2.556E-02	3.833E-02	6.867E-02	0.000E+00	NOT IDENT.
FE-59	-2.394E-02	1.009E-01	1.692E-01	0.000E+00	NOT IDENT.
CO-60	2.629E-02	3.903E-02	7.073E-02	0.000E+00	NOT IDENT.
ZN-65	4.180E-02	1.065E-01	1.645E-01	0.000E+00	NOT IDENT.
GE-68	1.391E+00	1.323E+00	2.466E+00	0.000E+00	NOT IDENT.
AS-73	-6.965E-01	1.088E+00	1.969E+00	0.000E+00	NOT IDENT.
AS-74	-4.649E-02	8.943E-02	1.496E-01	0.000E+00	NOT IDENT.
SE-75	5.997E-02	4.617E-02	8.125E-02	0.000E+00	NOT IDENT.
BR-77	1.569E+00	1.046E+01	1.767E+01	0.000E+00	FAIL ABUN
SR-82	-2.069E-01	3.934E-01	6.363E-01	0.000E+00	NOT IDENT.
RB-83	7.812E-03	7.473E-02	1.258E-01	0.000E+00	NOT IDENT.
RB-84	2.575E-02	7.777E-02	1.341E-01	0.000E+00	NOT IDENT.
KR-85	4.792E+00	8.495E+00	1.306E+01	0.000E+00	NOT IDENT.
SR-85	2.451E-02	4.345E-02	6.681E-02	0.000E+00	NOT IDENT.
RB-86	1.122E+00	8.432E-01	1.599E+00	0.000E+00	NOT IDENT.
Y-88	1.056E-02	3.792E-02	6.681E-02	0.000E+00	NOT IDENT.
ZR-88	-2.450E-02	3.330E-02	5.432E-02	0.000E+00	NOT IDENT.
Y-91	6.471E+00	2.011E+01	3.503E+01	0.000E+00	NOT IDENT.
NB-94	-1.794E-02	3.381E-02	5.545E-02	0.000E+00	NOT IDENT.
NB-95	2.793E-02	4.951E-02	8.660E-02	0.000E+00	NOT IDENT.
NB-95M	9.613E-02	1.312E-01	2.161E-01	0.000E+00	NOT IDENT.
ZR-95	6.174E-03	7.498E-02	1.285E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	8.94E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.821E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	1.112E+01	1.185E+01	2.149E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.023E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-8.172E-03	3.566E-02	5.910E-02	0.000E+00	NOT IDENT.
RH-102	-4.083E-03	3.346E-02	5.590E-02	0.000E+00	NOT IDENT.
RU-103	-9.589E-03	4.484E-02	7.399E-02	0.000E+00	FAIL ABUN
RH-106	-2.896E-01	3.345E-01	5.388E-01	0.000E+00	FAIL ABUN
RU-106	-2.896E-01	3.333E-01	5.388E-01	0.000E+00	FAIL ABUN
AG-108M	1.462E-02	3.575E-02	6.237E-02	0.000E+00	NOT IDENT.
AG-110M	2.415E-02	4.008E-02	6.399E-02	0.000E+00	NOT IDENT.
IN-111	-1.916E-01	1.039E+00	1.618E+00	0.000E+00	NOT IDENT.
IN-113M	-7.733E-03	4.835E-02	8.215E-02	0.000E+00	NOT IDENT.
SN-113	-7.733E-03	4.835E-02	8.215E-02	0.000E+00	NOT IDENT.
IN-114M	-8.402E-03	2.048E-01	3.088E-01	0.000E+00	NOT IDENT.
CD-115	7.379E+00	1.076E+01	1.885E+01	0.000E+00	NOT IDENT.
SN-117M	-6.424E-02	5.350E-02	8.641E-02	0.000E+00	NOT IDENT.
SB-122	3.970E-01	1.970E+00	3.497E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.224E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-3.277E-02	2.828E-02	4.580E-02	0.000E+00	NOT IDENT.
I-124	-2.068E-01	7.392E-01	1.087E+00	0.000E+00	NOT IDENT.
SB-124	-1.122E-02	7.377E-02	1.217E-01	0.000E+00	FAIL ABUN
SB-125	-2.541E-02	9.884E-02	1.652E-01	0.000E+00	FAIL ABUN
TE-125M	-2.695E+00	9.223E+00	1.616E+01	0.000E+00	NOT IDENT.
I-126	4.649E-02	2.025E-01	3.110E-01	0.000E+00	NOT IDENT.
SB-126	-4.826E-02	1.720E-01	2.468E-01	0.000E+00	FAIL ABUN
SB-127	1.262E+00	1.437E+00	2.614E+00	0.000E+00	NOT IDENT.
XE-127	-1.384E-02	5.046E-02	8.412E-02	0.000E+00	NOT IDENT.
I-131	1.913E-02	1.212E-01	2.113E-01	0.000E+00	NOT IDENT.
TE-132	1.232E-01	7.194E-01	1.213E+00	0.000E+00	NOT IDENT.
BA-133	7.854E-03	4.828E-02	7.440E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	5.402E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.113E-02	9.830E-02	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.326E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.186E-02	1.160E-01	2.084E-01	0.000E+00	FAIL ABUN
CE-139	1.896E-03	2.996E-02	5.163E-02	0.000E+00	NOT IDENT.
BA-140	7.668E-02	2.475E-01	4.212E-01	0.000E+00	NOT IDENT.
LA-140	-8.328E-03	9.402E-02	1.588E-01	0.000E+00	NOT IDENT.
CE-141	4.351E-03	6.300E-02	1.097E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.235E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	9.170E-02	1.978E-01	3.516E-01	0.000E+00	NOT IDENT.
PM-144	2.561E-02	3.723E-02	6.693E-02	0.000E+00	NOT IDENT.
PR-144	1.735E+00	2.522E+00	4.535E+00	0.000E+00	NOT IDENT.

PM-146	4.417E-02	4.742E-02	8.483E-02	0.000E+00	NOT IDENT.
ND-147	2.540E-01	6.165E-01	1.029E+00	0.000E+00	FAIL ABUN
PM-149	-1.519E+01	8.353E+01	1.459E+02	0.000E+00	NOT IDENT.
EU-152	-5.564E-03	1.017E-01	1.701E-01	0.000E+00	FAIL ABUN
GD-153	-1.549E-02	8.862E-02	1.399E-01	0.000E+00	FAIL ABUN
EU-154	-1.072E-01	1.439E-01	2.246E-01	0.000E+00	NOT IDENT.
EU-155	3.545E-02	1.108E-01	1.960E-01	0.000E+00	FAIL ABUN
TB-160	5.170E-02	1.539E-01	2.656E-01	0.000E+00	FAIL ABUN
HO-166M	-1.508E-02	6.191E-02	1.039E-01	0.000E+00	FAIL ABUN
TM-171	2.803E+01	3.043E+01	5.228E+01	0.000E+00	NOT IDENT.
LU-176	-5.784E-03	2.543E-02	4.405E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.578E+00	2.118E+00	0.000E+00	FAIL ABUN
LU-177M	5.524E-03	1.935E-01	3.309E-01	0.000E+00	FAIL ABUN
HF-181	-3.324E-02	4.611E-02	7.317E-02	0.000E+00	NOT IDENT.
W-181	-1.179E-01	4.011E-01	6.529E-01	0.000E+00	NOT IDENT.
TA-182	-1.460E-01	2.223E-01	3.555E-01	0.000E+00	FAIL ABUN
RE-183	3.440E-02	1.158E-01	1.963E-01	0.000E+00	FAIL ABUN
RE-184	1.614E-01	2.237E-01	4.113E-01	0.000E+00	NOT IDENT.
OS-185	4.393E-02	4.599E-02	8.464E-02	0.000E+00	NOT IDENT.
RE-188	1.554E-01	1.744E-01	3.116E-01	0.000E+00	NOT IDENT.
W-188	-7.221E-01	8.000E+00	1.233E+01	0.000E+00	FAIL ABUN
IR-192	1.854E-02	3.578E-02	6.423E-02	0.000E+00	FAIL ABUN
AU-195	-2.642E-02	2.326E-01	4.059E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	4.267E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-6.892E+00	6.736E+00	1.095E+01	0.000E+00	NOT IDENT.
TL-202	9.538E-02	7.427E-02	1.357E-01	0.000E+00	NOT IDENT.
HG-203	2.317E-02	4.246E-02	7.682E-02	0.000E+00	FAIL ABUN
BI-207	7.139E-02	5.526E-02	1.048E-01	0.000E+00	FAIL ABUN
TL-207	-2.549E-01	7.113E-01	1.215E+00	0.000E+00	FAIL ABUN
PO-209	2.025E-01	8.260E+00	1.384E+01	0.000E+00	NOT IDENT.
BI-210	6.296E+00	6.134E+00	1.068E+01	0.000E+00	NOT IDENT.
PB-210	6.296E+00	6.134E+00	1.068E+01	0.000E+00	NOT IDENT.
PO-210	6.296E+00	6.129E+00	1.068E+01	0.000E+00	NOT IDENT.
PB-211	-9.549E-01	1.189E+00	1.665E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	5.723E-01	6.955E-01	0.000E+00	FAIL ABUN
PO-215	-2.549E-01	7.113E-01	1.215E+00	0.000E+00	FAIL ABUN
RN-219	3.072E-01	4.668E-01	8.259E-01	0.000E+00	NOT IDENT.
RN-220	1.335E+01	2.771E+01	4.776E+01	0.000E+00	NOT IDENT.
RA-223	-2.549E-01	7.113E-01	1.215E+00	0.000E+00	FAIL ABUN
AC-227	-2.205E-01	3.689E-01	6.339E-01	0.000E+00	FAIL ABUN
TH-227	-2.205E-01	3.695E-01	6.339E-01	0.000E+00	FAIL ABUN
TH-229	-6.034E-02	5.296E-01	8.935E-01	0.000E+00	FAIL ABUN
PA-231	2.912E-01	1.512E+00	2.695E+00	0.000E+00	NOT IDENT.
TH-231	-2.549E-01	7.113E-01	1.215E+00	0.000E+00	FAIL ABUN
U-231	-7.788E-01	1.138E+00	1.722E+00	0.000E+00	FAIL ABUN
PA-233	7.257E-03	6.590E-02	1.161E-01	0.000E+00	FAIL ABUN
PA-234	1.112E-01	3.360E-01	5.748E-01	0.000E+00	FAIL ABUN
PA-234M	3.916E+00	5.693E+00	1.024E+01	0.000E+00	NOT IDENT.
U-235	3.128E-01	2.259E-01	4.002E-01	0.000E+00	FAIL ABUN
NP-236	-1.172E-02	7.896E-02	1.351E-01	0.000E+00	NOT IDENT.
NP-239	-1.254E-01	1.840E-01	3.148E-01	0.000E+00	FAIL ABUN
AM-241	5.819E-02	1.856E-01	3.133E-01	0.000E+00	NOT IDENT.
CM-243	3.681E-02	9.970E-02	1.768E-01	0.000E+00	FAIL ABUN
AM-246	-7.305E-02	1.584E-01	2.607E-01	0.000E+00	NOT IDENT.
CM-247	-1.585E-03	4.209E-02	7.189E-02	0.000E+00	NOT IDENT.
CF-249	2.986E-02	4.321E-02	7.713E-02	0.000E+00	NOT IDENT.
CF-251	-4.415E-02	1.315E-01	2.212E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231001.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:01:33
Sample ID          : G244231001      Sample quantity   : 1.34080E+02 GRAM
Detector name      : GAM02           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:02.72  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 941242          Detector SN#     :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1215	10.67*	1.028E+00	3.102E+01	3.102E+01	11.28
CD-109	88.03	215	3.72*	5.219E+00	3.097E+00	3.166E+00	28.29
SN-126	64.28	72	9.60	2.528E+00	8.340E-01	8.340E-01	117.27
	86.94	215	8.90	5.219E+00	1.294E+00	1.294E+00	49.36
	87.57	215	37.00*	5.219E+00	3.113E-01	3.113E-01	28.29
CS-135	268.24	91	16.00*	4.075E+00	3.903E-01	3.903E-01	60.94
BA-137M	661.65	440	89.98*	2.071E+00	6.612E-01	6.618E-01	17.01
CS-137	661.65	440	85.12*	2.071E+00	6.989E-01	6.996E-01	17.02
TL-208	277.35	-----	6.80	3.991E+00	-----	Line Not Found	-----
	510.84	76	21.60	2.539E+00	3.859E-01	3.859E-01	86.54
	583.14	305	84.20*	2.292E+00	4.417E-01	4.417E-01	20.69
	860.37	-----	12.46	1.652E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.848E+00	-----	Line Not Found	-----
	351.07	528	12.94*	3.352E+00	3.406E+00	3.406E+00	17.71
PB-212	74.81	325	10.70	4.047E+00	2.098E+00	2.098E+00	26.74
	77.11	482	18.00	4.313E+00	1.738E+00	1.738E+00	16.81
	87.30	215	8.00	5.219E+00	1.440E+00	1.440E+00	30.01
	238.63	1041	44.60*	4.457E+00	1.466E+00	1.466E+00	14.70
	300.09	72	3.41	3.769E+00	1.558E+00	1.558E+00	62.35
PO-212	74.81	325	10.70	4.047E+00	2.098E+00	2.098E+00	26.74
	77.11	482	18.00	4.313E+00	1.738E+00	1.738E+00	16.81
	87.30	215	8.00	5.219E+00	1.440E+00	1.440E+00	30.01
	115.19	-----	0.60	6.220E+00	-----	Line Not Found	-----
	238.63	1041	44.60*	4.457E+00	1.466E+00	1.466E+00	14.70
	300.09	72	3.41	3.769E+00	1.558E+00	1.558E+00	62.35
BI-214	609.31	363	46.30*	2.214E+00	9.914E-01	9.914E-01	19.30
	1120.29	90	15.10	1.298E+00	1.281E+00	1.281E+00	40.68
	1764.49	67	15.80	9.005E-01	1.311E+00	1.311E+00	38.74
PB-214	74.81	325	6.21	4.047E+00	3.615E+00	3.615E+00	26.13
	77.11	482	10.50	4.313E+00	2.979E+00	2.980E+00	18.46
	87.30	215	4.67	5.219E+00	2.467E+00	2.467E+00	29.33
	241.98	240	7.49	4.417E+00	2.031E+00	2.032E+00	39.93

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	330	19.20	3.815E+00	1.261E+00	1.261E+00	22.08
	351.92	528	37.20*	3.352E+00	1.185E+00	1.185E+00	18.46
	74.81	325	6.21	4.047E+00	3.615E+00	3.615E+00	26.13
	77.11	482	10.50	4.313E+00	2.979E+00	2.980E+00	18.46
	87.30	215	4.67	5.219E+00	2.467E+00	2.467E+00	29.33
PO-216	241.98	240	7.49	4.417E+00	2.031E+00	2.032E+00	39.93
	295.21	330	19.20	3.815E+00	1.261E+00	1.261E+00	22.08
	351.92	528	37.20*	3.352E+00	1.185E+00	1.185E+00	18.46
	74.81	325	10.70	4.047E+00	2.098E+00	2.098E+00	26.74
	77.11	482	18.00	4.313E+00	1.738E+00	1.738E+00	16.81
PO-218	87.30	215	8.00	5.219E+00	1.440E+00	1.440E+00	30.01
	238.63	1041	44.60*	4.457E+00	1.466E+00	1.466E+00	14.70
	300.09	72	3.41	3.769E+00	1.558E+00	1.558E+00	62.35
	74.81	325	6.21	4.047E+00	3.615E+00	3.615E+00	26.13
	77.11	482	10.50	4.313E+00	2.979E+00	2.980E+00	18.46
RA-224	87.30	215	4.67	5.219E+00	2.467E+00	2.467E+00	29.33
	241.98	240	7.49	4.417E+00	2.031E+00	2.032E+00	39.93
	295.21	330	19.20	3.815E+00	1.261E+00	1.261E+00	22.08
	351.92	528	37.20*	3.352E+00	1.185E+00	1.185E+00	18.46
	240.98	240	3.95*	4.417E+00	3.852E+00	3.852E+00	39.54
AC-228	609.31	363	46.30*	2.214E+00	9.914E-01	9.914E-01	19.30
	1120.29	90	15.10	1.298E+00	1.281E+00	1.281E+00	40.68
	1764.49	67	15.80	9.005E-01	1.311E+00	1.311E+00	38.74
	338.32	167	11.40	3.448E+00	1.189E+00	1.189E+00	57.38
	911.07	195	27.70*	1.569E+00	1.256E+00	1.256E+00	28.65
RA-228	969.11	115	16.60	1.484E+00	1.312E+00	1.312E+00	38.77
	338.32	167	11.40	3.448E+00	1.189E+00	1.189E+00	57.38
	911.07	195	27.70*	1.569E+00	1.256E+00	1.256E+00	28.65
	969.11	115	16.60	1.484E+00	1.312E+00	1.312E+00	38.77
	74.81	325	10.70	4.047E+00	2.098E+00	2.129E+00	25.08
TH-228	77.11	482	18.00	4.313E+00	1.738E+00	1.764E+00	16.81
	87.30	215	8.00	5.219E+00	1.440E+00	1.461E+00	28.29
	238.63	1041	44.60*	4.457E+00	1.466E+00	1.488E+00	14.70
	300.09	72	3.41	3.769E+00	1.558E+00	1.582E+00	85.40
	609.31	363	46.30*	2.214E+00	9.914E-01	9.914E-01	19.30
TH-230	1120.29	90	15.10	1.298E+00	1.281E+00	1.281E+00	40.68
	1764.49	67	15.80	9.005E-01	1.311E+00	1.311E+00	38.74
	338.32	167	11.40	3.448E+00	1.189E+00	1.189E+00	40.79
	911.07	195	27.70*	1.569E+00	1.256E+00	1.256E+00	28.65
	969.11	115	16.60	1.484E+00	1.312E+00	1.312E+00	38.77
TH-232	63.29	72	3.80*	2.528E+00	2.107E+00	2.107E+00	117.67
	92.38	409	5.41	5.580E+00	3.792E+00	3.792E+00	27.70
	609.31	363	46.30*	2.214E+00	9.914E-01	9.914E-01	19.30
	1120.29	90	15.10	1.298E+00	1.281E+00	1.281E+00	40.68
	1764.49	67	15.80	9.005E-01	1.311E+00	1.311E+00	38.74
NP-237	86.50	215	12.60*	5.219E+00	9.142E-01	9.142E-01	35.02
	95.87	-----	2.60	5.755E+00	-----	Line Not Found	-----
	63.29	72	3.80*	2.528E+00	2.107E+00	2.107E+00	117.67
	92.38	409	5.41	5.580E+00	3.792E+00	3.792E+00	22.69



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	325	66.00*	4.047E+00	3.402E-01	3.402E-01	25.05
	86.72	215	0.34	5.219E+00	3.428E+01	3.428E+01	28.29
	117.66	-----	0.55	6.232E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.053E+00	-----	Line Not Found	-----
ANH-511	511.00	76	100.00*	2.539E+00	8.336E-02	8.336E-02	86.14

Flag: "\*" = Keyline

Total number of lines in spectrum 30  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 29 96.67%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.102E+01	3.102E+01	0.350E+01	11.28	
CD-109	464.00D	1.02	3.097E+00	3.166E+00	0.896E+00	28.29	
SN-126	1.00E+05Y	1.00	3.113E-01	3.113E-01	0.881E-01	28.29	
CS-135	2.30E+06Y	1.00	3.903E-01	3.903E-01	2.378E-01	60.94	
BA-137M	30.17Y	1.00	6.612E-01	6.618E-01	1.126E-01	17.01	
CS-137	30.17Y	1.00	6.989E-01	6.996E-01	1.191E-01	17.02	
TL-208	1.41E+10Y	1.00	4.417E-01	4.417E-01	0.914E-01	20.69	
BI-211	7.04E+08Y	1.00	3.406E+00	3.406E+00	0.603E+00	17.71	
PB-212	1.41E+10Y	1.00	1.466E+00	1.466E+00	0.215E+00	14.70	
PO-212	1.41E+10Y	1.00	1.466E+00	1.466E+00	0.215E+00	14.70	
BI-214	1600.00Y	1.00	9.914E-01	9.914E-01	1.913E-01	19.30	
PB-214	1600.00Y	1.00	1.185E+00	1.185E+00	0.219E+00	18.46	
PO-214	1600.00Y	1.00	1.185E+00	1.185E+00	0.219E+00	18.46	
PO-216	1.41E+10Y	1.00	1.466E+00	1.466E+00	0.215E+00	14.70	
PO-218	1600.00Y	1.00	1.185E+00	1.185E+00	0.219E+00	18.46	
RA-224	1.41E+10Y	1.00	3.852E+00	3.852E+00	1.523E+00	39.54	
RA-226	1600.00Y	1.00	9.914E-01	9.914E-01	1.913E-01	19.30	
AC-228	1.41E+10Y	1.00	1.256E+00	1.256E+00	0.360E+00	28.65	
RA-228	1.41E+10Y	1.00	1.256E+00	1.256E+00	0.360E+00	28.65	
TH-228	1.91Y	1.01	1.466E+00	1.488E+00	0.219E+00	14.70	
TH-230	4.47E+09Y	1.00	9.914E-01	9.914E-01	1.913E-01	19.30	
TH-232	1.41E+10Y	1.00	1.256E+00	1.256E+00	0.360E+00	28.65	
TH-234	4.47E+09Y	1.00	2.107E+00	2.107E+00	2.479E+00	117.67	
U-234	4.47E+09Y	1.00	9.914E-01	9.914E-01	1.913E-01	19.30	
NP-237	2.14E+06Y	1.00	9.142E-01	9.142E-01	3.202E-01	35.02	
U-238	4.47E+09Y	1.00	2.107E+00	2.107E+00	2.479E+00	117.67	
AM-243	7380.00Y	1.00	3.402E-01	3.402E-01	0.852E-01	25.05	
ANH-511	1.00E+09Y	1.00	8.336E-02	8.336E-02	7.180E-02	86.14	

Total Activity : 6.658E+01 6.668E+01

Grand Total Activity : 6.658E+01 6.668E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244231001

Page : 5  
Acquisition date : 21-JAN-2010 09:01:33

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	83.78	80	356	1.15	166.78	164	6	1.12E-02	80.0	4.98E+00	T
3	89.69	147	328	1.04	178.60	170	20	2.04E-02	42.1	5.42E+00	T
0	185.56	173	450	1.21	370.44	366	10	2.40E-02	51.5	5.29E+00	T
0	208.80	100	295	0.99	416.94	413	9	1.39E-02	65.4	4.89E+00	T
1	296.16	43	100	1.37	591.75	583	12	5.94E-03	****	3.80E+00	T
0	462.72	33	127	1.67	925.07	920	10	4.54E-03	****	2.74E+00	T
0	727.14	89	92	1.40	1454.23	1446	15	1.24E-02	51.7	1.91E+00	T
1	964.30	55	43	1.99	1928.86	1924	20	7.62E-03	50.5	1.49E+00	T
0	1728.45	20	12	1.92	3458.34	3449	16	2.82E-03	88.0	9.11E-01	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231001.CNF;1
* Acquisition date   : 21-JAN-2010 09:01:33   Detector SN#      :
* Detector ID        : GAM02                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:02.72          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244231001             Analyst initials: MXR1
* Batch Number       : 941242                 Sample Quantity : 1.34080E+02 GRAM
*****
*                               QC DATA                                   *
*
* CALIB. DATE/TIME   : 29-OCT-2009 10:28:07.3MS Isotope      :
* MSD ID              :                      MSD Isotope      :
* LCS ID              : 1032-A               LCS Isotope      :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.102E+01	3.500E+00	4.213E-01	4.005E-02	73.634
CD-109	3.166E+00	8.959E-01	1.158E+00	1.163E-01	2.734
SN-126	3.113E-01	8.809E-02	1.145E-01	1.145E-02	2.719
CS-135	3.903E-01	2.378E-01	2.515E-01	3.327E-02	1.552
BA-137M	6.618E-01	1.126E-01	6.340E-02	5.462E-03	10.439
CS-137	6.996E-01	1.191E-01	6.702E-02	5.785E-03	10.439
TL-208	4.417E-01	9.141E-02	6.328E-02	6.339E-03	6.981
BI-211	3.406E+00	6.031E-01	3.332E-01	3.844E-02	10.221
PB-212	1.466E+00	2.155E-01	8.972E-02	1.129E-02	16.342
PO-212	1.466E+00	2.155E-01	8.972E-02	1.129E-02	16.342
BI-214	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
PB-214	1.185E+00	2.187E-01	1.162E-01	1.469E-02	10.199
PO-214	1.185E+00	2.187E-01	1.162E-01	1.469E-02	10.199
PO-216	1.466E+00	2.155E-01	8.972E-02	1.129E-02	16.342
PO-218	1.185E+00	2.187E-01	1.162E-01	1.469E-02	10.199
RA-224	3.852E+00	1.523E+00	1.022E+00	1.206E-01	3.771
RA-226	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
AC-228	1.256E+00	3.600E-01	2.332E-01	2.908E-02	5.387

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.256E+00	3.600E-01	2.332E-01	2.908E-02	5.387
TH-228	1.488E+00	2.187E-01	9.106E-02	1.146E-02	16.342
TH-230	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
TH-232	1.256E+00	3.600E-01	2.332E-01	2.908E-02	5.387
TH-234	2.107E+00	2.479E+00	2.307E+00	4.073E-01	0.913
U-234	9.914E-01	1.913E-01	1.129E-01	1.193E-02	8.779
NP-237	9.142E-01	3.202E-01	3.505E-01	8.017E-02	2.609
U-238	2.107E+00	2.479E+00	2.307E+00	4.073E-01	0.913
AM-243	3.402E-01	8.522E-02	8.442E-02	7.382E-03	4.030
ANH-511	8.336E-02	7.180E-02	5.183E-02	5.138E-03	1.608

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	5.345E-02		3.753E-01	6.117E-01	6.487E-02	0.087
NA-22	-3.705E-02		5.261E-02	8.048E-02	7.136E-03	-0.460
NA-24	-5.045E-01		2.854E-01	Half-Life	too short	
AL-26	-2.407E-02		2.919E-02	3.887E-02	3.218E-03	-0.619
TI-44	3.207E-01	+	5.392E-02	6.715E-02	6.079E-03	4.776
SC-46	1.267E-02		4.429E-02	7.372E-02	7.495E-03	0.172
V-48	-4.529E-02		7.795E-02	1.174E-01	1.148E-02	-0.386
CR-51	-2.827E-01		3.980E-01	6.328E-01	7.721E-02	-0.447
MN-52	9.881E-02		2.622E-01	4.476E-01	4.164E-02	0.221
MN-54	-1.864E-02		4.361E-02	6.857E-02	6.737E-03	-0.272
CO-56	-2.510E-03		4.123E-02	6.677E-02	6.611E-03	-0.038
CO-57	2.682E-03		2.436E-02	4.030E-02	3.369E-03	0.067
CO-58	2.556E-02		3.911E-02	6.780E-02	6.566E-03	0.377
FE-59	-2.394E-02		1.030E-01	1.680E-01	1.602E-02	-0.142
CO-60	2.629E-02		3.983E-02	7.047E-02	6.566E-03	0.373
ZN-65	4.180E-02		1.086E-01	1.634E-01	1.422E-02	0.256
GE-68	1.391E+00		1.350E+00	2.447E+00	2.217E-01	0.568
AS-73	-6.965E-01		1.110E+00	1.854E+00	1.535E-01	-0.376
AS-74	-4.649E-02		9.125E-02	1.469E-01	1.371E-02	-0.317
SE-75	5.997E-02		4.711E-02	7.863E-02	9.611E-03	0.763
BR-77	1.569E+00		1.068E+01	1.731E+01	1.708E+00	0.091
SR-82	-2.069E-01		4.014E-01	6.277E-01	5.923E-02	-0.330
RB-83	7.812E-03		7.625E-02	1.232E-01	1.216E-02	0.063
RB-84	2.575E-02		7.935E-02	1.326E-01	1.342E-02	0.194
KR-85	4.792E+00		8.669E+00	1.279E+01	1.266E+00	0.375
SR-85	2.451E-02		4.433E-02	6.542E-02	6.476E-03	0.375
RB-86	1.122E+00		8.604E-01	1.587E+00	1.439E-01	0.707
Y-88	1.056E-02		3.870E-02	6.696E-02	5.462E-03	0.158
ZR-88	-2.450E-02		3.397E-02	5.294E-02	5.297E-03	-0.463
Y-91	6.471E+00		2.052E+01	3.484E+01	2.893E+00	0.186
NB-94	-1.794E-02		3.450E-02	5.460E-02	4.868E-03	-0.329
NB-95	2.793E-02		5.052E-02	8.541E-02	7.997E-03	0.327
NB-95M	9.613E-02		1.339E-01	2.087E-01	2.640E-02	0.461

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	6.174E-03		7.651E-02	1.267E-01	1.281E-02	0.049
NB-97	7.577E-02		4.589E-02	Half-Life	too short	
ZR-97	1.212E+00		9.289E-01	Half-Life	too short	
MO-99	1.112E+01		1.209E+01	2.118E+01	3.285E+00	0.525
TC-99M	-1.354E+10		1.032E+10	Half-Life	too short	
RH-101	-8.172E-03		3.639E-02	5.691E-02	6.225E-03	-0.144
RH-102	-4.083E-03		3.414E-02	5.466E-02	5.483E-03	-0.075
RU-103	-9.589E-03		4.576E-02	7.241E-02	1.088E-02	-0.132
RH-106	-2.896E-01		3.413E-01	5.294E-01	7.231E-02	-0.547
RU-106	-2.896E-01		3.401E-01	5.294E-01	4.807E-02	-0.547
AG-108M	1.462E-02		3.648E-02	6.089E-02	6.312E-03	0.240
AG-110M	2.415E-02		4.090E-02	6.294E-02	5.615E-03	0.384
IN-111	-1.916E-01		1.060E+00	1.564E+00	1.858E-01	-0.122
IN-113M	-7.733E-03		4.934E-02	8.005E-02	8.192E-03	-0.097
SN-113	-7.733E-03		4.934E-02	8.005E-02	8.192E-03	-0.097
IN-114M	-8.402E-03		2.089E-01	2.971E-01	3.200E-02	-0.028
CD-115	7.379E+00		1.098E+01	1.847E+01	1.816E+00	0.399
SN-117M	-6.424E-02		5.459E-02	8.289E-02	8.166E-03	-0.775
SB-122	3.970E-01		2.010E+00	3.430E+00	3.293E-01	0.116
I-123	-4.895E+00		2.155E+00	Half-Life	too short	
TE-123M	-3.277E-02		2.885E-02	4.393E-02	4.359E-03	-0.746
I-124	-2.068E-01		7.543E-01	1.068E+00	9.902E-02	-0.194
SB-124	-1.122E-02		7.528E-02	1.218E-01	1.108E-02	-0.092
SB-125	-2.541E-02		1.009E-01	1.613E-01	1.647E-02	-0.158
TE-125M	-2.695E+00		9.412E+00	1.540E+01	1.580E+00	-0.175
I-126	4.649E-02		2.066E-01	3.059E-01	2.646E-02	0.152
SB-126	-4.826E-02		1.755E-01	2.431E-01	2.199E-02	-0.198
SB-127	1.262E+00		1.466E+00	2.573E+00	2.944E-01	0.491
XE-127	-1.384E-02		5.149E-02	8.104E-02	8.948E-03	-0.171
I-131	1.913E-02		1.236E-01	2.056E-01	2.306E-02	0.093
TE-132	1.232E-01		7.341E-01	1.171E+00	2.045E-01	0.105
BA-133	7.854E-03		4.927E-02	7.238E-02	1.080E-02	0.109
I-133	1.934E-03		2.756E-03	Half-Life	too short	
CS-134	1.048E-01		5.218E-02	9.702E-02	9.336E-03	1.080
I-135	1.827E+09		1.697E+09	Half-Life	too short	
CS-136	6.186E-02		1.183E-01	2.067E-01	1.995E-02	0.299
CE-139	1.896E-03		3.058E-02	4.957E-02	5.084E-03	0.038
BA-140	7.668E-02		2.526E-01	4.127E-01	1.381E-01	0.186
LA-140	-8.328E-03		9.594E-02	1.587E-01	1.435E-02	-0.052
CE-141	4.351E-03		6.429E-02	1.051E-01	9.815E-03	0.041
CE-143	6.847E-04		1.141E-04	Half-Life	too short	
CE-144	9.170E-02		2.018E-01	3.363E-01	5.249E-02	0.273
PM-144	2.561E-02		3.799E-02	6.590E-02	5.848E-03	0.389
PR-144	1.735E+00		2.574E+00	4.465E+00	3.961E-01	0.389
PM-146	4.417E-02		4.839E-02	8.289E-02	9.878E-03	0.533
ND-147	2.540E-01		6.291E-01	1.008E+00	1.579E-01	0.252
PM-149	-1.519E+01		8.524E+01	1.414E+02	2.528E+01	-0.107
EU-152	-5.564E-03		1.038E-01	1.654E-01	1.944E-02	-0.034

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-1.549E-02		9.043E-02	1.331E-01	1.209E-02	-0.116
EU-154	-1.072E-01		1.469E-01	2.236E-01	2.570E-02	-0.479
EU-155	3.545E-02		1.130E-01	1.867E-01	1.637E-02	0.190
TB-160	5.170E-02		1.571E-01	2.626E-01	2.654E-02	0.197
HO-166M	-1.508E-02		6.318E-02	1.024E-01	9.193E-03	-0.147
TM-171	2.803E+01		3.106E+01	4.941E+01	4.037E+00	0.567
LU-176	-5.784E-03		2.595E-02	4.274E-02	5.163E-03	-0.135
LU-177	2.425E+00	+	1.610E+00	2.041E+00	2.278E-01	1.188
LU-177M	5.524E-03		1.974E-01	3.228E-01	3.245E-02	0.017
HF-181	-3.324E-02		4.705E-02	7.157E-02	7.168E-03	-0.464
W-181	-1.179E-01		4.093E-01	6.169E-01	4.970E-02	-0.191
TA-182	-1.460E-01		2.268E-01	3.537E-01	2.983E-02	-0.413
RE-183	3.440E-02		1.182E-01	1.884E-01	1.895E-02	0.183
RE-184	1.614E-01		2.283E-01	3.977E-01	4.775E-02	0.406
OS-185	4.393E-02		4.693E-02	8.323E-02	7.331E-03	0.528
RE-188	1.554E-01		1.780E-01	2.987E-01	2.887E-02	0.520
W-188	-7.221E-01		8.163E+00	1.195E+01	1.469E+00	-0.060
IR-192	1.854E-02		3.651E-02	6.235E-02	7.445E-03	0.297
AU-195	-2.642E-02		2.373E-01	3.862E-01	3.472E-02	-0.068
TL-200	1.220E-04		2.177E-04	Half-Life	too short	
TL-201	-6.892E+00		6.873E+00	1.051E+01	1.082E+00	-0.656
TL-202	9.538E-02		7.579E-02	1.325E-01	1.335E-02	0.720
HG-203	2.317E-02		4.332E-02	7.442E-02	9.356E-03	0.311
BI-207	7.139E-02		5.639E-02	1.040E-01	9.545E-03	0.687
TL-207	-2.549E-01		7.258E-01	1.180E+00	2.296E-01	-0.216
PO-209	2.025E-01		8.428E+00	1.369E+01	1.398E+00	0.015
BI-210	6.296E+00		6.259E+00	1.003E+01	9.614E-01	0.627
PB-210	6.296E+00		6.259E+00	1.003E+01	9.614E-01	0.627
PO-210	6.296E+00		6.254E+00	1.003E+01	8.759E-01	0.627
PB-211	-9.549E-01		1.213E+00	1.623E+00	1.021E+00	-0.588
BI-212	1.107E+00	+	5.840E-01	6.853E-01	7.139E-02	1.616
PO-215	-2.549E-01		7.258E-01	1.180E+00	2.296E-01	-0.216
RN-219	3.072E-01		4.763E-01	8.052E-01	1.278E-01	0.382
RN-220	1.335E+01		2.827E+01	4.683E+01	4.542E+00	0.285
RA-223	-2.549E-01		7.258E-01	1.180E+00	2.296E-01	-0.216
AC-227	-2.205E-01		3.764E-01	6.131E-01	1.074E-01	-0.360
TH-227	-2.205E-01		3.770E-01	6.131E-01	1.222E-01	-0.360
TH-229	-6.034E-02		5.404E-01	8.600E-01	9.325E-02	-0.070
PA-231	2.912E-01		1.543E+00	2.611E+00	4.591E-01	0.111
TH-231	-2.549E-01		7.258E-01	1.180E+00	2.296E-01	-0.216
U-231	-7.788E-01		1.161E+00	1.638E+00	1.508E-01	-0.475
PA-233	7.257E-03		6.724E-02	1.127E-01	1.373E-02	0.064
PA-234	1.112E-01		3.428E-01	5.691E-01	1.106E-01	0.195
PA-234M	3.916E+00		5.809E+00	1.015E+01	1.104E+00	0.386
U-235	3.128E-01		2.306E-01	3.832E-01	6.805E-02	0.816
NP-236	-1.172E-02		8.057E-02	1.296E-01	1.289E-02	-0.090
NP-239	-1.254E-01		1.878E-01	3.004E-01	2.519E-02	-0.417
AM-241	5.819E-02		1.894E-01	2.956E-01	2.422E-02	0.197

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	3.681E-02		1.017E-01	1.684E-01	1.470E-02	0.219
AM-246	-7.305E-02		1.617E-01	2.588E-01	2.341E-02	-0.282
CM-247	-1.585E-03		4.295E-02	7.009E-02	7.032E-03	-0.023
CF-249	2.986E-02		4.409E-02	7.514E-02	7.610E-03	0.397
CF-251	-4.415E-02		1.342E-01	2.126E-01	2.228E-02	-0.208



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244231001          *
* Acquisition date   : 21-JAN-2010 09:01:33 Detector SN#      :             *
* Detector ID        : GAM02                                           Sensitivity      : 5.000      *
* Geometry           : CAN                                           Energy tolerance : 1.500      *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit  : 75.000     *
* Elapsed real time  : 0 02:00:02.72                               Half life ratio  : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244231001 Analyst initials: MXR1              *
* Batch Number       : 941242 Sample Quantity : 1.3408E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 29-OCT-2009 10:28:07 MS Isotope           :             *
* MSD DPM             : 0.000 MSD Isotope                         :             *
* LCS DPM             : 0.000 LCS Isotope                         :             *
* LCSD DPM           : 0.000 LCSD Isotope                        :             *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.102E+01	3.430E+00	2.112E-01	1.750E+00
CD-109	3.166E+00	8.780E-01	6.102E-01	4.479E-01
SN-126	3.113E-01	8.633E-02	6.034E-02	4.404E-02
CS-135	3.903E-01	2.330E-01	1.300E-01	1.189E-01
BA-137M	6.618E-01	1.103E-01	3.224E-02	5.629E-02
CS-137	6.996E-01	1.167E-01	3.408E-02	5.953E-02
TL-208	4.417E-01	8.958E-02	3.226E-02	4.571E-02
BI-211	3.406E+00	5.911E-01	1.714E-01	3.016E-01
PB-212	1.466E+00	2.112E-01	4.646E-02	1.077E-01
PO-212	1.466E+00	2.112E-01	4.646E-02	1.077E-01
BI-214	9.914E-01	1.875E-01	5.752E-02	9.566E-02
PB-214	1.185E+00	2.144E-01	5.974E-02	1.094E-01
PO-214	1.185E+00	2.144E-01	5.974E-02	1.094E-01
PO-216	1.466E+00	2.112E-01	4.646E-02	1.077E-01
PO-218	1.185E+00	2.144E-01	5.974E-02	1.094E-01
RA-224	3.852E+00	1.493E+00	5.290E-01	7.615E-01
RA-226	9.914E-01	1.875E-01	5.752E-02	9.566E-02
AC-228	1.256E+00	3.528E-01	1.179E-01	1.800E-01
RA-228	1.256E+00	3.528E-01	1.179E-01	1.800E-01
TH-228	1.488E+00	2.143E-01	4.716E-02	1.093E-01
TH-230	9.914E-01	1.875E-01	5.752E-02	9.566E-02
TH-232	1.256E+00	3.528E-01	1.179E-01	1.800E-01
TH-234	2.107E+00	2.430E+00	1.222E+00	1.240E+00
U-234	9.914E-01	1.875E-01	5.752E-02	9.566E-02
NP-237	9.142E-01	3.138E-01	1.847E-01	1.601E-01
U-238	2.107E+00	2.430E+00	1.222E+00	1.240E+00
AM-243	3.402E-01	8.352E-02	4.459E-02	4.261E-02
ANH-511	8.336E-02	7.037E-02	2.648E-02	3.590E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	5.345E-02	3.678E-01	3.129E-01	1.877E-01	NOT IDENT.
NA-22	-3.705E-02	5.156E-02	4.044E-02	2.631E-02	NOT IDENT.
NA-24	-5.045E+05	5.594E+05	0.000E+00	2.854E+05	SHORT HLIF
AL-26	-2.407E-02	2.861E-02	1.941E-02	1.460E-02	NOT IDENT.
TI-44	3.207E-01	5.284E-02	3.545E-02	2.696E-02	FAIL ABUN
SC-46	1.267E-02	4.340E-02	3.729E-02	2.214E-02	FAIL ABUN
V-48	-4.529E-02	7.639E-02	5.927E-02	3.897E-02	NOT IDENT.
CR-51	-2.827E-01	3.900E-01	3.261E-01	1.990E-01	NOT IDENT.
MN-52	9.881E-02	2.570E-01	2.244E-01	1.311E-01	NOT IDENT.
MN-54	-1.864E-02	4.274E-02	3.473E-02	2.181E-02	NOT IDENT.
CO-56	-2.510E-03	4.040E-02	3.381E-02	2.061E-02	NOT IDENT.
CO-57	2.682E-03	2.388E-02	2.112E-02	1.218E-02	NOT IDENT.
CO-58	2.556E-02	3.833E-02	3.435E-02	1.955E-02	NOT IDENT.
FE-59	-2.394E-02	1.009E-01	8.467E-02	5.148E-02	NOT IDENT.
CO-60	2.629E-02	3.903E-02	3.539E-02	1.991E-02	NOT IDENT.
ZN-65	4.180E-02	1.065E-01	8.232E-02	5.432E-02	NOT IDENT.
GE-68	1.391E+00	1.323E+00	1.234E+00	6.750E-01	NOT IDENT.
AS-73	-6.965E-01	1.088E+00	9.851E-01	5.552E-01	NOT IDENT.
AS-74	-4.649E-02	8.943E-02	7.484E-02	4.563E-02	NOT IDENT.
SE-75	5.997E-02	4.617E-02	4.065E-02	2.356E-02	NOT IDENT.
BR-77	1.569E+00	1.046E+01	8.843E+00	5.339E+00	FAIL ABUN
SR-82	-2.069E-01	3.934E-01	3.183E-01	2.007E-01	NOT IDENT.
RB-83	7.812E-03	7.473E-02	6.293E-02	3.813E-02	NOT IDENT.
RB-84	2.575E-02	7.777E-02	6.708E-02	3.968E-02	NOT IDENT.
KR-85	4.792E+00	8.495E+00	6.536E+00	4.334E+00	NOT IDENT.
SR-85	2.451E-02	4.345E-02	3.343E-02	2.217E-02	NOT IDENT.
RB-86	1.122E+00	8.432E-01	8.001E-01	4.302E-01	NOT IDENT.
Y-88	1.056E-02	3.792E-02	3.342E-02	1.935E-02	NOT IDENT.
ZR-88	-2.450E-02	3.330E-02	2.718E-02	1.699E-02	NOT IDENT.
Y-91	6.471E+00	2.011E+01	1.752E+01	1.026E+01	NOT IDENT.
NB-94	-1.794E-02	3.381E-02	2.774E-02	1.725E-02	NOT IDENT.
NB-95	2.793E-02	4.951E-02	4.333E-02	2.526E-02	NOT IDENT.
NB-95M	9.613E-02	1.312E-01	1.081E-01	6.696E-02	NOT IDENT.
ZR-95	6.174E-03	7.498E-02	6.429E-02	3.826E-02	NOT IDENT.
NB-97	7.577E+04	8.994E+04	0.000E+00	4.589E+04	SHORT HLIF
ZR-97	1.212E+06	1.821E+06	0.000E+00	9.289E+05	SHORT HLIF
MO-99	1.112E+01	1.185E+01	1.075E+01	6.046E+00	NOT IDENT.
TC-99M	-1.354E+16	2.023E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-8.172E-03	3.566E-02	2.957E-02	1.820E-02	NOT IDENT.
RH-102	-4.083E-03	3.346E-02	2.796E-02	1.707E-02	NOT IDENT.
RU-103	-9.589E-03	4.484E-02	3.702E-02	2.288E-02	FAIL ABUN
RH-106	-2.896E-01	3.345E-01	2.695E-01	1.707E-01	FAIL ABUN
RU-106	-2.896E-01	3.333E-01	2.695E-01	1.700E-01	FAIL ABUN
AG-108M	1.462E-02	3.575E-02	3.120E-02	1.824E-02	NOT IDENT.
AG-110M	2.415E-02	4.008E-02	3.201E-02	2.045E-02	NOT IDENT.
IN-111	-1.916E-01	1.039E+00	8.097E-01	5.300E-01	NOT IDENT.
IN-113M	-7.733E-03	4.835E-02	4.110E-02	2.467E-02	NOT IDENT.
SN-113	-7.733E-03	4.835E-02	4.110E-02	2.467E-02	NOT IDENT.
IN-114M	-8.402E-03	2.048E-01	1.545E-01	1.045E-01	NOT IDENT.
CD-115	7.379E+00	1.076E+01	9.433E+00	5.488E+00	NOT IDENT.
SN-117M	-6.424E-02	5.350E-02	4.323E-02	2.729E-02	NOT IDENT.
SB-122	3.970E-01	1.970E+00	1.750E+00	1.005E+00	NOT IDENT.
I-123	-4.895E+06	4.224E+06	0.000E+00	2.155E+06	SHORT HLIF
TE-123M	-3.277E-02	2.828E-02	2.291E-02	1.443E-02	NOT IDENT.
I-124	-2.068E-01	7.392E-01	5.440E-01	3.771E-01	NOT IDENT.
SB-124	-1.122E-02	7.377E-02	6.089E-02	3.764E-02	FAIL ABUN
SB-125	-2.541E-02	9.884E-02	8.267E-02	5.043E-02	FAIL ABUN
TE-125M	-2.695E+00	9.223E+00	8.086E+00	4.706E+00	NOT IDENT.
I-126	4.649E-02	2.025E-01	1.556E-01	1.033E-01	NOT IDENT.
SB-126	-4.826E-02	1.720E-01	1.235E-01	8.777E-02	FAIL ABUN
SB-127	1.262E+00	1.437E+00	1.308E+00	7.329E-01	NOT IDENT.
XE-127	-1.384E-02	5.046E-02	4.209E-02	2.574E-02	NOT IDENT.
I-131	1.913E-02	1.212E-01	1.057E-01	6.182E-02	NOT IDENT.
TE-132	1.232E-01	7.194E-01	6.070E-01	3.671E-01	NOT IDENT.
BA-133	7.854E-03	4.828E-02	3.722E-02	2.463E-02	NOT IDENT.
I-133	1.934E+03	5.402E+03	0.000E+00	2.756E+03	SHORT HLIF
CS-134	1.048E-01	5.113E-02	4.918E-02	2.609E-02	NOT IDENT.
I-135	1.827E+15	3.326E+15	0.000E+00	1.697E+15	SHORT HLIF
CS-136	6.186E-02	1.160E-01	1.042E-01	5.917E-02	FAIL ABUN
CE-139	1.896E-03	2.996E-02	2.583E-02	1.529E-02	NOT IDENT.
BA-140	7.668E-02	2.475E-01	2.107E-01	1.263E-01	NOT IDENT.
LA-140	-8.328E-03	9.402E-02	7.942E-02	4.797E-02	NOT IDENT.
CE-141	4.351E-03	6.300E-02	5.488E-02	3.214E-02	NOT IDENT.
CE-143	6.847E+02	2.235E+02	0.000E+00	1.141E+02	SHORT HLIF
CE-144	9.170E-02	1.978E-01	1.759E-01	1.009E-01	NOT IDENT.
PM-144	2.561E-02	3.723E-02	3.348E-02	1.899E-02	NOT IDENT.
PR-144	1.735E+00	2.522E+00	2.269E+00	1.287E+00	NOT IDENT.

PM-146	4.417E-02	4.742E-02	4.244E-02	2.419E-02	NOT IDENT.
ND-147	2.540E-01	6.165E-01	5.147E-01	3.146E-01	FAIL ABUN
PM-149	-1.519E+01	8.353E+01	7.300E+01	4.262E+01	NOT IDENT.
EU-152	-5.564E-03	1.017E-01	8.509E-02	5.189E-02	FAIL ABUN
GD-153	-1.549E-02	8.862E-02	6.999E-02	4.521E-02	FAIL ABUN
EU-154	-1.072E-01	1.439E-01	1.124E-01	7.343E-02	NOT IDENT.
EU-155	3.545E-02	1.108E-01	9.803E-02	5.652E-02	FAIL ABUN
TB-160	5.170E-02	1.539E-01	1.329E-01	7.854E-02	FAIL ABUN
HO-166M	-1.508E-02	6.191E-02	5.199E-02	3.159E-02	FAIL ABUN
TM-171	2.803E+01	3.043E+01	2.615E+01	1.553E+01	NOT IDENT.
LU-176	-5.784E-03	2.543E-02	2.204E-02	1.298E-02	FAIL ABUN
LU-177	2.425E+00	1.578E+00	1.060E+00	8.050E-01	FAIL ABUN
LU-177M	5.524E-03	1.935E-01	1.656E-01	9.870E-02	FAIL ABUN
HF-181	-3.324E-02	4.611E-02	3.661E-02	2.352E-02	NOT IDENT.
W-181	-1.179E-01	4.011E-01	3.266E-01	2.047E-01	NOT IDENT.
TA-182	-1.460E-01	2.223E-01	1.779E-01	1.134E-01	FAIL ABUN
RE-183	3.440E-02	1.158E-01	9.822E-02	5.910E-02	FAIL ABUN
RE-184	1.614E-01	2.237E-01	2.058E-01	1.141E-01	NOT IDENT.
OS-185	4.393E-02	4.599E-02	4.235E-02	2.347E-02	NOT IDENT.
RE-188	1.554E-01	1.744E-01	1.559E-01	8.898E-02	NOT IDENT.
W-188	-7.221E-01	8.000E+00	6.170E+00	4.082E+00	FAIL ABUN
IR-192	1.854E-02	3.578E-02	3.213E-02	1.825E-02	FAIL ABUN
AU-195	-2.642E-02	2.326E-01	2.031E-01	1.187E-01	FAIL ABUN
TL-200	1.220E+02	4.267E+02	0.000E+00	2.177E+02	SHORT HLIF
TL-201	-6.892E+00	6.736E+00	5.478E+00	3.437E+00	NOT IDENT.
TL-202	9.538E-02	7.427E-02	6.789E-02	3.789E-02	NOT IDENT.
HG-203	2.317E-02	4.246E-02	3.843E-02	2.166E-02	FAIL ABUN
BI-207	7.139E-02	5.526E-02	5.243E-02	2.819E-02	FAIL ABUN
TL-207	-2.549E-01	7.113E-01	6.081E-01	3.629E-01	FAIL ABUN
PO-209	2.025E-01	8.260E+00	6.925E+00	4.214E+00	NOT IDENT.
BI-210	6.296E+00	6.134E+00	5.343E+00	3.129E+00	NOT IDENT.
PB-210	6.296E+00	6.134E+00	5.343E+00	3.129E+00	NOT IDENT.
PO-210	6.296E+00	6.129E+00	5.343E+00	3.127E+00	NOT IDENT.
PB-211	-9.549E-01	1.189E+00	8.330E-01	6.065E-01	NOT IDENT.
BI-212	1.107E+00	5.723E-01	3.479E-01	2.920E-01	FAIL ABUN
PO-215	-2.549E-01	7.113E-01	6.081E-01	3.629E-01	FAIL ABUN
RN-219	3.072E-01	4.668E-01	4.132E-01	2.382E-01	NOT IDENT.
RN-220	1.335E+01	2.771E+01	2.389E+01	1.414E+01	NOT IDENT.
RA-223	-2.549E-01	7.113E-01	6.081E-01	3.629E-01	FAIL ABUN
AC-227	-2.205E-01	3.689E-01	3.171E-01	1.882E-01	FAIL ABUN
TH-227	-2.205E-01	3.695E-01	3.171E-01	1.885E-01	FAIL ABUN
TH-229	-6.034E-02	5.296E-01	4.470E-01	2.702E-01	FAIL ABUN
PA-231	2.912E-01	1.512E+00	1.348E+00	7.714E-01	NOT IDENT.
TH-231	-2.549E-01	7.113E-01	6.081E-01	3.629E-01	FAIL ABUN
U-231	-7.788E-01	1.138E+00	8.618E-01	5.807E-01	FAIL ABUN
PA-233	7.257E-03	6.590E-02	5.809E-02	3.362E-02	FAIL ABUN
PA-234	1.112E-01	3.360E-01	2.876E-01	1.714E-01	FAIL ABUN
PA-234M	3.916E+00	5.693E+00	5.122E+00	2.904E+00	NOT IDENT.
U-235	3.128E-01	2.259E-01	2.002E-01	1.153E-01	FAIL ABUN
NP-236	-1.172E-02	7.896E-02	6.759E-02	4.028E-02	NOT IDENT.
NP-239	-1.254E-01	1.840E-01	1.575E-01	9.388E-02	FAIL ABUN
AM-241	5.819E-02	1.856E-01	1.567E-01	9.470E-02	NOT IDENT.
CM-243	3.681E-02	9.970E-02	8.847E-02	5.087E-02	FAIL ABUN
AM-246	-7.305E-02	1.584E-01	1.304E-01	8.084E-02	NOT IDENT.
CM-247	-1.585E-03	4.209E-02	3.597E-02	2.148E-02	NOT IDENT.
CF-249	2.986E-02	4.321E-02	3.859E-02	2.205E-02	NOT IDENT.
CF-251	-4.415E-02	1.315E-01	1.107E-01	6.711E-02	NOT IDENT.

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*                                     *
*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON , SC 29417 *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	220.8336
46.50	220.8336
46.50	220.8336
48.70	272.3106
49.72	260.8027
51.35	254.3160
52.39	253.5291
52.97	289.3472
53.15	289.5195
53.44	290.6401
54.07	280.2677
56.28	261.0175
56.28	261.0198
57.37	0.0000
57.53	288.5149
57.53	288.5166
57.60	288.5785
57.98	287.2119
57.98	287.2119
59.32	287.1198
59.32	287.1198
59.40	291.0540
59.54	265.4109
59.72	265.5571
60.01	264.5018
61.10	291.2682
61.14	291.3033
61.30	291.4433
63.00	301.1673
63.29	301.4246
63.29	301.4246
63.58	301.6814
64.28	324.0786
65.12	306.5287
65.20	306.5997
65.20	306.5997
66.05	295.5271
66.72	277.6651
66.83	277.7537
66.91	276.4998
67.20	295.1758
67.20	295.1758
67.75	303.0229
67.85	307.5973
68.90	319.0908
68.90	319.0908
69.30	322.0948
69.67	317.1192
70.82	306.1373
70.82	306.1373
70.83	306.1461
72.80	300.6394
72.87	300.6943
72.87	300.6943
74.67	302.1307
74.81	302.2404
74.81	302.2404
74.81	302.2404
74.81	302.2404
74.81	302.2404
74.81	302.2404
74.97	302.3672
75.28	302.6123
75.70	302.9431
77.11	304.0487
77.11	304.0487

77.11	304.0487
77.11	304.0487
77.11	304.0487
77.11	304.0487
77.11	304.0487
78.38	308.2023
79.62	317.7945
79.80	324.2957
79.80	324.2957
80.11	324.5481
80.18	324.6044
80.30	335.6168
80.30	335.6168
80.57	335.8420
81.00	325.2672
81.07	322.5896
81.07	322.5896
81.07	322.5896
81.07	322.5896
82.60	319.6906
83.37	318.9133
83.78	345.3778
83.78	345.3778
83.78	345.3778
83.78	345.3778
84.21	308.5452
84.90	309.0579
85.43	309.4509
86.29	310.0833
86.50	310.2388
86.54	293.6463
86.59	293.6803
86.72	293.7709
86.79	293.8178
86.94	293.9229
87.30	294.1736
87.30	294.1736
87.30	294.1736
87.30	294.1736
87.30	294.1736
87.30	294.1736
87.57	294.3596
87.88	294.5731
88.03	294.6766
88.36	294.9031
88.47	294.9791
89.95	295.9916
91.11	296.7793
92.29	297.5767
92.38	297.6365
92.38	297.6365
93.35	298.2867
94.00	304.3581
94.67	290.6965
94.67	290.6996
94.90	309.2035
94.90	309.2035
94.90	309.2035
94.90	309.2035
95.87	328.2607
95.87	328.2607
96.73	294.8597
97.43	299.5673
98.44	297.8518
98.44	297.8518
98.88	300.0335
99.55	276.6948
99.55	276.6948
99.86	286.3931
100.00	286.4788
100.10	302.7266
103.18	312.3619
103.76	297.3924
105.00	279.8815
105.31	299.3087
108.00	314.5032
109.28	311.4341

111.00	311.5283
111.00	311.5283
111.76	300.2972
112.95	298.0687
115.19	292.4980
116.30	278.3680
117.00	285.6354
117.00	285.6354
117.66	297.8281
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121.62	251.3670
121.78	247.4663
122.06	247.5942
122.32	252.6874
122.32	252.6874
122.32	252.6874
122.32	252.6874
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129.76	266.1914
131.20	310.3353
133.02	273.8013
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135.34	255.5551
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136.48	291.7605
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140.51	0.0000
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142.65	294.7950
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144.24	236.6594
144.24	236.6594
144.24	236.6594
144.24	236.6594
145.22	287.7593
145.44	287.8639
147.16	337.4705
152.43	290.0520
152.70	288.0808
153.22	287.2674
154.21	286.6606
154.21	286.6606
154.21	286.6606
154.21	286.6606
155.03	258.6398
156.02	280.0977
158.56	274.8482
159.00	0.0000
159.00	278.2068
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161.27	243.0749
162.32	247.7118
162.64	242.5121
163.35	265.1299
163.89	260.0170
165.85	254.3615
167.43	277.4481
171.28	254.2286
171.86	258.7549
172.10	264.2353
176.55	263.7444
176.60	263.7617
181.06	293.2595
184.41	288.0306
185.71	260.5086
186.00	260.6122
190.27	237.2278
192.34	247.3067
193.63	248.8372
197.04	253.2967
198.01	252.4982
198.60	238.1538
200.40	263.3614
201.83	284.0511
202.84	266.4297
205.31	258.8062

208.36	230.9277
208.81	231.0585
209.75	190.5039
209.75	190.5039
210.97	224.8608
215.65	229.5785
216.55	221.8239
218.09	232.5463
222.10	219.8490
223.80	202.9897
226.40	218.6485
227.00	210.6985
227.08	210.7189
227.20	210.7467
228.16	224.8927
228.18	224.8986
228.18	224.8986
231.56	0.0000
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236.00	203.5292
236.00	203.5292
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238.63	187.4150
238.63	187.4150
238.63	187.4150
239.00	187.4914
240.98	187.9074
241.98	188.1154
241.98	188.1154
241.98	188.1154
244.69	155.9041
245.39	170.2090
247.94	174.7475
248.90	164.6329
249.79	173.6987
252.40	161.6823
252.85	153.7177
252.85	153.7177
254.15	0.0000
256.20	178.4854
256.20	178.4854
260.50	172.0883
260.90	176.6680
262.80	178.8242
264.65	138.7501
268.24	159.8518
268.79	165.7564
269.46	172.7818
269.46	172.7818
269.46	172.7818
269.46	172.7818
271.23	182.2021
273.65	252.7886
276.40	185.9016
277.35	174.1618
277.60	168.7041
277.60	168.7041
278.00	168.7715
278.60	170.7081
279.20	177.2386
279.53	208.5313
280.46	210.5608
281.68	185.0392
283.67	152.1950
284.30	153.2136
285.00	145.9287
285.90	156.2249
286.10	156.2559
286.10	156.2559
287.40	151.8256
288.45	0.0000
290.67	151.5631
290.80	151.5831
291.72	162.1268
293.26	0.0000
293.70	134.1211
295.21	134.3145
295.21	134.3145

295.21	134.3145
295.96	108.2756
296.50	119.5371
297.23	119.6191
298.57	119.7715
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299.80	134.8989
300.09	133.4370
300.09	133.4370
300.09	133.4370
300.09	133.4370
300.12	133.4391
301.29	129.0840
302.84	138.2897
303.76	168.4977
303.91	164.0056
304.40	147.5216
304.40	147.5216
304.84	144.3185
306.84	155.5888
308.46	149.2099
311.98	145.9001
316.51	138.8911
318.01	147.6516
319.02	156.3651
319.41	155.4663
320.08	164.1475
323.87	169.4918
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323.87	169.4918
323.87	169.4918
325.23	163.9420
328.77	163.4917
333.44	149.8645
334.20	165.4216
334.20	165.4216
334.30	165.4373
338.28	156.1137
338.28	156.1137
338.28	156.1137
338.28	156.1137
338.32	156.1186
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338.32	156.1186
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340.57	143.0110
344.27	132.5448
345.85	121.7912
350.59	0.0000
351.07	123.4987
351.92	123.5852
351.92	123.5852
351.92	123.5852
355.39	0.0000
356.01	116.5229
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366.43	133.9886
367.43	124.1627
367.94	0.0000
369.80	137.3346
374.96	120.9095
383.85	131.8136
387.95	119.1091
388.63	126.2407
391.69	132.6091
391.69	132.6091
392.90	139.8235
398.62	154.6742
400.65	108.0299
401.10	119.2798
401.81	127.5043
402.60	141.8676
404.84	149.2592
410.95	113.9903
411.60	142.8135
413.65	127.5912
414.70	127.6896
415.30	124.6539



415.76	124.6963
417.63	0.0000
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423.70	116.0828
427.08	105.9735
427.89	116.4297
432.53	106.3813
433.93	107.5295
439.47	103.7539
439.56	91.1837
439.89	89.1076
443.98	128.2586
444.90	112.5593
445.03	112.5691
445.03	112.5691
445.03	112.5691
445.03	112.5691
453.90	94.1999
463.38	102.2563
468.07	117.9604
473.00	113.6270
475.06	115.9266
475.35	113.8009
476.78	110.6838
477.59	111.8171
477.96	103.2407
482.03	109.9812
484.57	104.7617
487.03	85.4552
490.36	0.0000
492.35	106.3665
497.08	103.4192
507.63	0.0000
510.53	0.0000
510.84	102.1111
511.00	102.1203
511.85	102.1743
511.85	102.1743
513.99	96.8066
513.99	96.8066
520.41	90.5583
520.65	88.3643
527.90	78.7656
528.96	0.0000
529.64	86.6217
529.87	0.0000
531.02	81.1359
537.32	66.9360
543.00	77.2333
546.56	0.0000
549.76	77.5366
552.65	77.4420
555.20	74.8500
563.23	83.3458
563.90	85.1921
568.70	92.6915
569.32	98.1782
569.50	98.1888
569.67	95.4716
573.80	83.8444
574.00	83.8534
574.64	78.4120
578.91	94.4405
579.30	0.0000
583.14	87.9445
585.48	67.2658
591.81	68.1122
592.07	69.9642
593.00	68.1573
595.88	84.8687
600.56	80.4580
602.52	0.0000
602.71	91.0448
602.71	91.0448
603.60	98.8073
604.41	100.3961
604.70	95.7776
609.31	78.9778

609.31	78.9778
609.31	78.9778
609.31	78.9778
610.33	66.6259
612.46	66.7011
614.37	105.5859
618.01	67.2073
621.84	92.5950
621.84	92.5950
631.29	68.6139
633.02	66.7930
633.10	66.7965
634.78	71.5617
635.90	63.1233
636.97	62.2166
645.85	71.0211
646.12	70.0832
656.30	63.4619
657.75	66.6829
657.90	0.0000
661.65	82.0842
661.65	82.0842
664.57	0.0000
666.33	70.1572
666.33	70.1572
675.00	69.1752
677.61	77.9210
685.20	71.4508
692.80	81.4017
695.00	71.7869
696.49	76.6913
696.49	76.6913
697.00	75.7396
697.49	80.6129
698.33	92.3049
698.50	90.3685
699.00	82.6156
702.63	80.8095
706.10	79.9660
706.58	0.0000
706.67	75.1107
709.31	66.4146
711.68	74.3097
713.82	76.3414
717.42	70.5867
720.50	78.5430
721.93	0.0000
722.20	73.6908
722.78	67.1589
722.78	67.1589
722.89	67.1622
722.95	67.1639
723.30	70.4524
724.18	67.2022
727.18	68.9370
733.00	60.8913
735.90	77.1221
739.58	61.4036
742.81	94.2253
744.21	82.3739
747.13	63.6016
751.79	75.6846
752.31	68.7288
753.82	67.7792
755.35	62.8370
756.15	69.8445
756.87	76.8534
763.93	99.1208
765.79	80.1621
766.42	75.1740
766.84	81.2017
776.49	72.4852
778.00	64.4734
778.57	65.4967
778.89	63.4907
783.80	70.6956
785.46	65.6919
792.07	89.1902

795.84	49.7429
796.30	64.9828
798.80	97.5773
801.93	69.2086
805.60	62.1810
810.29	46.9827
810.76	46.9916
815.85	54.2590
817.79	42.0080
818.51	47.1444
819.60	44.0897
826.30	67.8611
828.27	0.0000
831.60	68.0093
831.96	69.0496
834.83	85.6404
836.80	0.0000
846.75	58.0617
848.13	54.9823
856.28	0.0000
856.80	84.3223
860.37	62.5503
867.32	57.4962
867.82	64.8260
871.10	55.4883
873.19	67.0594
874.81	51.3758
875.33	0.0000
876.40	69.2420
879.36	57.7688
880.27	58.8410
880.51	56.7448
881.50	58.8684
883.24	62.0652
884.67	66.3100
889.25	57.9917
896.60	61.3291
898.02	55.0151
899.00	49.7436
903.28	60.0728
911.07	60.6070
911.07	60.6070
911.07	60.6070
919.63	53.3362
920.93	58.6980
925.00	43.8238
925.24	43.8278
926.50	56.6826
935.52	60.0934
937.48	63.3587
944.10	55.9774
946.00	56.0168
949.00	43.1377
962.29	46.9600
964.01	63.2538
966.15	58.6011
968.20	58.6446
969.11	56.1282
969.11	56.1282
969.11	56.1282
977.42	56.6592
980.50	46.9042
983.50	60.0582
989.30	44.8628
996.32	82.2711
1001.03	53.8390
1001.68	48.3560
1004.76	78.8473
1021.30	0.0000
1024.50	0.0000
1034.80	55.5835
1036.00	53.7520
1037.82	60.2763
1038.57	54.7267
1038.76	0.0000
1045.16	57.6381
1046.59	67.8969
1048.07	52.1126

1050.47	48.4284
1050.47	48.4284
1062.04	46.7468
1063.62	40.2233
1076.63	41.3359
1077.35	43.2261
1078.86	64.8700
1085.78	38.6344
1099.22	63.4095
1112.02	47.0427
1112.84	42.3697
1115.52	53.8230
1120.29	61.9346
1120.29	61.9346
1120.29	61.9346
1120.29	61.9346
1120.51	61.9399
1121.28	60.4579
1124.00	0.0000
1129.67	49.6958
1131.51	0.0000
1147.95	0.0000
1167.94	61.8984
1173.22	73.6250
1175.09	67.8495
1177.93	57.2379
1189.05	51.5918
1204.90	59.6622
1205.75	0.0000
1213.00	65.6887
1221.42	80.5986
1230.97	89.6966
1235.34	76.9812
1236.41	0.0000
1238.25	76.0569
1246.25	72.2752
1260.41	0.0000
1271.85	59.8438
1274.45	64.8783
1274.54	64.8810
1291.56	42.1265
1298.22	0.0000
1312.09	43.3779
1325.50	35.4386
1325.50	35.4386
1332.49	25.3621
1333.61	21.3110
1360.21	18.3992
1362.66	0.0000
1365.15	28.6585
1368.21	32.7799
1368.53	0.0000
1376.25	27.7174
1384.27	23.6617
1394.10	24.7549
1395.20	24.7617
1407.95	26.9151
1434.06	26.0559
1436.60	29.2020
1457.56	0.0000
1460.81	12.5928
1489.15	19.0239
1509.49	22.3065
1596.49	26.0313
1620.62	12.1544
1678.03	0.0000
1691.02	14.2503
1691.02	14.2503
1706.46	0.0000
1750.46	0.0000
1764.49	15.2051
1764.49	15.2051
1764.49	15.2051
1764.49	15.2051
1770.23	65.7280
1771.40	31.9054
1791.20	0.0000
1808.65	14.6176

1836.01

13.7212

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244231001

Total Uranium Activity	6.4130E+00	ug/g
Total Uranium Counting Unc.	7.2290E+00	ug/g
Total Uranium Tpu	3.6883E-06	ug/g
Total Uranium Mda	3.6370E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941242          SAMPLE ID   : G244231001
*  ANALYST       : MXR1            DETECTOR    : GAM02
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 21-JAN-2010 09:01:33.89  SAMPLE ALQT: 134.080 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.094E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.449E+00
GROSS GAMMA MDA (pCi/GRAM ) : 2.801E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.353E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:02:58.00

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                          *
*                               Charleston, SC 29414                      *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231002.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:01:59
Sample ID       : G244231002      Sample quantity  : 1.22780E+02 GRAM
Detector name   : GAM06           Detector geometry: CAN
Elapsed live time: 0 02:00:00.00   Elapsed real time: 0 02:00:01.31  0.0%
Energy tolerance : 1.50000 keV     Analyst Initials : MXR1
Abundance limit  : 75.00000        Sensitivity    : 5.00000
Batch ID        : 941242           Detector SN#    :
Matrix Spike ID :                  LCS ID          : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.00*	123	450	0.95	125.99	122	8	1.71E-02	31.9	
2	1	74.46*	324	510	1.38	148.91	143	16	4.50E-02	13.4	1.52E+00
3	1	76.88*	534	417	1.14	153.77	143	16	7.41E-02	8.0	
4	2	87.05	148	531	1.14	174.10	169	22	2.06E-02	25.4	3.81E+00
5	2	89.69	83	407	1.04	179.38	169	22	1.15E-02	39.8	
6	2	92.50*	364	399	1.18	185.00	169	22	5.06E-02	11.2	
7	0	185.68*	262	302	1.36	371.36	367	10	3.64E-02	14.4	
8	0	208.85	101	357	1.09	417.70	413	11	1.40E-02	37.6	
9	3	238.44*	982	187	1.16	476.87	470	18	1.36E-01	4.0	1.15E+00
10	3	241.24	245	238	1.78	482.48	470	18	3.40E-02	17.9	
11	0	270.22	148	160	1.15	540.44	536	10	2.05E-02	18.1	
12	0	294.96	323	168	1.11	589.91	585	10	4.48E-02	9.4	
13	0	300.06*	37	153	1.30	600.13	596	8	5.13E-03	61.8	
14	0	327.69	73	146	1.66	655.38	651	9	1.01E-02	32.4	
15	0	338.02*	192	254	1.66	676.05	669	16	2.67E-02	20.2	
16	0	351.69*	534	123	1.28	703.37	699	9	7.42E-02	5.8	
17	0	463.11	110	79	0.97	926.22	920	13	1.52E-02	19.4	
18	0	510.35*	79	163	1.71	1020.69	1014	17	1.10E-02	42.4	
19	0	582.95*	322	104	1.33	1165.90	1158	15	4.47E-02	9.0	
20	0	609.02*	398	101	1.31	1218.04	1211	14	5.53E-02	7.4	
21	0	661.24	375	83	1.46	1322.47	1315	15	5.21E-02	7.4	
22	0	727.28	93	93	1.75	1454.56	1448	15	1.29E-02	25.0	
23	0	910.93*	207	76	1.41	1821.87	1814	16	2.87E-02	11.9	
24	0	968.80	83	80	1.44	1937.59	1935	11	1.15E-02	25.6	
25	0	1120.87	89	56	1.91	2241.73	2231	17	1.24E-02	21.9	
26	0	1377.40	46	12	1.68	2754.80	2747	16	6.39E-03	22.4	
27	0	1460.41*	1095	15	2.18	2920.82	2911	17	1.52E-01	3.1	
28	0	1764.47	57	7	2.42	3528.95	3521	13	7.86E-03	16.3	

Flag: "\*" = Peak area was modified by background subtraction



VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 11:03:00

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231002.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 21-JAN-2010 09:01:59  
 Sample ID : G244231002 Sample quantity : 122.78 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA6 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.31 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.259E+01	2.972E+00	5.312E-01	3.514E-02	61.348
CD-109	+	88.03	*	2.421E+00	1.251E+00	1.569E+00	1.549E-01	1.544
SN-126	+	64.28		1.444E+00	9.466E-01	1.126E+00	1.732E-01	1.283
	+	86.94		9.898E-01	6.494E-01	6.494E-01	2.702E-01	1.524
	+	87.57	*	2.381E-01	1.230E-01	1.550E-01	1.526E-02	1.536
BA-137M	+	661.65	*	6.580E-01	1.024E-01	7.332E-02	3.621E-03	8.975
CS-137	+	661.65	*	6.956E-01	1.083E-01	7.750E-02	3.850E-03	8.975
TL-208		277.35		6.151E-01	5.026E-01	8.321E-01	8.862E-02	0.739
	+	510.84		4.661E-01	3.984E-01	2.632E-01	2.641E-02	1.771
	+	583.14	*	5.411E-01	1.035E-01	6.940E-02	4.386E-03	7.797
		860.37		5.698E-01	3.794E-01	7.007E-01	5.358E-02	0.813
BI-211		72.87		1.272E+01	4.930E+00	7.712E+00	6.924E-01	1.649
	+	351.07	*	3.893E+00	5.182E-01	3.945E-01	2.546E-02	9.868
PB-212	+	74.81		2.269E+00	6.765E-01	7.169E-01	9.320E-02	3.165
	+	77.11		2.096E+00	3.856E-01	4.043E-01	3.691E-02	5.183
	+	87.30		1.101E+00	5.793E-01	7.193E-01	1.008E-01	1.531
	+	238.63	*	1.541E+00	1.672E-01	1.198E-01	8.829E-03	12.868
	+	300.09		9.026E-01	1.119E+00	1.421E+00	1.190E-01	0.635
PO-212	+	74.81		2.269E+00	6.765E-01	7.169E-01	9.320E-02	3.165
	+	77.11		2.096E+00	3.856E-01	4.043E-01	3.691E-02	5.183
	+	87.30		1.101E+00	5.793E-01	7.193E-01	1.008E-01	1.531
		115.19		-1.882E+00	4.358E+00	7.057E+00	4.657E-01	-0.267
	+	238.63	*	1.541E+00	1.672E-01	1.198E-01	8.829E-03	12.868
	+	300.09		9.026E-01	1.119E+00	1.421E+00	1.190E-01	0.635
BI-214	+	609.31	*	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
	+	1120.29		1.491E+00	6.661E-01	5.163E-01	4.716E-02	2.887
	+	1764.49		1.303E+00	4.317E-01	2.788E-01	1.632E-02	4.673
PB-214	+	74.81		3.909E+00	1.144E+00	1.235E+00	1.443E-01	3.165
	+	77.11		3.593E+00	7.155E-01	6.931E-01	8.242E-02	5.183
	+	87.30		1.886E+00	9.851E-01	1.232E+00	1.538E-01	1.531
	+	241.98		2.308E+00	8.452E-01	6.492E-01	5.267E-02	3.555
	+	295.21		1.382E+00	2.854E-01	2.687E-01	2.323E-02	5.142
	+	351.92	*	1.354E+00	1.936E-01	1.370E-01	1.137E-02	9.881
PO-214	+	74.81		3.909E+00	1.144E+00	1.235E+00	1.443E-01	3.165

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	77.11		3.593E+00	7.155E-01	6.931E-01	8.242E-02	5.183
	+	87.30		1.886E+00	9.851E-01	1.232E+00	1.538E-01	1.531
	+	241.98		2.308E+00	8.452E-01	6.492E-01	5.267E-02	3.555
	+	295.21		1.382E+00	2.854E-01	2.687E-01	2.323E-02	5.142
	+	351.92	*	1.354E+00	1.936E-01	1.370E-01	1.137E-02	9.881
PO-216	+	74.81		2.269E+00	6.765E-01	7.169E-01	9.320E-02	3.165
	+	77.11		2.096E+00	3.856E-01	4.043E-01	3.691E-02	5.183
	+	87.30		1.101E+00	5.793E-01	7.193E-01	1.008E-01	1.531
	+	238.63	*	1.541E+00	1.672E-01	1.198E-01	8.829E-03	12.868
	+	300.09		9.026E-01	1.119E+00	1.421E+00	1.190E-01	0.635
PO-218	+	74.81		3.909E+00	1.144E+00	1.235E+00	1.443E-01	3.165
	+	77.11		3.593E+00	7.155E-01	6.931E-01	8.242E-02	5.183
	+	87.30		1.886E+00	9.851E-01	1.232E+00	1.538E-01	1.531
	+	241.98		2.308E+00	8.452E-01	6.492E-01	5.267E-02	3.555
	+	295.21		1.382E+00	2.854E-01	2.687E-01	2.323E-02	5.142
	+	351.92	*	1.354E+00	1.936E-01	1.370E-01	1.137E-02	9.881
RA-224	+	240.98	*	4.376E+00	1.584E+00	1.363E+00	7.989E-02	3.210
RA-226	+	609.31	*	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
	+	1120.29		1.491E+00	6.661E-01	5.163E-01	4.716E-02	2.887
	+	1764.49		1.303E+00	4.317E-01	2.788E-01	1.632E-02	4.673
AC-228	+	338.32		1.541E+00	8.852E-01	4.638E-01	1.891E-01	3.323
	+	911.07	*	1.561E+00	4.049E-01	2.721E-01	2.780E-02	5.737
	+	969.11		1.105E+00	6.192E-01	6.182E-01	1.410E-01	1.787
RA-228	+	338.32		1.541E+00	8.852E-01	4.638E-01	1.891E-01	3.323
	+	911.07	*	1.561E+00	4.049E-01	2.721E-01	2.780E-02	5.737
	+	969.11		1.105E+00	6.192E-01	6.182E-01	1.410E-01	1.787
TH-228	+	74.81		2.303E+00	6.525E-01	7.276E-01	6.625E-02	3.165
	+	77.11		2.127E+00	3.914E-01	4.103E-01	3.746E-02	5.183
	+	87.30		1.118E+00	5.772E-01	7.301E-01	7.167E-02	1.531
	+	238.63	*	1.564E+00	1.696E-01	1.216E-01	8.961E-03	12.868
	+	300.09		9.161E-01	1.255E+00	1.443E+00	8.505E-01	0.635
TH-230	+	609.31	*	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
	+	1120.29		1.491E+00	6.660E-01	5.162E-01	4.715E-02	2.887
	+	1764.49		1.303E+00	4.317E-01	2.788E-01	1.632E-02	4.673
TH-232	+	338.32		1.541E+00	6.299E-01	4.638E-01	2.728E-02	3.323
	+	911.07	*	1.561E+00	4.049E-01	2.721E-01	2.780E-02	5.737
	+	969.11		1.105E+00	6.192E-01	6.182E-01	1.410E-01	1.787
TH-234	+	63.29	*	3.648E+00	2.417E+00	2.908E+00	5.287E-01	1.254
	+	92.38		3.772E+00	1.090E+00	1.010E+00	1.850E-01	3.733
U-234	+	609.31	*	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
	+	1120.29		1.491E+00	6.660E-01	5.162E-01	4.715E-02	2.887
	+	1764.49		1.303E+00	4.317E-01	2.788E-01	1.632E-02	4.673
NP-237	+	86.50	*	6.992E-01	3.889E-01	4.612E-01	1.052E-01	1.516
	+	95.87		-2.836E-01	1.317E+00	1.894E+00	4.662E-01	-0.150
U-238	+	63.29	*	3.648E+00	2.417E+00	2.908E+00	5.287E-01	1.254
	+	92.38		3.772E+00	9.098E-01	1.010E+00	9.187E-02	3.733
AM-243	+	74.67	*	3.678E-01	1.042E-01	1.166E-01	1.053E-02	3.154
	+	86.72		2.622E+01	1.354E+01	1.725E+01	1.685E+00	1.520
	+	117.66		-1.772E+00	4.675E+00	7.581E+00	4.860E-01	-0.234

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	142.18	*	2.319E+01	2.271E+01	3.799E+01	2.169E+00	0.610
		511.00	*	1.007E-01	8.565E-02	5.687E-02	3.179E-03	1.770

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.361E-01	4.020E-01	6.771E-01	4.473E-02	0.201
NA-22		1274.54	*	-4.511E-02	5.104E-02	7.400E-02	4.570E-03	-0.610
NA-24		1368.53	*	-1.074E-01	5.104E-02	Half-Life too short		
AL-26		1129.67		7.304E-01	2.162E+00	3.590E+00	2.236E-01	0.203
		1808.65	*	-3.883E-03	3.477E-02	5.617E-02	3.226E-03	-0.069
TI-44		67.85		2.936E-02	6.947E-02	1.040E-01	9.280E-03	0.282
	+	78.38	*	3.867E-01	7.116E-02	9.373E-02	8.616E-03	4.126
SC-46		889.25	*	1.877E-02	5.317E-02	9.110E-02	6.529E-03	0.206
	+	1120.51		2.547E-01	1.125E-01	1.512E-01	9.507E-03	1.685
V-48		944.10		3.579E-01	1.099E+00	1.879E+00	1.341E-01	0.191
		983.50	*	1.854E-02	8.319E-02	1.408E-01	9.859E-03	0.132
		1312.09		1.298E-02	8.963E-02	1.485E-01	9.272E-03	0.087
CR-51		320.08	*	-3.885E-01	4.932E-01	7.857E-01	5.176E-02	-0.495
MN-52		744.21		-8.708E-02	2.932E-01	4.583E-01	2.613E-02	-0.190
		848.13		-1.586E+00	7.945E+00	1.304E+01	8.781E-01	-0.122
		935.52		3.437E-01	2.932E-01	5.367E-01	3.845E-02	0.640
		1246.25		2.565E+00	9.307E+00	1.557E+01	9.495E-01	0.165
		1333.61		-1.955E+00	5.930E+00	9.131E+00	5.736E-01	-0.214
		1434.06	*	1.193E-01	2.559E-01	4.445E-01	2.797E-02	0.268
MN-54		834.83	*	1.743E-02	4.425E-02	7.639E-02	5.042E-03	0.228
CO-56		846.75	*	-2.915E-02	4.958E-02	7.856E-02	5.281E-03	-0.371
		977.42		8.610E-01	4.024E+00	6.330E+00	4.447E-01	0.136
		1037.82		1.767E-01	3.772E-01	6.509E-01	4.778E-02	0.271
		1175.09		-1.431E-02	3.372E+00	4.800E+00	2.843E-01	-0.003
		1238.25		1.050E-01	1.143E-01	2.003E-01	1.288E-02	0.524
		1360.21		4.011E-01	1.131E+00	1.929E+00	1.214E-01	0.208
		1771.40		-9.416E-01	3.717E-01	3.197E-01	1.867E-02	-2.945
CO-57		122.06	*	-9.831E-03	3.110E-02	5.049E-02	3.084E-03	-0.195
		136.48		-1.706E-01	2.526E-01	4.021E-01	2.702E-02	-0.424
CO-58		810.76	*	-3.870E-02	4.553E-02	7.010E-02	4.475E-03	-0.552
FE-59		142.65		2.873E+00	3.490E+00	5.801E+00	3.308E-01	0.495
		192.34		9.804E-02	1.272E+00	1.995E+00	2.335E-01	0.049
		1099.22	*	-5.118E-02	1.153E-01	1.813E-01	1.330E-02	-0.282
		1291.56		9.259E-02	1.639E-01	2.821E-01	2.183E-02	0.328
CO-60		1173.22		-1.057E-02	5.908E-02	9.521E-02	5.633E-03	-0.111
		1332.49	*	7.884E-03	4.648E-02	7.660E-02	4.812E-03	0.103
ZN-65		1115.52	*	7.068E-04	1.182E-01	1.669E-01	1.057E-02	0.004
GE-68		1077.35	*	9.437E-01	1.591E+00	2.764E+00	1.811E-01	0.341
AS-73		53.44	*	7.364E-01	1.222E+00	2.093E+00	1.914E-01	0.352
AS-74		595.88	*	-4.392E-02	1.212E-01	1.919E-01	1.021E-02	-0.229
		634.78		-1.152E-02	4.616E-01	7.474E-01	3.820E-02	-0.015
SE-75		66.05		-5.661E+00	7.425E+00	1.051E+01	1.125E+00	-0.538

---- Non-Identified Nuclides ----

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		96.73		2.926E-01	1.061E+00	1.564E+00	2.115E-01	0.187
		121.11		1.237E-01	1.657E-01	2.799E-01	2.650E-02	0.442
		136.00		-1.352E-02	4.718E-02	7.640E-02	4.503E-03	-0.177
		198.60		6.937E-01	2.382E+00	3.763E+00	2.627E-01	0.184
		264.65	*	7.656E-03	6.249E-02	8.788E-02	5.272E-03	0.087
		279.53		-2.700E-02	1.417E-01	2.321E-01	1.491E-02	-0.116
		303.91		3.869E-01	2.975E+00	4.310E+00	4.157E-01	0.090
		400.65		-5.635E-02	3.314E-01	5.448E-01	4.880E-02	-0.103
BR-77	+	87.88		4.879E+02	2.520E+02	4.063E+02	4.009E+01	1.201
		200.40		-1.998E+02	1.977E+02	3.049E+02	1.717E+01	-0.655
	+	239.00		2.307E+02	2.278E+01	3.993E+01	2.337E+00	5.779
		249.79		3.096E+01	7.934E+01	1.297E+02	7.645E+00	0.239
		281.68		-9.583E+01	1.046E+02	1.684E+02	1.005E+01	-0.569
		297.23		2.638E+02	9.529E+01	1.257E+02	7.510E+00	2.098
		303.76		1.419E+01	2.358E+02	3.399E+02	2.029E+01	0.042
		439.47		1.369E+02	1.702E+02	2.954E+02	1.662E+01	0.464
		484.57		-2.219E+02	2.667E+02	4.118E+02	2.316E+01	-0.539
		520.65	*	-2.350E+00	1.204E+01	1.945E+01	1.084E+00	-0.121
		574.64		2.357E+02	2.486E+02	4.144E+02	2.242E+01	0.569
		578.91		2.412E+01	1.200E+02	1.726E+02	9.308E+00	0.140
		585.48		1.111E+03	2.681E+02	4.923E+02	2.641E+01	2.257
		755.35		2.543E+02	1.809E+02	3.278E+02	1.904E+01	0.776
		817.79		2.349E+01	1.453E+02	2.468E+02	1.586E+01	0.095
SR-82		698.33		-5.093E+00	4.271E+01	6.823E+01	3.597E+00	-0.075
		776.49	*	-3.366E-01	4.812E-01	7.620E-01	4.584E-02	-0.442
		1395.20		-4.888E+00	1.530E+01	2.376E+01	1.496E+00	-0.206
RB-83		520.41	*	-1.208E-02	8.557E-02	1.388E-01	7.735E-03	-0.087
		529.64		1.301E-01	1.338E-01	2.341E-01	1.299E-02	0.556
		552.65		3.525E-02	2.469E-01	4.080E-01	2.239E-02	0.086
RB-84		881.50	*	-5.153E-02	8.282E-02	1.296E-01	9.184E-03	-0.398
KR-85		513.99	*	1.490E+01	1.067E+01	1.697E+01	9.476E-01	0.878
SR-85		513.99	*	7.622E-02	5.458E-02	8.678E-02	4.847E-03	0.878
RB-86		1076.63	*	9.201E-01	9.867E-01	1.764E+00	1.157E-01	0.522
Y-88		898.02		-5.955E-02	4.836E-02	7.003E-02	5.120E-03	-0.850
		1836.01	*	2.565E-02	3.851E-02	7.195E-02	4.089E-03	0.356
ZR-88		392.90	*	-3.513E-02	4.007E-02	6.310E-02	3.501E-03	-0.557
Y-91		1204.90	*	-8.074E+00	2.393E+01	3.790E+01	2.273E+00	-0.213
NB-94		702.63	*	2.425E-02	4.233E-02	7.149E-02	3.797E-03	0.339
		871.10		3.472E-02	4.164E-02	7.442E-02	5.192E-03	0.466
NB-95		765.79	*	5.013E-02	5.414E-02	9.341E-02	5.522E-03	0.537
NB-95M		235.69	*	5.718E-01	1.978E-01	3.145E-01	2.376E-02	1.818
ZR-95		724.18		2.163E-01	1.382E-01	2.241E-01	1.483E-02	0.965
		756.15	*	6.425E-02	8.577E-02	1.472E-01	1.037E-02	0.437
NB-97		657.90	*	1.875E-01	8.577E-02	Half-Life	too short	
		1024.50		-6.073E-01	8.577E-02	Half-Life	too short	
ZR-97		254.15		-4.261E+00	8.577E-02	Half-Life	too short	
		355.39		-4.687E+00	8.577E-02	Half-Life	too short	
		507.63	*	3.767E+00	8.577E-02	Half-Life	too short	
		602.52		4.064E+00	8.577E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

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	1021.30			-1.266E+01	8.577E-02	Half-Life	too short	
	1147.95			6.724E-01	8.577E-02	Half-Life	too short	
	1362.66			-2.895E+00	8.577E-02	Half-Life	too short	
	1750.46			-2.740E+00	8.577E-02	Half-Life	too short	
MO-99	140.51			7.077E+00	3.091E+01	5.095E+01	1.372E+01	0.139
	181.06			-8.398E+00	2.297E+01	3.182E+01	5.422E+00	-0.264
	366.43			-1.012E+02	9.935E+01	1.553E+02	8.906E+00	-0.652
	739.58	*		6.966E+00	1.356E+01	2.278E+01	3.125E+00	0.306
	778.00			-2.451E+01	3.982E+01	6.343E+01	3.826E+00	-0.386
TC-99M	140.51	*		5.622E+09	3.982E+01	Half-Life	too short	
RH-101	127.23			4.375E-02	4.004E-02	6.829E-02	4.078E-03	0.641
	198.01	*		2.231E-02	4.392E-02	7.003E-02	3.934E-03	0.319
	325.23			2.239E-01	3.269E-01	4.993E-01	2.959E-02	0.448
RH-102	418.52			8.838E-02	3.811E-01	6.401E-01	3.585E-02	0.138
	475.06	*		-1.769E-02	3.739E-02	5.956E-02	3.354E-03	-0.297
	631.29			5.694E-04	6.865E-02	1.115E-01	5.721E-03	0.005
	697.49			-3.787E-03	9.437E-02	1.518E-01	7.989E-03	-0.025
	766.84			1.434E-01	1.409E-01	2.442E-01	1.446E-02	0.587
	1046.59			-6.754E-02	1.354E-01	2.115E-01	1.422E-02	-0.319
	1112.84			-1.534E-01	3.129E-01	4.085E-01	2.589E-02	-0.375
RU-103	497.08	*		-2.735E-02	5.139E-02	8.101E-02	1.018E-02	-0.338
	610.33	+		1.360E+01	2.890E+00	3.417E+00	5.200E-01	3.980
RH-106	511.85			3.393E-01	2.739E-01	5.134E-01	2.870E-02	0.661
	621.84	*		5.243E-02	4.054E-01	6.652E-01	7.614E-02	0.079
	1050.47			8.810E-01	2.808E+00	4.773E+00	3.198E-01	0.185
RU-106	511.85			3.393E-01	2.739E-01	5.134E-01	2.870E-02	0.661
	621.84	*		5.243E-02	4.053E-01	6.652E-01	3.450E-02	0.079
	1050.47			8.810E-01	2.808E+00	4.773E+00	3.198E-01	0.185
AG-108M	433.93	*		-3.276E-02	4.098E-02	6.409E-02	3.930E-03	-0.511
	614.37			3.972E-02	5.162E-02	7.890E-02	4.550E-03	0.503
	722.95			1.833E-02	5.587E-02	8.086E-02	4.865E-03	0.227
AG-110M	657.75	*		5.654E-02	5.248E-02	8.192E-02	4.422E-03	0.690
	677.61			2.729E-01	4.124E-01	7.012E-01	3.845E-02	0.389
	706.67			-1.007E-01	2.608E-01	4.062E-01	2.325E-02	-0.248
	763.93			-1.664E-01	2.130E-01	3.177E-01	1.984E-02	-0.524
	884.67			2.419E-02	6.474E-02	1.113E-01	8.291E-03	0.217
	937.48			-4.297E-02	1.349E-01	2.173E-01	1.636E-02	-0.198
	1384.27			-5.536E-02	2.299E-01	3.023E-01	2.003E-02	-0.183
IN-111	171.28			-1.035E+00	1.206E+00	1.887E+00	1.026E-01	-0.549
	245.39	*		-7.136E-01	1.434E+00	1.931E+00	1.135E-01	-0.370
IN-113M	391.69	*		-6.040E-02	5.910E-02	9.226E-02	5.490E-03	-0.655
SN-113	391.69	*		-6.040E-02	5.910E-02	9.226E-02	5.490E-03	-0.655
IN-114M	190.27	*		5.313E-02	2.626E-01	3.762E-01	2.093E-02	0.141
CD-115	260.90			-1.164E+02	1.570E+02	2.407E+02	1.428E+01	-0.484
	492.35			-4.801E+00	4.156E+01	6.776E+01	3.806E+00	-0.071
	527.90	*		1.292E+01	1.261E+01	2.215E+01	1.231E+00	0.583
SN-117M	156.02			1.666E+00	2.823E+00	4.711E+00	2.602E-01	0.354
	158.56	*		-3.240E-02	6.812E-02	1.089E-01	5.980E-03	-0.298
SB-122	563.90	*		2.765E+00	2.351E+00	4.171E+00	2.273E-01	0.663

----- Non-Identified Nuclides -----

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I-123		692.80		3.273E+01	4.848E+01	8.286E+01	4.326E+00	0.395
		159.00	*	-1.396E+00	4.848E+01	Half-Life	too short	
		528.96		4.690E+02	4.848E+01	Half-Life	too short	
TE-123M		159.00	*	-9.338E-03	3.532E-02	5.694E-02	3.171E-03	-0.164
I-124		602.71	*	1.051E-01	9.625E-01	1.368E+00	7.231E-02	0.077
		722.78		2.052E+00	5.623E+00	8.175E+00	4.496E-01	0.251
		1325.50		3.580E+01	4.227E+01	7.544E+01	4.729E+00	0.475
SB-124	+	1376.25		1.020E+02	4.611E+01	7.264E+01	4.573E+00	1.404
		1509.49		1.293E+01	1.757E+01	3.150E+01	1.971E+00	0.410
		1691.02		2.107E+00	3.728E+00	6.900E+00	4.149E-01	0.305
		602.71		6.342E-03	5.806E-02	8.253E-02	4.364E-03	0.077
		645.85		2.173E-01	5.961E-01	9.971E-01	5.867E-02	0.218
		709.31		-6.150E-01	3.410E+00	5.409E+00	2.906E-01	-0.114
		713.82		-4.787E-01	1.960E+00	3.086E+00	3.085E-01	-0.155
		722.78		1.794E-01	4.917E-01	7.148E-01	4.137E-02	0.251
	+	968.20		1.134E+01	5.862E+00	8.258E+00	5.829E-01	1.373
		1045.16		-1.578E+00	2.830E+00	4.384E+00	2.949E-01	-0.360
SB-125		1325.50		3.344E+00	3.948E+00	7.045E+00	4.416E-01	0.475
		1368.21		-2.227E-01	2.316E+00	3.413E+00	4.137E-01	-0.065
		1436.60		2.987E-01	4.596E+00	7.502E+00	4.721E-01	0.040
		1691.02		4.346E-02	7.689E-02	1.423E-01	9.240E-03	0.305
		427.89	*	-3.863E-02	1.169E-01	1.894E-01	1.111E-02	-0.204
	+	463.38		1.255E+00	4.946E-01	6.818E-01	4.514E-02	1.840
		600.56		1.182E-02	2.423E-01	3.851E-01	2.417E-02	0.031
		635.90		4.062E-02	3.522E-01	5.766E-01	3.580E-02	0.070
		109.28	*	2.702E+00	1.180E+01	1.963E+01	1.784E+00	0.138
		388.63		4.597E-01	2.662E-01	4.817E-01	2.684E-02	0.954
SB-126		666.33	*	1.383E-01	2.678E-01	3.955E-01	1.969E-02	0.350
		753.82		2.927E-01	1.709E+00	2.791E+00	1.617E-01	0.105
		223.80		1.644E+00	5.143E+00	8.399E+00	4.852E-01	0.196
		278.60		3.287E+00	3.139E+00	5.419E+00	3.232E-01	0.607
		296.50		1.299E+01	2.864E+00	4.138E+00	2.472E-01	3.138
		414.70		7.223E-03	9.832E-02	1.637E-01	9.160E-03	0.044
		415.30		-1.742E+00	8.174E+00	1.338E+01	7.488E-01	-0.130
		555.20		3.460E+00	4.533E+00	7.860E+00	4.307E-01	0.440
		573.80		3.911E-01	1.325E+00	2.154E+00	1.166E-01	0.182
		593.00		-6.617E-02	1.179E+00	1.911E+00	1.019E-01	-0.035
SB-127		656.30		-2.395E+00	4.611E+00	6.003E+00	2.987E-01	-0.399
		666.33		5.774E-02	1.118E-01	1.652E-01	8.225E-03	0.350
		675.00		7.137E-01	2.590E+00	4.282E+00	2.166E-01	0.167
		695.00		-6.643E-02	9.518E-02	1.440E-01	7.548E-03	-0.461
		697.00		1.408E-02	3.261E-01	5.282E-01	2.778E-02	0.027
		720.50	*	5.849E-02	1.895E-01	2.740E-01	1.501E-02	0.213
		856.80		-2.513E-01	6.040E-01	9.737E-01	6.647E-02	-0.258
		989.30		8.417E-02	1.458E+00	2.428E+00	1.694E-01	0.035
		1034.80		4.733E+00	1.073E+01	1.847E+01	1.252E+00	0.256
		1213.00		-1.859E+00	5.700E+00	9.028E+00	5.433E-01	-0.206
SB-127		61.10		1.129E+02	8.423E+01	1.302E+02	1.493E+01	0.867
		252.40		-2.223E+00	5.478E+00	8.459E+00	3.514E+00	-0.263

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	290.80			-4.892E-01	2.808E+01	4.114E+01	3.778E+00	-0.012
	411.60			9.065E-01	1.546E+01	2.572E+01	3.662E+00	0.035
	444.90			3.872E-01	1.205E+01	1.996E+01	2.120E+00	0.019
	473.00			-4.891E-01	2.051E+00	3.322E+00	3.660E-01	-0.147
	543.00			-2.998E+00	2.021E+01	3.270E+01	4.158E+00	-0.092
	603.60			-7.450E+00	1.729E+01	2.319E+01	2.415E+00	-0.321
	685.20	*		-5.713E-01	1.556E+00	2.427E+00	2.173E-01	-0.235
	698.50			-3.360E-01	1.823E+01	2.938E+01	4.176E+00	-0.011
	722.20			9.696E+00	3.924E+01	5.619E+01	4.990E+00	0.173
	783.80			4.437E+00	4.247E+00	7.651E+00	8.217E-01	0.580
XE-127	57.60			4.578E+00	8.930E+00	1.419E+01	1.307E+00	0.323
	145.22			2.008E-01	8.907E-01	1.469E+00	8.323E-02	0.137
	172.10			-4.024E-02	1.515E-01	2.436E-01	1.325E-02	-0.165
	202.84	*		-4.122E-03	6.370E-02	9.472E-02	5.351E-03	-0.044
	374.96			-6.993E-02	2.375E-01	3.883E-01	2.205E-02	-0.180
I-131	80.18			-4.895E+00	6.362E+00	8.970E+00	8.380E-01	-0.546
	284.30			-7.464E-02	1.796E+00	3.020E+00	1.993E-01	-0.025
	364.48	*		-1.069E-02	1.427E-01	2.370E-01	1.523E-02	-0.045
	636.97			1.519E+00	1.918E+00	3.309E+00	1.943E-01	0.459
	722.89			3.146E+00	9.225E+00	1.337E+01	7.467E-01	0.235
TE-132	49.72			-3.236E+01	2.887E+01	4.634E+01	5.020E+00	-0.698
	111.76			1.628E+01	3.558E+01	5.959E+01	5.636E+00	0.273
	116.30			-3.822E+01	3.264E+01	5.098E+01	4.689E+00	-0.750
	228.16	*		3.070E-01	8.572E-01	1.400E+00	2.004E-01	0.219
BA-133	53.15			3.082E+00	5.288E+00	9.051E+00	8.262E-01	0.341
	79.62			-1.438E-01	1.800E+00	2.626E+00	4.096E-01	-0.055
	81.00			-1.437E-01	1.701E-01	1.973E-01	3.213E-02	-0.728
	276.40			2.213E-01	5.254E-01	7.924E-01	1.033E-01	0.279
	302.84			-5.667E-02	2.054E-01	2.947E-01	3.461E-02	-0.192
	356.01	*		-6.777E-02	6.214E-02	8.113E-02	9.378E-03	-0.835
	383.85			-4.402E-01	3.863E-01	5.939E-01	6.398E-02	-0.741
I-133	510.53	+		8.451E-01	3.863E-01	Half-Life	too short	
	529.87	*		5.540E-03	3.863E-01	Half-Life	too short	
	706.58			-1.673E-01	3.863E-01	Half-Life	too short	
	856.28			-6.753E-01	3.863E-01	Half-Life	too short	
	875.33			-2.185E-02	3.863E-01	Half-Life	too short	
	1236.41			5.364E-01	3.863E-01	Half-Life	too short	
	1298.22			-2.654E-01	3.863E-01	Half-Life	too short	
CS-134	475.35			-1.198E+00	2.474E+00	3.940E+00	2.219E-01	-0.304
	563.23			4.893E-01	4.338E-01	7.675E-01	4.283E-02	0.638
	569.32			-2.464E-01	2.485E-01	3.656E-01	2.052E-02	-0.674
	604.70			-4.186E-02	5.309E-02	6.844E-02	3.635E-03	-0.612
	795.84	*		6.844E-02	5.648E-02	1.032E-01	6.495E-03	0.663
	801.93			-2.347E-01	4.688E-01	7.442E-01	4.713E-02	-0.315
	1038.57			1.542E+00	4.592E+00	7.835E+00	5.297E-01	0.197
	1167.94			1.888E+00	3.247E+00	5.597E+00	3.333E-01	0.337
	1365.15			4.093E-01	1.442E+00	2.433E+00	1.660E-01	0.168
CS-135	268.24	*		3.719E-01	2.343E-01	3.598E-01	2.796E-02	1.034
I-135	288.45			6.606E+09	2.343E-01	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		417.63		3.474E+09	2.343E-01	Half-Life	too short	
		546.56		6.156E+09	2.343E-01	Half-Life	too short	
		836.80		7.235E+09	2.343E-01	Half-Life	too short	
		1038.76		1.580E+09	2.343E-01	Half-Life	too short	
		1124.00		5.893E+09	2.343E-01	Half-Life	too short	
		1131.51		2.054E+08	2.343E-01	Half-Life	too short	
		1260.41	*	-1.079E+09	2.343E-01	Half-Life	too short	
		1457.56		5.346E+11	2.343E-01	Half-Life	too short	
		1678.03		1.300E+09	2.343E-01	Half-Life	too short	
		1706.46		2.181E+09	2.343E-01	Half-Life	too short	
		1791.20		-7.324E+09	2.343E-01	Half-Life	too short	
CS-136		66.91		-4.451E-01	1.178E+00	1.700E+00	2.654E-01	-0.262
	+	86.29		3.068E+00	1.611E+00	2.504E+00	3.411E-01	1.225
		153.22		3.610E-01	8.280E-01	1.374E+00	9.660E-02	0.263
		163.89		-7.859E-02	1.284E+00	2.085E+00	1.451E-01	-0.038
		176.55		1.821E-01	4.640E-01	7.658E-01	4.768E-02	0.238
		273.65		-5.256E-01	6.687E-01	8.533E-01	5.763E-02	-0.616
		340.57		3.378E-01	1.846E-01	2.994E-01	1.867E-02	1.128
		818.51		2.268E-02	8.455E-02	1.450E-01	9.341E-03	0.156
		1048.07	*	1.117E-02	1.268E-01	2.111E-01	1.515E-02	0.053
		1235.34		-3.674E-01	7.944E-01	1.247E+00	1.266E-01	-0.295
CE-139		165.85	*	1.518E-03	3.530E-02	5.758E-02	3.113E-03	0.026
BA-140		162.64		4.961E-01	9.003E-01	1.500E+00	9.310E-02	0.331
		304.84		9.481E-01	1.778E+00	2.623E+00	7.167E-01	0.361
		423.70		-6.835E-01	2.439E+00	3.953E+00	1.255E+00	-0.173
		537.32	*	1.671E-01	3.147E-01	5.284E-01	1.716E-01	0.316
LA-140	+	328.77		7.085E-01	4.618E-01	6.642E-01	4.384E-02	1.067
		432.53		4.700E-01	2.488E+00	4.168E+00	2.603E-01	0.113
		487.03		-1.178E-02	1.632E-01	2.671E-01	1.712E-02	-0.044
		751.79		-2.629E+00	2.083E+00	2.907E+00	2.057E-01	-0.905
		815.85		2.901E-01	3.787E-01	6.746E-01	5.189E-02	0.430
		867.82		7.157E-01	1.644E+00	2.848E+00	2.136E-01	0.251
		919.63		4.985E+00	3.542E+00	6.364E+00	6.071E-01	0.783
		925.24		-1.734E+00	1.283E+00	1.807E+00	1.416E-01	-0.959
		1596.49	*	1.476E-02	9.431E-02	1.612E-01	9.946E-03	0.092
CE-141		145.44	*	3.681E-02	8.003E-02	1.331E-01	7.852E-03	0.277
CE-143		57.37		3.322E-05	8.003E-02	Half-Life	too short	
		231.56		-2.795E-03	8.003E-02	Half-Life	too short	
		293.26	*	8.830E-04	8.003E-02	Half-Life	too short	
	+	350.59		2.733E-02	8.003E-02	Half-Life	too short	
		490.36		2.250E-03	8.003E-02	Half-Life	too short	
		664.57		2.973E-03	8.003E-02	Half-Life	too short	
		721.93		-1.231E-05	8.003E-02	Half-Life	too short	
CE-144		80.11		-2.280E+00	2.989E+00	4.217E+00	3.917E-01	-0.541
		133.54	*	-5.185E-02	2.477E-01	4.027E-01	5.727E-02	-0.129
PM-144		476.78		1.842E-02	8.532E-02	1.426E-01	9.696E-03	0.129
		618.01		1.478E-02	3.977E-02	6.654E-02	3.721E-03	0.222
		696.49	*	-1.747E-02	4.333E-02	6.750E-02	3.550E-03	-0.259
		778.57		-2.433E+00	2.848E+00	4.435E+00	2.679E-01	-0.548



---- Non-Identified Nuclides ----

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PR-144	696.49	*		-1.184E+00	2.936E+00	4.573E+00	2.403E-01	-0.259
	1489.15			4.778E+00	1.414E+01	2.407E+01	1.509E+00	0.199
PM-146	453.90	*		2.145E-02	5.689E-02	9.610E-02	8.179E-03	0.223
	633.02			7.761E-01	1.768E+00	2.935E+00	1.078E+00	0.264
	735.90			-8.061E-02	1.950E-01	2.793E-01	7.778E-02	-0.289
	747.13			-4.412E-03	1.110E-01	1.777E-01	2.216E-02	-0.025
ND-147	91.11	+		1.869E+00	4.557E-01	7.148E-01	7.124E-02	2.615
	319.41			-1.207E+00	4.300E+00	7.040E+00	4.185E-01	-0.171
	439.89			5.507E+00	7.331E+00	1.268E+01	7.138E-01	0.434
	531.02	*		1.167E-01	7.052E-01	1.169E+00	1.568E-01	0.100
PM-149	285.90	*		2.098E+01	1.032E+02	1.756E+02	2.501E+01	0.119
EU-152	121.78			-2.057E-02	9.061E-02	1.477E-01	1.160E-02	-0.139
	244.69			-1.581E-01	4.706E-01	6.420E-01	3.773E-02	-0.246
	344.27	*		-2.870E-02	1.406E-01	2.011E-01	1.325E-02	-0.143
	443.98			-3.874E-01	1.239E+00	2.007E+00	1.130E-01	-0.193
	778.89			-2.627E-01	3.304E-01	5.177E-01	3.126E-02	-0.507
	867.32			-2.705E-01	1.026E+00	1.671E+00	1.159E-01	-0.162
	964.01			-1.646E-01	4.386E-01	5.978E-01	4.229E-02	-0.275
	1085.78			4.862E-02	4.646E-01	7.732E-01	5.030E-02	0.063
	1112.02			-8.899E-02	4.314E-01	5.895E-01	3.740E-02	-0.151
	1407.95			2.037E-01	2.512E-01	4.459E-01	2.808E-02	0.457
GD-153	69.67			-8.862E-01	2.520E+00	3.632E+00	3.242E-01	-0.244
	83.37			6.703E+00	2.130E+01	3.154E+01	2.997E+00	0.213
	97.43	*		8.320E-02	1.086E-01	1.637E-01	1.369E-02	0.508
	103.18			-3.315E-02	1.287E-01	2.106E-01	1.618E-02	-0.157
EU-154	123.07			-3.505E-02	6.453E-02	1.037E-01	9.928E-03	-0.338
	247.94			2.003E-02	4.750E-01	7.360E-01	7.062E-02	0.027
	591.81			2.254E-01	7.784E-01	1.296E+00	1.232E-01	0.174
	723.30			7.422E-02	2.430E-01	3.502E-01	2.396E-02	0.212
	756.87			1.038E+00	9.119E-01	1.612E+00	1.636E-01	0.644
	873.19			4.218E-02	3.505E-01	5.911E-01	6.598E-02	0.071
	996.32			-5.395E-01	4.767E-01	6.872E-01	1.170E-01	-0.785
	1004.76			-2.033E-02	2.570E-01	4.219E-01	4.405E-02	-0.048
	1274.45	*		-1.260E-01	1.429E-01	2.067E-01	1.979E-02	-0.610
EU-155	48.70			-1.225E+00	3.821E+00	6.360E+00	5.325E-01	-0.193
	60.01			2.116E+00	7.383E+00	1.105E+01	1.012E+00	0.192
	86.54	+		2.867E-01	1.481E-01	2.316E-01	2.277E-02	1.238
	105.31	*		-3.826E-02	1.333E-01	2.177E-01	1.652E-02	-0.176
TB-160	86.79	+		7.642E-01	3.947E-01	6.137E-01	5.998E-02	1.245
	197.04			6.412E-01	7.551E-01	1.221E+00	6.852E-02	0.525
	215.65			5.769E-01	1.018E+00	1.626E+00	9.314E-02	0.355
	298.57	+		1.310E-01	1.623E-01	2.400E-01	1.433E-02	0.546
	879.36	*		-4.333E-02	1.575E-01	2.553E-01	1.803E-02	-0.170
	962.29			2.807E-01	6.612E-01	1.089E+00	7.709E-02	0.258
	966.15			1.230E+00	3.374E-01	6.252E-01	4.417E-02	1.968
	1177.93			-4.121E-01	4.635E-01	6.926E-01	4.106E-02	-0.595
	1271.85			-4.855E-01	8.238E-01	1.246E+00	7.668E-02	-0.390
HO-166M	80.57			-3.033E-01	4.148E-01	5.433E-01	5.062E-02	-0.558
	184.41	+		2.149E-01	6.284E-02	8.866E-02	4.898E-03	2.424

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TM-171		280.46		-8.861E-02	1.080E-01	1.750E-01	1.044E-02	-0.506
		410.95		9.939E-02	3.260E-01	5.498E-01	3.073E-02	0.181
		711.68	*	4.476E-02	7.297E-02	1.240E-01	6.692E-03	0.361
		752.31		-3.949E-01	3.428E-01	4.868E-01	2.814E-02	-0.811
		810.29		-5.170E-02	6.816E-02	1.059E-01	6.728E-03	-0.488
		51.35		-1.438E+01	4.606E+01	7.659E+01	6.868E+00	-0.188
		52.39		4.366E+00	2.365E+01	3.999E+01	3.630E+00	0.109
		59.40		1.946E+01	4.024E+01	6.074E+01	5.583E+00	0.320
		66.72	*	-8.584E+00	4.287E+01	6.242E+01	5.576E+00	-0.138
		88.36		5.647E-01	2.917E-01	4.733E-01	4.642E-02	1.193
LU-176	+	201.83		-3.164E-02	3.625E-02	5.622E-02	3.172E-03	-0.563
		306.84	*	7.315E-03	3.028E-02	5.149E-02	3.071E-03	0.142
LU-177		401.10		-8.536E-01	8.710E+00	1.438E+01	8.008E-01	-0.059
		112.95		5.925E-01	1.973E+00	3.287E+00	2.228E-01	0.180
LU-177M	+	208.36	*	2.735E+00	2.060E+00	2.472E+00	1.405E-01	1.106
		52.97		1.334E+00	2.391E+00	4.090E+00	3.729E-01	0.326
		54.07		1.074E+00	1.241E+00	2.140E+00	1.962E-01	0.502
		61.30		3.453E+00	2.326E+00	3.620E+00	3.292E-01	0.954
		121.62		-1.715E-01	4.695E-01	7.610E-01	4.661E-02	-0.225
		147.16		-2.672E-01	8.281E-01	1.337E+00	7.537E-02	-0.200
		171.86		-3.043E-01	6.072E-01	9.657E-01	5.254E-02	-0.315
		218.09		-7.870E-01	1.125E+00	1.753E+00	1.007E-01	-0.449
	+	268.79		3.563E+00	1.307E+00	1.860E+00	1.107E-01	1.916
		319.02		-7.174E-02	3.395E-01	5.579E-01	3.316E-02	-0.129
		367.43		-2.710E-01	1.116E+00	1.834E+00	1.051E-01	-0.148
		413.65	*	-1.797E-01	2.383E-01	3.775E-01	2.111E-02	-0.476
HF-181		56.28		-8.307E-01	1.350E+00	2.215E+00	2.039E-01	-0.375
		57.53		1.613E-01	7.600E-01	1.194E+00	1.099E-01	0.135
		65.20		-6.321E-01	1.440E+00	2.075E+00	1.859E-01	-0.305
		133.02		-7.643E-02	8.071E-02	1.272E-01	7.449E-03	-0.601
		136.25		-3.546E-01	5.521E-01	8.804E-01	5.108E-02	-0.403
		345.85		-1.304E-01	3.195E-01	3.893E-01	2.278E-02	-0.335
		482.03	*	2.678E-02	5.272E-02	8.980E-02	5.053E-03	0.298
		56.28		-3.250E-01	5.298E-01	8.692E-01	8.002E-02	-0.374
		57.53		6.315E-02	2.985E-01	4.690E-01	4.317E-02	0.135
		65.20	*	-2.463E-01	5.611E-01	8.085E-01	7.242E-02	-0.305
TA-182		67.75		6.520E-02	1.655E-01	2.475E-01	2.209E-02	0.263
		100.10		4.409E-02	2.209E-01	3.680E-01	2.954E-02	0.120
		152.43		8.855E-02	4.266E-01	7.021E-01	3.911E-02	0.126
		222.10		1.911E-01	4.455E-01	7.313E-01	4.217E-02	0.261
		1001.68		9.648E-01	2.580E+00	4.359E+00	3.021E-01	0.221
	+	1121.28		7.037E-01	3.110E-01	4.108E-01	2.581E-02	1.713
		1189.05		-1.042E-01	3.941E-01	6.291E-01	3.748E-02	-0.166
		1221.42	*	-2.098E-01	2.819E-01	4.319E-01	2.608E-02	-0.486
		1230.97		6.376E-02	6.834E-01	1.124E+00	6.816E-02	0.057
		57.98		1.268E-01	3.079E-01	4.638E-01	4.268E-02	0.273
		59.32		7.822E-02	1.652E-01	2.493E-01	2.292E-02	0.314
		67.20		-1.502E-01	3.062E-01	4.400E-01	3.928E-02	-0.341
RE-183		162.32	*	6.373E-02	1.335E-01	2.217E-01	1.208E-02	0.287

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184	+	208.81		2.515E+00	1.894E+00	2.268E+00	1.290E-01	1.109
		291.72		1.441E-01	1.301E+00	1.923E+00	1.149E-01	0.075
		57.98		4.678E-01	1.136E+00	1.711E+00	1.575E-01	0.273
		59.32		2.884E-01	6.093E-01	9.193E-01	8.450E-02	0.314
		67.20		-5.540E-01	1.130E+00	1.623E+00	1.449E-01	-0.341
		161.27		6.046E-02	4.376E-01	7.172E-01	3.916E-02	0.084
		216.55		3.289E-01	3.473E-01	5.823E-01	3.340E-02	0.565
		252.85	*	-4.158E-02	2.993E-01	4.757E-01	2.810E-02	-0.087
		318.01		6.178E-02	6.003E-01	1.003E+00	5.961E-02	0.062
		792.07		5.245E-01	1.157E+00	2.011E+00	1.241E-01	0.261
OS-185		903.28		8.568E-01	1.343E+00	2.089E+00	1.514E-01	0.410
		920.93		3.901E-01	5.478E-01	9.690E-01	6.982E-02	0.403
		59.72		1.644E-01	4.418E-01	6.636E-01	6.090E-02	0.248
		61.14		2.807E-01	2.523E-01	3.886E-01	3.536E-02	0.722
		69.30		1.917E-01	4.406E-01	6.565E-01	5.859E-02	0.292
		592.07		-1.363E-01	3.227E+00	5.239E+00	2.795E-01	-0.026
		646.12	*	1.700E-02	5.104E-02	8.514E-02	4.292E-03	0.200
		717.42		-7.506E-01	1.075E+00	1.615E+00	8.800E-02	-0.465
		874.81		-5.302E-01	6.903E-01	1.063E+00	7.456E-02	-0.499
		880.27		-6.175E-01	9.099E-01	1.414E+00	9.998E-02	-0.437
RE-188		155.03	*	2.383E-01	2.163E-01	3.674E-01	2.035E-02	0.649
		477.96		1.073E+00	3.894E+00	6.531E+00	3.676E-01	0.164
		633.10		1.610E+00	3.523E+00	5.930E+00	3.037E-01	0.271
		63.58		1.463E+02	9.413E+01	1.289E+02	1.160E+01	1.135
W-188	+	227.08		-8.240E-01	1.680E+01	2.696E+01	1.562E+00	-0.031
IR-192		290.67	*	-3.622E-01	1.012E+01	1.481E+01	8.846E-01	-0.024
	+	295.96		1.051E+00	2.072E-01	3.305E-01	2.004E-02	3.181
		308.46		-7.157E-02	1.178E-01	1.915E-01	1.154E-02	-0.374
		316.51	*	8.582E-03	4.475E-02	7.579E-02	4.530E-03	0.113
AU-195		468.07		-1.018E-02	9.021E-02	1.273E-01	8.332E-03	-0.080
		604.41		-5.620E-01	7.186E-01	9.242E-01	1.025E-01	-0.608
		612.46		7.034E-01	1.057E+00	1.582E+00	1.131E-01	0.445
		65.12		-9.756E-02	2.607E-01	3.768E-01	3.376E-02	-0.259
		66.83		-2.332E-02	1.416E-01	2.065E-01	1.845E-02	-0.113
	+	75.70		1.848E+00	3.400E-01	5.805E-01	5.265E-02	3.183
		98.88	*	1.656E-01	2.881E-01	4.709E-01	3.849E-02	0.352
		129.76		3.392E+00	3.532E+00	5.996E+00	3.549E-01	0.566
TL-200		367.94	*	1.161E-04	3.532E+00	Half-Life	too short	
		579.30		3.203E-03	3.532E+00	Half-Life	too short	
		828.27		7.019E-03	3.532E+00	Half-Life	too short	
		1205.75		4.651E-04	3.532E+00	Half-Life	too short	
TL-201		68.90		3.525E+00	6.668E+00	1.002E+01	8.940E-01	0.352
		70.82		-8.786E-01	3.824E+00	5.540E+00	4.952E-01	-0.159
		80.30		-4.946E+00	6.701E+00	9.465E+00	8.802E-01	-0.523
		135.34		7.167E+00	2.850E+01	4.719E+01	2.745E+00	0.152
TL-202		167.43	*	-2.287E+00	7.930E+00	1.274E+01	6.895E-01	-0.179
		68.90		3.303E-01	6.249E-01	9.389E-01	8.378E-02	0.352
		70.82		-8.211E-02	3.574E-01	5.177E-01	4.628E-02	-0.159
		80.30		-4.624E-01	6.265E-01	8.848E-01	8.229E-02	-0.523

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HG-203	439.56	*		7.065E-02	8.724E-02	1.514E-01	8.519E-03	0.467
	70.83			-3.568E-01	1.565E+00	2.266E+00	3.130E-01	-0.157
	72.87			2.521E+00	1.009E+00	1.528E+00	2.054E-01	1.649
	82.60			9.848E-01	1.849E+00	2.350E+00	3.355E-01	0.419
BI-207	279.20	*		3.010E-02	5.239E-02	8.875E-02	5.605E-03	0.339
	72.80			7.202E-01	2.841E-01	4.457E-01	4.001E-02	1.616
	74.97		+	6.602E-01	1.870E-01	3.021E-01	2.732E-02	2.185
	84.90			2.391E-01	2.765E-01	4.170E-01	4.011E-02	0.573
TL-207	569.67			-2.859E-02	3.858E-02	5.809E-02	3.153E-03	-0.492
	1063.62	*		-3.778E-04	6.693E-02	1.103E-01	7.311E-03	-0.003
	1770.23			-2.690E+00	8.687E-01	6.903E-01	4.032E-02	-3.896
	81.07			-3.146E-01	3.729E-01	4.356E-01	4.072E-02	-0.722
	83.78			3.356E-02	1.802E-01	2.655E-01	2.531E-02	0.126
	94.90			3.597E-01	3.257E-01	4.959E-01	4.317E-02	0.725
	122.32			-1.784E+00	2.191E+00	3.482E+00	2.421E-01	-0.512
	144.24			1.989E-01	9.025E-01	1.469E+00	1.048E-01	0.135
	154.21			3.903E-01	4.994E-01	8.388E-01	5.709E-02	0.465
	269.46		+	8.351E-01	3.066E-01	4.447E-01	2.760E-02	1.878
	323.87	*		6.789E-01	9.545E-01	1.454E+00	2.409E-01	0.467
	338.28		+	6.436E+00	2.691E+00	2.889E+00	3.056E-01	2.228
PO-209	445.03			1.852E-02	2.927E+00	4.839E+00	4.924E-01	0.004
	260.50			-3.376E+00	1.256E+01	1.979E+01	1.174E+00	-0.171
	262.80			-2.005E+01	3.438E+01	5.316E+01	3.155E+00	-0.377
	896.60	*		-9.012E+00	8.789E+00	1.309E+01	9.485E-01	-0.688
BI-210	46.50	*		2.636E-01	5.795E+00	9.625E+00	7.925E-01	0.027
PB-210	46.50	*		2.636E-01	5.795E+00	9.625E+00	7.925E-01	0.027
PO-210	46.50	*		2.636E-01	5.795E+00	9.625E+00	6.953E-01	0.027
PB-211	404.84	*		-1.011E+00	1.398E+00	1.976E+00	1.231E+00	-0.512
	427.08			-5.921E-01	2.658E+00	4.297E+00	2.655E+00	-0.138
	831.96			-1.631E+00	1.784E+00	2.207E+00	1.378E+00	-0.739
	727.18	*	+	1.344E+00	6.801E-01	8.532E-01	6.417E-02	1.575
	785.46			1.626E+00	2.156E+00	3.823E+00	2.334E-01	0.425
PO-215	1620.62			1.632E+00	1.598E+00	3.034E+00	1.861E-01	0.538
	81.07			-3.146E-01	3.729E-01	4.356E-01	4.072E-02	-0.722
	83.78			3.356E-02	1.802E-01	2.655E-01	2.531E-02	0.126
	94.90			3.597E-01	3.257E-01	4.959E-01	4.317E-02	0.725
	122.32			-1.784E+00	2.191E+00	3.482E+00	2.421E-01	-0.512
	144.24			1.989E-01	9.025E-01	1.469E+00	1.048E-01	0.135
	154.21			3.903E-01	4.994E-01	8.388E-01	5.709E-02	0.465
	269.46		+	8.351E-01	3.066E-01	4.447E-01	2.760E-02	1.878
	323.87	*		6.789E-01	9.545E-01	1.454E+00	2.409E-01	0.467
	338.28		+	6.436E+00	2.691E+00	2.889E+00	3.056E-01	2.228
	445.03			1.852E-02	2.927E+00	4.839E+00	4.924E-01	0.004
	271.23		+	1.071E+00	3.975E-01	5.604E-01	4.604E-02	1.912
RN-219	401.81	*		-4.498E-02	5.282E-01	8.725E-01	1.179E-01	-0.052
RN-220	549.76	*		7.221E+00	3.191E+01	5.309E+01	2.918E+00	0.136
RA-223	81.07			-3.146E-01	3.729E-01	4.356E-01	4.072E-02	-0.722
	83.78			3.356E-02	1.802E-01	2.655E-01	2.531E-02	0.126
	94.90			3.597E-01	3.257E-01	4.959E-01	4.317E-02	0.725

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-1.784E+00	2.191E+00	3.482E+00	2.421E-01	-0.512
		144.24		1.989E-01	9.025E-01	1.469E+00	1.048E-01	0.135
		154.21		3.903E-01	4.994E-01	8.388E-01	5.709E-02	0.465
	+	269.46		8.351E-01	3.066E-01	4.447E-01	2.760E-02	1.878
		323.87	*	6.789E-01	9.545E-01	1.454E+00	2.409E-01	0.467
	+	338.28		6.436E+00	2.691E+00	2.889E+00	3.056E-01	2.228
		445.03		1.852E-02	2.927E+00	4.839E+00	4.924E-01	0.004
		79.80		-4.767E-01	2.275E+00	3.297E+00	7.177E-01	-0.145
		236.00		1.892E+00	4.391E-01	6.775E-01	7.096E-02	2.793
		256.20	*	1.912E-01	4.927E-01	8.034E-01	1.126E-01	0.238
		286.10		7.395E-02	1.872E+00	3.160E+00	3.680E-01	0.023
	+	299.80		1.673E+00	2.087E+00	3.088E+00	5.047E-01	0.542
TH-227		304.40		1.863E+00	2.604E+00	3.903E+00	6.774E-01	0.477
		334.20		-1.439E+00	3.369E+00	4.443E+00	8.159E-01	-0.324
		79.80		-4.767E-01	2.275E+00	3.297E+00	7.267E-01	-0.145
	+	94.00		1.458E+01	4.567E+00	4.974E+00	1.088E+00	2.931
		236.00		1.892E+00	4.279E-01	6.775E-01	6.153E-02	2.793
		256.20	*	1.912E-01	4.930E-01	8.034E-01	1.361E-01	0.238
		286.10		7.395E-02	1.873E+00	3.160E+00	3.165E+00	0.023
	+	299.80		1.673E+00	2.087E+00	3.088E+00	5.047E-01	0.542
		304.40		1.863E+00	2.604E+00	3.903E+00	6.774E-01	0.477
		334.20		-1.439E+00	3.369E+00	4.443E+00	8.159E-01	-0.324
		85.43		5.911E-01	2.810E-01	4.359E-01	4.211E-02	1.356
	+	88.47		1.757E-01	1.407E-01	2.707E-01	2.650E-02	0.649
TH-229		100.00		5.564E-02	2.300E-01	3.838E-01	3.085E-02	0.145
		193.63	*	-3.643E-01	6.772E-01	1.071E+00	5.984E-02	-0.340
		210.97		1.225E+00	1.127E+00	1.685E+00	9.606E-02	0.727
	PA-231	283.67	*	-1.209E+00	1.897E+00	3.086E+00	4.275E-01	-0.392
	+	301.29		6.691E-01	8.306E-01	1.247E+00	1.315E-01	0.537
	TH-231	81.07		-3.146E-01	3.729E-01	4.356E-01	4.072E-02	-0.722
		83.78		3.356E-02	1.802E-01	2.655E-01	2.531E-02	0.126
		94.90		3.597E-01	3.257E-01	4.959E-01	4.317E-02	0.725
		122.32		-1.784E+00	2.191E+00	3.482E+00	2.421E-01	-0.512
		144.24		1.989E-01	9.025E-01	1.469E+00	1.048E-01	0.135
		154.21		3.903E-01	4.994E-01	8.388E-01	5.709E-02	0.465
	+	269.46		8.351E-01	3.066E-01	4.447E-01	2.760E-02	1.878
U-231		323.87	*	6.789E-01	9.545E-01	1.454E+00	2.409E-01	0.467
	+	338.28		6.436E+00	2.691E+00	2.889E+00	3.056E-01	2.228
		445.03		1.852E-02	2.927E+00	4.839E+00	4.924E-01	0.004
		84.21		-3.520E-01	7.520E+00	1.097E+01	1.049E+00	-0.032
	+	92.29		1.383E+01	3.337E+00	5.160E+00	4.699E-01	2.681
		95.87	*	-3.088E-01	1.433E+00	2.063E+00	1.767E-01	-0.150
		108.00		1.046E-01	2.463E+00	4.072E+00	2.935E-01	0.026
	PA-233	75.28		1.927E+01	5.979E+00	9.244E+00	1.442E+00	2.084
	+	86.59		4.661E+00	2.683E+00	3.757E+00	1.022E+00	1.241
	+	300.12		4.664E-01	5.802E-01	8.675E-01	1.172E-01	0.538
		311.98	*	1.120E-02	7.939E-02	1.342E-01	8.468E-03	0.083
		340.50		1.822E+00	9.999E-01	1.495E+00	3.436E-01	1.219
		398.62		1.320E-01	2.667E+00	4.443E+00	1.147E+00	0.030

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		8.450E-01	2.181E+00	3.685E+00	7.566E-01	0.229
		63.00		4.252E+00	2.791E+00	3.828E+00	6.020E-01	1.111
		94.67		4.592E-01	2.437E-01	3.742E-01	4.672E-02	1.227
		98.44		6.557E-02	1.275E-01	1.918E-01	1.069E-01	0.342
		99.86		1.743E-01	5.838E-01	9.759E-01	7.862E-02	0.179
		111.00		1.069E-01	2.334E-01	3.910E-01	4.283E-02	0.274
		131.20		-2.956E-02	1.290E-01	2.098E-01	1.236E-02	-0.141
		152.70		4.716E-02	4.199E-01	6.883E-01	1.082E-01	0.069
		186.00		7.738E+00	3.241E+00	3.267E+00	9.966E-01	2.369
		226.40		-1.365E-01	5.282E-01	8.392E-01	9.697E-02	-0.163
		227.20		-1.085E-02	5.696E-01	9.155E-01	5.305E-02	-0.012
		248.90		-4.759E-02	1.067E+00	1.707E+00	3.671E-01	-0.028
		293.70		6.632E+00	1.642E+00	2.041E+00	3.296E-01	3.249
		369.80		5.825E-01	1.033E+00	1.767E+00	3.676E-01	0.330
		568.70		-1.357E+00	1.273E+00	1.862E+00	1.012E-01	-0.728
		569.50		-2.709E-01	3.411E-01	5.109E-01	2.774E-02	-0.530
		574.00		1.150E+00	1.884E+00	3.140E+00	1.699E-01	0.366
		699.00		-2.623E-02	8.963E-01	1.443E+00	2.571E-01	-0.018
		706.10		-7.061E-01	1.351E+00	2.020E+00	8.904E-01	-0.350
		733.00		-2.741E-01	5.054E-01	6.402E-01	1.358E-01	-0.428
		742.81		5.307E-02	1.760E+00	2.837E+00	1.898E+00	0.019
		796.30		1.291E+00	1.144E+00	1.997E+00	5.269E-01	0.647
		805.60		3.731E-01	1.124E+00	1.930E+00	5.805E-01	0.193
		819.60		3.008E-01	1.421E+00	2.417E+00	9.088E-01	0.124
		826.30		2.603E-01	9.458E-01	1.610E+00	7.147E-01	0.162
		831.60		-9.422E-01	8.146E-01	1.142E+00	3.348E-01	-0.825
		876.40		-7.221E-01	1.215E+00	1.484E+00	1.524E+00	-0.486
		880.51		-2.374E-01	3.343E-01	5.182E-01	3.666E-02	-0.458
		883.24		4.347E-02	3.586E-01	6.022E-01	4.037E-01	0.072
		899.00		-4.820E-01	1.013E+00	1.572E+00	6.833E-01	-0.307
		925.00		-1.538E+00	1.336E+00	1.936E+00	1.392E-01	-0.795
		926.50		-1.379E-01	1.939E-01	2.921E-01	7.251E-02	-0.472
		946.00	*	3.357E-01	3.653E-01	6.495E-01	1.177E-01	0.517
		949.00		-2.892E-01	5.438E-01	8.555E-01	6.094E-02	-0.338
		980.50		-2.948E-01	9.299E-01	1.494E+00	1.048E-01	-0.197
		1394.10		-2.920E-01	1.599E+00	2.508E+00	1.626E+00	-0.116
PA-234M		766.42		1.380E+01	1.643E+01	2.566E+01	1.292E+01	0.538
		1001.03	*	3.280E+00	5.918E+00	1.015E+01	8.672E-01	0.323
U-235	+	89.95		1.764E+00	1.506E+00	2.454E+00	7.636E-01	0.719
		93.35		4.535E+00	1.631E+00	1.656E+00	4.656E-01	2.739
		105.00		-3.905E-01	1.315E+00	2.140E+00	6.321E-01	-0.182
		143.76	*	7.743E-02	2.738E-01	4.461E-01	7.255E-02	0.174
	+	163.35		1.496E-01	5.708E-01	9.391E-01	1.678E-01	0.159
		185.71		2.866E-01	8.378E-02	1.213E-01	6.713E-03	2.362
		205.31		1.223E-01	7.253E-01	1.034E+00	1.854E-01	0.118
		94.67		3.527E-01	1.824E-01	2.843E-01	2.485E-02	1.241
NP-236		98.44		4.958E-02	9.244E-02	1.450E-01	1.193E-02	0.342
		111.00		8.089E-02	1.764E-01	2.957E-01	2.053E-02	0.274
		160.31	*	-3.420E-02	9.886E-02	1.588E-01	8.688E-03	-0.215

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.169E-01	1.941E-01	3.278E-01	2.653E-02	0.357
		117.00	*	-1.451E-01	2.340E-01	3.757E-01	2.427E-02	-0.386
	+	209.75		1.988E+00	1.498E+00	1.794E+00	1.022E-01	1.108
		228.18		1.029E-01	2.947E-01	4.815E-01	2.793E-02	0.214
		277.60		3.750E-01	2.390E-01	4.039E-01	2.409E-02	0.928
		334.30		-9.137E-01	1.899E+00	2.499E+00	1.474E-01	-0.366
AM-241		59.54	*	1.129E-01	2.334E-01	3.523E-01	3.444E-02	0.321
CM-243		99.55		1.202E-01	1.997E-01	3.373E-01	2.729E-02	0.357
		103.76	*	1.798E-02	1.187E-01	1.973E-01	1.504E-02	0.091
		117.00		-1.493E-01	2.408E-01	3.865E-01	2.497E-02	-0.386
	+	209.75		1.960E+00	1.476E+00	1.769E+00	1.007E-01	1.108
		228.18		1.040E-01	2.977E-01	4.865E-01	2.822E-02	0.214
		277.60		3.781E-01	2.410E-01	4.072E-01	2.429E-02	0.928
AM-246		798.80		-1.644E-01	1.695E-01	2.601E-01	1.622E-02	-0.632
		1036.00		1.845E-01	3.698E-01	6.395E-01	4.331E-02	0.289
		1062.04		5.532E-02	2.952E-01	4.952E-01	3.288E-02	0.112
		1078.86	*	-2.180E-02	1.793E-01	2.918E-01	1.910E-02	-0.075
CM-247		278.00		1.591E+00	9.631E-01	1.699E+00	1.013E-01	0.936
		287.40		-6.704E-01	1.510E+00	2.487E+00	1.485E-01	-0.270
		402.60	*	8.703E-03	4.798E-02	8.049E-02	4.485E-03	0.108
CF-249		252.85		-1.562E-01	1.124E+00	1.787E+00	1.055E-01	-0.087
		333.44		8.151E-02	2.912E-01	3.459E-01	2.041E-02	0.236
		387.95	*	7.035E-02	5.289E-02	9.402E-02	5.244E-03	0.748
CF-251		176.60	*	6.458E-02	1.621E-01	2.676E-01	1.464E-02	0.241
		227.00		-8.271E-02	5.060E-01	8.078E-01	4.680E-02	-0.102
		285.00		1.239E+00	2.105E+00	3.646E+00	2.177E-01	0.340

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231002      *
* Acquisition date   : 21-JAN-2010 09:01:59 Detector SN#                   *
* Detector ID        : GAM06 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.31 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G244231002 Analyst initials: MXR1                  *
* Batch Number      : 941242 Sample Quantity : 1.2278E+02 GRAM          *
* Recovery          : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight   : 0.00000                                              *
* CALIB. DATE/TIME  : 4-FEB-2009 13:05:54 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.259E+01	2.913E+00	5.304E-01	0.000E+00
CD-109	2.421E+00	1.226E+00	1.624E+00	0.000E+00
SN-126	2.381E-01	1.205E-01	1.605E-01	0.000E+00
BA-137M	6.580E-01	1.004E-01	7.397E-02	0.000E+00
CS-137	6.956E-01	1.062E-01	7.820E-02	0.000E+00
TL-208	5.411E-01	1.014E-01	7.014E-02	0.000E+00
BI-211	3.893E+00	5.079E-01	4.013E-01	0.000E+00
PB-212	1.541E+00	1.638E-01	1.225E-01	0.000E+00
PO-212	1.541E+00	1.638E-01	1.225E-01	0.000E+00
BI-214	1.265E+00	2.053E-01	1.397E-01	0.000E+00
PB-214	1.354E+00	1.897E-01	1.394E-01	0.000E+00
PO-214	1.354E+00	1.897E-01	1.394E-01	0.000E+00
PO-216	1.541E+00	1.638E-01	1.225E-01	0.000E+00
PO-218	1.354E+00	1.897E-01	1.394E-01	0.000E+00
RA-224	4.376E+00	1.552E+00	1.394E+00	0.000E+00
RA-226	1.265E+00	2.053E-01	1.397E-01	0.000E+00
AC-228	1.561E+00	3.968E-01	2.734E-01	0.000E+00
RA-228	1.561E+00	3.968E-01	2.734E-01	0.000E+00
TH-228	1.564E+00	1.663E-01	1.243E-01	0.000E+00
TH-230	1.265E+00	2.053E-01	1.397E-01	0.000E+00
TH-232	1.561E+00	3.968E-01	2.734E-01	0.000E+00
TH-234	3.648E+00	2.369E+00	3.023E+00	0.000E+00
U-234	1.265E+00	2.053E-01	1.397E-01	0.000E+00
NP-237	6.992E-01	3.811E-01	4.775E-01	0.000E+00
U-238	3.648E+00	2.369E+00	3.023E+00	0.000E+00
AM-243	3.678E-01	1.021E-01	1.210E-01	0.000E+00
ANH-511	1.007E-01	8.394E-02	5.758E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	1.361E-01	3.939E-01	6.861E-01	0.000E+00	NOT IDENT.
NA-22	-4.511E-02	5.002E-02	7.402E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	7.494E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-3.883E-03	3.408E-02	5.592E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.974E-02	9.718E-02	0.000E+00	FAIL ABUN
SC-46	1.877E-02	5.210E-02	9.156E-02	0.000E+00	FAIL ABUN
V-48	1.854E-02	8.153E-02	1.413E-01	0.000E+00	NOT IDENT.
CR-51	-3.885E-01	4.833E-01	8.002E-01	0.000E+00	NOT IDENT.
MN-52	1.193E-01	2.508E-01	4.439E-01	0.000E+00	NOT IDENT.
MN-54	1.743E-02	4.337E-02	7.684E-02	0.000E+00	NOT IDENT.
CO-56	-2.915E-02	4.859E-02	7.900E-02	0.000E+00	NOT IDENT.
CO-57	-9.831E-03	3.048E-02	5.206E-02	0.000E+00	NOT IDENT.
CO-58	-3.870E-02	4.461E-02	7.054E-02	0.000E+00	NOT IDENT.
FE-59	-5.118E-02	1.130E-01	1.817E-01	0.000E+00	NOT IDENT.
CO-60	7.884E-03	4.555E-02	7.657E-02	0.000E+00	NOT IDENT.
ZN-65	7.068E-04	1.158E-01	1.672E-01	0.000E+00	NOT IDENT.
GE-68	9.437E-01	1.559E+00	2.770E+00	0.000E+00	NOT IDENT.
AS-73	7.364E-01	1.198E+00	2.180E+00	0.000E+00	NOT IDENT.
AS-74	-4.392E-02	1.188E-01	1.939E-01	0.000E+00	NOT IDENT.
SE-75	7.656E-03	6.124E-02	8.973E-02	0.000E+00	NOT IDENT.
BR-77	-2.350E+00	1.180E+01	1.969E+01	0.000E+00	FAIL ABUN
SR-82	-3.366E-01	4.716E-01	7.672E-01	0.000E+00	NOT IDENT.
RB-83	-1.208E-02	8.385E-02	1.405E-01	0.000E+00	NOT IDENT.
RB-84	-5.153E-02	8.117E-02	1.303E-01	0.000E+00	NOT IDENT.
KR-85	1.490E+01	1.046E+01	1.718E+01	0.000E+00	NOT IDENT.
SR-85	7.622E-02	5.349E-02	8.784E-02	0.000E+00	NOT IDENT.
RB-86	9.201E-01	9.670E-01	1.768E+00	0.000E+00	NOT IDENT.
Y-88	2.565E-02	3.774E-02	7.162E-02	0.000E+00	NOT IDENT.
ZR-88	-3.513E-02	3.927E-02	6.409E-02	0.000E+00	NOT IDENT.
Y-91	-8.074E+00	2.345E+01	3.794E+01	0.000E+00	NOT IDENT.
NB-94	2.425E-02	4.148E-02	7.207E-02	0.000E+00	NOT IDENT.
NB-95	5.013E-02	5.306E-02	9.406E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.939E-01	3.215E-01	0.000E+00	NOT IDENT.
ZR-95	6.425E-02	8.405E-02	1.482E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.174E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.982E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	6.966E+00	1.328E+01	2.295E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.406E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.231E-02	4.304E-02	7.177E-02	0.000E+00	NOT IDENT.
RH-102	-1.769E-02	3.664E-02	6.035E-02	0.000E+00	NOT IDENT.
RU-103	-2.735E-02	5.036E-02	8.205E-02	0.000E+00	FAIL ABUN
RH-106	5.243E-02	3.972E-01	6.717E-01	0.000E+00	NOT IDENT.
RU-106	5.243E-02	3.972E-01	6.717E-01	0.000E+00	NOT IDENT.
AG-108M	-3.276E-02	4.016E-02	6.502E-02	0.000E+00	NOT IDENT.
AG-110M	5.654E-02	5.143E-02	8.266E-02	0.000E+00	NOT IDENT.
IN-111	-7.136E-01	1.405E+00	1.973E+00	0.000E+00	NOT IDENT.
IN-113M	-6.040E-02	5.792E-02	9.372E-02	0.000E+00	NOT IDENT.
SN-113	-6.040E-02	5.792E-02	9.372E-02	0.000E+00	NOT IDENT.
IN-114M	5.313E-02	2.573E-01	3.857E-01	0.000E+00	NOT IDENT.
CD-115	1.292E+01	1.235E+01	2.242E+01	0.000E+00	NOT IDENT.
SN-117M	-3.240E-02	6.676E-02	1.119E-01	0.000E+00	NOT IDENT.
SB-122	2.765E+00	2.304E+00	4.218E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	5.173E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-9.338E-03	3.461E-02	5.851E-02	0.000E+00	NOT IDENT.
I-124	1.051E-01	9.432E-01	1.382E+00	0.000E+00	FAIL ABUN
SB-124	4.346E-02	7.535E-02	1.418E-01	0.000E+00	FAIL ABUN
SB-125	-3.863E-02	1.145E-01	1.921E-01	0.000E+00	FAIL ABUN
TE-125M	2.702E+00	1.157E+01	2.027E+01	0.000E+00	NOT IDENT.
I-126	1.383E-01	2.624E-01	3.990E-01	0.000E+00	NOT IDENT.
SB-126	5.849E-02	1.857E-01	2.762E-01	0.000E+00	NOT IDENT.
SB-127	-5.713E-01	1.525E+00	2.447E+00	0.000E+00	NOT IDENT.
XE-127	-4.122E-03	6.242E-02	9.703E-02	0.000E+00	NOT IDENT.
I-131	-1.069E-02	1.399E-01	2.410E-01	0.000E+00	NOT IDENT.
TE-132	3.070E-01	8.400E-01	1.432E+00	0.000E+00	NOT IDENT.
BA-133	-6.777E-02	6.090E-02	8.252E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	6.223E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.844E-02	5.535E-02	1.039E-01	0.000E+00	NOT IDENT.
CS-135	0.000E+00	2.296E-01	3.672E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.828E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.117E-02	1.243E-01	2.117E-01	0.000E+00	FAIL ABUN
CE-139	1.518E-03	3.460E-02	5.914E-02	0.000E+00	NOT IDENT.
BA-140	1.671E-01	3.084E-01	5.346E-01	0.000E+00	NOT IDENT.
LA-140	1.476E-02	9.242E-02	1.608E-01	0.000E+00	FAIL ABUN
CE-141	3.681E-02	7.843E-02	1.369E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.674E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-5.185E-02	2.428E-01	4.147E-01	0.000E+00	NOT IDENT.
PM-144	-1.747E-02	4.247E-02	6.806E-02	0.000E+00	NOT IDENT.
PR-144	-1.184E+00	2.877E+00	4.611E+00	0.000E+00	NOT IDENT.

PM-146	2.145E-02	5.575E-02	9.744E-02	0.000E+00	NOT IDENT.
ND-147	1.167E-01	6.911E-01	1.183E+00	0.000E+00	FAIL ABUN
PM-149	2.098E+01	1.012E+02	1.791E+02	0.000E+00	NOT IDENT.
EU-152	-2.870E-02	1.378E-01	2.046E-01	0.000E+00	NOT IDENT.
GD-153	8.320E-02	1.064E-01	1.693E-01	0.000E+00	NOT IDENT.
EU-154	-1.260E-01	1.400E-01	2.068E-01	0.000E+00	NOT IDENT.
EU-155	-3.826E-02	1.306E-01	2.249E-01	0.000E+00	FAIL ABUN
TB-160	-4.333E-02	1.543E-01	2.566E-01	0.000E+00	FAIL ABUN
HO-166M	4.476E-02	7.151E-02	1.250E-01	0.000E+00	FAIL ABUN
TM-171	-8.584E+00	4.201E+01	6.484E+01	0.000E+00	NOT IDENT.
LU-176	7.315E-03	2.967E-02	5.247E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	2.019E+00	2.531E+00	0.000E+00	FAIL ABUN
LU-177M	-1.797E-01	2.335E-01	3.832E-01	0.000E+00	FAIL ABUN
HF-181	2.678E-02	5.167E-02	9.098E-02	0.000E+00	NOT IDENT.
W-181	-2.463E-01	5.499E-01	8.401E-01	0.000E+00	NOT IDENT.
TA-182	-2.098E-01	2.763E-01	4.323E-01	0.000E+00	FAIL ABUN
RE-183	6.373E-02	1.308E-01	2.278E-01	0.000E+00	FAIL ABUN
RE-184	-4.158E-02	2.933E-01	4.860E-01	0.000E+00	NOT IDENT.
OS-185	1.700E-02	5.002E-02	8.593E-02	0.000E+00	NOT IDENT.
RE-188	2.383E-01	2.120E-01	3.777E-01	0.000E+00	NOT IDENT.
W-188	-3.622E-01	9.917E+00	1.510E+01	0.000E+00	FAIL ABUN
IR-192	8.582E-03	4.386E-02	7.720E-02	0.000E+00	FAIL ABUN
AU-195	1.656E-01	2.824E-01	4.868E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	4.572E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-2.287E+00	7.771E+00	1.308E+01	0.000E+00	NOT IDENT.
TL-202	7.065E-02	8.550E-02	1.536E-01	0.000E+00	NOT IDENT.
HG-203	3.010E-02	5.134E-02	9.055E-02	0.000E+00	NOT IDENT.
BI-207	-3.778E-04	6.559E-02	1.106E-01	0.000E+00	FAIL ABUN
TL-207	6.789E-01	9.354E-01	1.481E+00	0.000E+00	FAIL ABUN
PO-209	-9.012E+00	8.613E+00	1.316E+01	0.000E+00	NOT IDENT.
BI-210	2.636E-01	5.679E+00	1.004E+01	0.000E+00	NOT IDENT.
PB-210	2.636E-01	5.679E+00	1.004E+01	0.000E+00	NOT IDENT.
PO-210	2.636E-01	5.679E+00	1.004E+01	0.000E+00	NOT IDENT.
PB-211	-1.011E+00	1.370E+00	2.006E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.665E-01	8.598E-01	0.000E+00	FAIL ABUN
PO-215	6.789E-01	9.354E-01	1.481E+00	0.000E+00	FAIL ABUN
RN-219	-4.498E-02	5.176E-01	8.860E-01	0.000E+00	FAIL ABUN
RN-220	7.221E+00	3.127E+01	5.370E+01	0.000E+00	NOT IDENT.
RA-223	6.789E-01	9.354E-01	1.481E+00	0.000E+00	FAIL ABUN
AC-227	1.912E-01	4.828E-01	8.206E-01	0.000E+00	FAIL ABUN
TH-227	1.912E-01	4.831E-01	8.206E-01	0.000E+00	FAIL ABUN
TH-229	-3.643E-01	6.636E-01	1.098E+00	0.000E+00	FAIL ABUN
PA-231	-1.209E+00	1.859E+00	3.148E+00	0.000E+00	FAIL ABUN
TH-231	6.789E-01	9.354E-01	1.481E+00	0.000E+00	FAIL ABUN
U-231	-3.088E-01	1.404E+00	2.133E+00	0.000E+00	FAIL ABUN
PA-233	1.120E-02	7.780E-02	1.368E-01	0.000E+00	FAIL ABUN
PA-234	3.357E-01	3.580E-01	6.522E-01	0.000E+00	FAIL ABUN
PA-234M	3.280E+00	5.800E+00	1.018E+01	0.000E+00	NOT IDENT.
U-235	7.743E-02	2.683E-01	4.590E-01	0.000E+00	FAIL ABUN
NP-236	-3.420E-02	9.689E-02	1.632E-01	0.000E+00	NOT IDENT.
NP-239	-1.451E-01	2.293E-01	3.876E-01	0.000E+00	FAIL ABUN
AM-241	1.129E-01	2.288E-01	3.665E-01	0.000E+00	NOT IDENT.
CM-243	1.798E-02	1.163E-01	2.038E-01	0.000E+00	FAIL ABUN
AM-246	-2.180E-02	1.757E-01	2.925E-01	0.000E+00	NOT IDENT.
CM-247	8.703E-03	4.702E-02	8.173E-02	0.000E+00	NOT IDENT.
CF-249	7.035E-02	5.183E-02	9.553E-02	0.000E+00	NOT IDENT.
CF-251	6.458E-02	1.589E-01	2.746E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231002.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:01:59
Sample ID          : G244231002          Sample quantity  : 1.22780E+02 GRAM
Detector name      : GAM06              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time: 0 02:00:01.31  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity       : 5.00000
Batch ID           : 941242             Detector SN#      :
Matrix Spike ID    :                    LCS ID            : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1095	10.67*	9.625E-01	3.259E+01	3.259E+01	9.12
CD-109	88.03	148	3.72*	5.148E+00	2.368E+00	2.421E+00	51.65
SN-126	64.28	123	9.60	2.714E+00	1.444E+00	1.444E+00	65.56
	86.94	148	8.90	5.148E+00	9.898E-01	9.898E-01	65.60
	87.57	148	37.00*	5.148E+00	2.381E-01	2.381E-01	51.65
BA-137M	661.65	375	89.98*	1.940E+00	6.574E-01	6.580E-01	15.57
CS-137	661.65	375	85.12*	1.940E+00	6.949E-01	6.956E-01	15.58
TL-208	277.35	-----	6.80	3.899E+00	-----	Line Not Found	-----
	510.84	79	21.60	2.408E+00	4.661E-01	4.661E-01	85.47
	583.14	322	84.20*	2.158E+00	5.411E-01	5.411E-01	19.12
	860.37	-----	12.46	1.539E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	3.913E+00	-----	Line Not Found	-----
	351.07	534	12.94*	3.242E+00	3.893E+00	3.893E+00	13.31
PB-212	74.81	324	10.70	4.083E+00	2.269E+00	2.269E+00	29.82
	77.11	534	18.00	4.327E+00	2.096E+00	2.096E+00	18.40
	87.30	148	8.00	5.148E+00	1.101E+00	1.101E+00	52.61
	238.63	982	44.60*	4.367E+00	1.541E+00	1.541E+00	10.84
	300.09	37	3.41	3.670E+00	9.026E-01	9.026E-01	123.96
PO-212	74.81	324	10.70	4.083E+00	2.269E+00	2.269E+00	29.82
	77.11	534	18.00	4.327E+00	2.096E+00	2.096E+00	18.40
	87.30	148	8.00	5.148E+00	1.101E+00	1.101E+00	52.61
	115.19	-----	0.60	6.030E+00	-----	Line Not Found	-----
	238.63	982	44.60*	4.367E+00	1.541E+00	1.541E+00	10.84
	300.09	37	3.41	3.670E+00	9.026E-01	9.026E-01	123.96
BI-214	609.31	398	46.30*	2.080E+00	1.265E+00	1.265E+00	16.56
	1120.29	89	15.10	1.210E+00	1.491E+00	1.491E+00	44.68
	1764.49	57	15.80	8.404E-01	1.303E+00	1.303E+00	33.14
PB-214	74.81	324	6.21	4.083E+00	3.909E+00	3.909E+00	29.27
	77.11	534	10.50	4.327E+00	3.593E+00	3.593E+00	19.92
	87.30	148	4.67	5.148E+00	1.886E+00	1.886E+00	52.22
	241.98	245	7.49	4.329E+00	2.308E+00	2.308E+00	36.63
	295.21	323	19.20	3.719E+00	1.382E+00	1.382E+00	20.66

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	351.92	534	37.20*	3.242E+00	1.354E+00	1.354E+00	14.30
	74.81	324	6.21	4.083E+00	3.909E+00	3.909E+00	29.27
	77.11	534	10.50	4.327E+00	3.593E+00	3.593E+00	19.92
	87.30	148	4.67	5.148E+00	1.886E+00	1.886E+00	52.22
	241.98	245	7.49	4.329E+00	2.308E+00	2.308E+00	36.63
PO-216	295.21	323	19.20	3.719E+00	1.382E+00	1.382E+00	20.66
	351.92	534	37.20*	3.242E+00	1.354E+00	1.354E+00	14.30
	74.81	324	10.70	4.083E+00	2.269E+00	2.269E+00	29.82
	77.11	534	18.00	4.327E+00	2.096E+00	2.096E+00	18.40
	87.30	148	8.00	5.148E+00	1.101E+00	1.101E+00	52.61
PO-218	238.63	982	44.60*	4.367E+00	1.541E+00	1.541E+00	10.84
	300.09	37	3.41	3.670E+00	9.026E-01	9.026E-01	123.96
	74.81	324	6.21	4.083E+00	3.909E+00	3.909E+00	29.27
	77.11	534	10.50	4.327E+00	3.593E+00	3.593E+00	19.92
	87.30	148	4.67	5.148E+00	1.886E+00	1.886E+00	52.22
RA-224	241.98	245	7.49	4.329E+00	2.308E+00	2.308E+00	36.63
	295.21	323	19.20	3.719E+00	1.382E+00	1.382E+00	20.66
	351.92	534	37.20*	3.242E+00	1.354E+00	1.354E+00	14.30
	240.98	245	3.95*	4.329E+00	4.376E+00	4.376E+00	36.20
	609.31	398	46.30*	2.080E+00	1.265E+00	1.265E+00	16.56
AC-228	1120.29	89	15.10	1.210E+00	1.491E+00	1.491E+00	44.68
	1764.49	57	15.80	8.404E-01	1.303E+00	1.303E+00	33.14
	338.32	192	11.40	3.345E+00	1.541E+00	1.541E+00	57.43
	911.07	207	27.70*	1.462E+00	1.561E+00	1.561E+00	25.94
	969.11	83	16.60	1.382E+00	1.105E+00	1.105E+00	56.06
RA-228	338.32	192	11.40	3.345E+00	1.541E+00	1.541E+00	57.43
	911.07	207	27.70*	1.462E+00	1.561E+00	1.561E+00	25.94
	969.11	83	16.60	1.382E+00	1.105E+00	1.105E+00	56.06
	74.81	324	10.70	4.083E+00	2.269E+00	2.303E+00	28.34
	77.11	534	18.00	4.327E+00	2.096E+00	2.127E+00	18.40
TH-228	87.30	148	8.00	5.148E+00	1.101E+00	1.118E+00	51.65
	238.63	982	44.60*	4.367E+00	1.541E+00	1.564E+00	10.84
	300.09	37	3.41	3.670E+00	9.027E-01	9.161E-01	137.01
	609.31	398	46.30*	2.080E+00	1.265E+00	1.265E+00	16.56
	1120.29	89	15.10	1.210E+00	1.491E+00	1.491E+00	44.68
TH-230	1764.49	57	15.80	8.404E-01	1.303E+00	1.303E+00	33.14
	338.32	192	11.40	3.345E+00	1.541E+00	1.541E+00	40.87
	911.07	207	27.70*	1.462E+00	1.561E+00	1.561E+00	25.94
	969.11	83	16.60	1.382E+00	1.105E+00	1.105E+00	56.06
	63.29	123	3.80*	2.714E+00	3.648E+00	3.648E+00	66.26
TH-232	92.38	364	5.41	5.459E+00	3.772E+00	3.772E+00	28.89
	609.31	398	46.30*	2.080E+00	1.265E+00	1.265E+00	16.56
	1120.29	89	15.10	1.210E+00	1.491E+00	1.491E+00	44.68
	1764.49	57	15.80	8.404E-01	1.303E+00	1.303E+00	33.14
	86.50	148	12.60*	5.148E+00	6.992E-01	6.992E-01	55.62
NP-237	95.87	-----	2.60	5.611E+00	-----	Line Not Found	-----
	63.29	123	3.80*	2.714E+00	3.648E+00	3.648E+00	66.26
	92.38	364	5.41	5.459E+00	3.772E+00	3.772E+00	24.12
	74.67	324	66.00*	4.083E+00	3.678E-01	3.678E-01	28.32
U-238							
AM-243							

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	86.72	148	0.34	5.148E+00	2.622E+01	2.622E+01	51.65
	117.66	-----	0.55	6.042E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.887E+00	-----	Line Not Found	-----
ANH-511	511.00	79	100.00*	2.408E+00	1.007E-01	1.007E-01	85.07

Flag: "\*" = Keyline

Total number of lines in spectrum 28  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 28 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.259E+01	3.259E+01	0.297E+01	9.12	
CD-109	464.00D	1.02	2.368E+00	2.421E+00	1.251E+00	51.65	
SN-126	1.00E+05Y	1.00	2.381E-01	2.381E-01	1.230E-01	51.65	
BA-137M	30.17Y	1.00	6.574E-01	6.580E-01	1.024E-01	15.57	
CS-137	30.17Y	1.00	6.949E-01	6.956E-01	1.083E-01	15.58	
TL-208	1.41E+10Y	1.00	5.411E-01	5.411E-01	1.035E-01	19.12	
BI-211	7.04E+08Y	1.00	3.893E+00	3.893E+00	0.518E+00	13.31	
PB-212	1.41E+10Y	1.00	1.541E+00	1.541E+00	0.167E+00	10.84	
PO-212	1.41E+10Y	1.00	1.541E+00	1.541E+00	0.167E+00	10.84	
BI-214	1600.00Y	1.00	1.265E+00	1.265E+00	0.209E+00	16.56	
PB-214	1600.00Y	1.00	1.354E+00	1.354E+00	0.194E+00	14.30	
PO-214	1600.00Y	1.00	1.354E+00	1.354E+00	0.194E+00	14.30	
PO-216	1.41E+10Y	1.00	1.541E+00	1.541E+00	0.167E+00	10.84	
PO-218	1600.00Y	1.00	1.354E+00	1.354E+00	0.194E+00	14.30	
RA-224	1.41E+10Y	1.00	4.376E+00	4.376E+00	1.584E+00	36.20	
RA-226	1600.00Y	1.00	1.265E+00	1.265E+00	0.209E+00	16.56	
AC-228	1.41E+10Y	1.00	1.561E+00	1.561E+00	0.405E+00	25.94	
RA-228	1.41E+10Y	1.00	1.561E+00	1.561E+00	0.405E+00	25.94	
TH-228	1.91Y	1.01	1.541E+00	1.564E+00	0.170E+00	10.84	
TH-230	4.47E+09Y	1.00	1.265E+00	1.265E+00	0.209E+00	16.56	
TH-232	1.41E+10Y	1.00	1.561E+00	1.561E+00	0.405E+00	25.94	
TH-234	4.47E+09Y	1.00	3.648E+00	3.648E+00	2.417E+00	66.26	
U-234	4.47E+09Y	1.00	1.265E+00	1.265E+00	0.209E+00	16.56	
NP-237	2.14E+06Y	1.00	6.992E-01	6.992E-01	3.889E-01	55.62	
U-238	4.47E+09Y	1.00	3.648E+00	3.648E+00	2.417E+00	66.26	
AM-243	7380.00Y	1.00	3.678E-01	3.678E-01	1.042E-01	28.32	
ANH-511	1.00E+09Y	1.00	1.007E-01	1.007E-01	0.857E-01	85.07	
Total Activity :			7.379E+01	7.387E+01			

Grand Total Activity : 7.379E+01 7.387E+01

Flags: "K" = Keyline not found "M" = Manually accepted  
"E" = Manually edited "A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244231002

Page : 5  
Acquisition date : 21-JAN-2010 09:01:59

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	89.69	83	407	1.04	179.38	169	22	1.15E-02	79.5	5.31E+00	T
0	185.68	262	302	1.36	371.36	367	10	3.64E-02	28.7	5.18E+00	T
0	208.85	101	357	1.09	417.70	413	11	1.40E-02	75.1	4.80E+00	T
0	270.22	148	160	1.15	540.44	536	10	2.05E-02	36.2	3.98E+00	T
0	327.69	73	146	1.66	655.38	651	9	1.01E-02	64.8	3.43E+00	T
0	463.11	110	79	0.97	926.22	920	13	1.52E-02	38.9	2.61E+00	T
0	727.28	93	93	1.75	1454.56	1448	15	1.29E-02	50.0	1.79E+00	T
0	1377.40	46	12	1.68	2754.80	2747	16	6.39E-03	44.8	1.01E+00	T

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231002.CNF;1
* Acquisition date   : 21-JAN-2010 09:01:59  Detector SN#      :
* Detector ID        : GAM06                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.31          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244231002            Analyst initials: MXR1
* Batch Number       : 941242                Sample Quantity : 1.22780E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 4-FEB-2009 13:05:54.47MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A                LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.259E+01	2.972E+00	5.312E-01	3.514E-02	61.348
CD-109	2.421E+00	1.251E+00	1.569E+00	1.549E-01	1.544
SN-126	2.381E-01	1.230E-01	1.550E-01	1.526E-02	1.536
BA-137M	6.580E-01	1.024E-01	7.332E-02	3.621E-03	8.975
CS-137	6.956E-01	1.083E-01	7.750E-02	3.850E-03	8.975
TL-208	5.411E-01	1.035E-01	6.940E-02	4.386E-03	7.797
BI-211	3.893E+00	5.182E-01	3.945E-01	2.546E-02	9.868
PB-212	1.541E+00	1.672E-01	1.198E-01	8.829E-03	12.868
PO-212	1.541E+00	1.672E-01	1.198E-01	8.829E-03	12.868
BI-214	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
PB-214	1.354E+00	1.936E-01	1.370E-01	1.137E-02	9.881
PO-214	1.354E+00	1.936E-01	1.370E-01	1.137E-02	9.881
PO-216	1.541E+00	1.672E-01	1.198E-01	8.829E-03	12.868
PO-218	1.354E+00	1.936E-01	1.370E-01	1.137E-02	9.881
RA-224	4.376E+00	1.584E+00	1.363E+00	7.989E-02	3.210
RA-226	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
AC-228	1.561E+00	4.049E-01	2.721E-01	2.780E-02	5.737
RA-228	1.561E+00	4.049E-01	2.721E-01	2.780E-02	5.737



---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.564E+00	1.696E-01	1.216E-01	8.961E-03	12.868
TH-230	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
TH-232	1.561E+00	4.049E-01	2.721E-01	2.780E-02	5.737
TH-234	3.648E+00	2.417E+00	2.908E+00	5.287E-01	1.254
U-234	1.265E+00	2.095E-01	1.383E-01	1.021E-02	9.145
NP-237	6.992E-01	3.889E-01	4.612E-01	1.052E-01	1.516
U-238	3.648E+00	2.417E+00	2.908E+00	5.287E-01	1.254
AM-243	3.678E-01	1.042E-01	1.166E-01	1.053E-02	3.154
ANH-511	1.007E-01	8.565E-02	5.687E-02	3.179E-03	1.770

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.361E-01		4.020E-01	6.771E-01	4.473E-02	0.201
NA-22	-4.511E-02		5.104E-02	7.400E-02	4.570E-03	-0.610
NA-24	-1.074E-01		3.824E-01	Half-Life	too short	
AL-26	-3.883E-03		3.477E-02	5.617E-02	3.226E-03	-0.069
TI-44	3.867E-01	+	7.116E-02	9.373E-02	8.616E-03	4.126
SC-46	1.877E-02		5.317E-02	9.110E-02	6.529E-03	0.206
V-48	1.854E-02		8.319E-02	1.408E-01	9.859E-03	0.132
CR-51	-3.885E-01		4.932E-01	7.857E-01	5.176E-02	-0.495
MN-52	1.193E-01		2.559E-01	4.445E-01	2.797E-02	0.268
MN-54	1.743E-02		4.425E-02	7.639E-02	5.042E-03	0.228
CO-56	-2.915E-02		4.958E-02	7.856E-02	5.281E-03	-0.371
CO-57	-9.831E-03		3.110E-02	5.049E-02	3.084E-03	-0.195
CO-58	-3.870E-02		4.553E-02	7.010E-02	4.475E-03	-0.552
FE-59	-5.118E-02		1.153E-01	1.813E-01	1.330E-02	-0.282
CO-60	7.884E-03		4.648E-02	7.660E-02	4.812E-03	0.103
ZN-65	7.068E-04		1.182E-01	1.669E-01	1.057E-02	0.004
GE-68	9.437E-01		1.591E+00	2.764E+00	1.811E-01	0.341
AS-73	7.364E-01		1.222E+00	2.093E+00	1.914E-01	0.352
AS-74	-4.392E-02		1.212E-01	1.919E-01	1.021E-02	-0.229
SE-75	7.656E-03		6.249E-02	8.788E-02	5.272E-03	0.087
BR-77	-2.350E+00		1.204E+01	1.945E+01	1.084E+00	-0.121
SR-82	-3.366E-01		4.812E-01	7.620E-01	4.584E-02	-0.442
RB-83	-1.208E-02		8.557E-02	1.388E-01	7.735E-03	-0.087
RB-84	-5.153E-02		8.282E-02	1.296E-01	9.184E-03	-0.398
KR-85	1.490E+01		1.067E+01	1.697E+01	9.476E-01	0.878
SR-85	7.622E-02		5.458E-02	8.678E-02	4.847E-03	0.878
RB-86	9.201E-01		9.867E-01	1.764E+00	1.157E-01	0.522
Y-88	2.565E-02		3.851E-02	7.195E-02	4.089E-03	0.356
ZR-88	-3.513E-02		4.007E-02	6.310E-02	3.501E-03	-0.557
Y-91	-8.074E+00		2.393E+01	3.790E+01	2.273E+00	-0.213
NB-94	2.425E-02		4.233E-02	7.149E-02	3.797E-03	0.339
NB-95	5.013E-02		5.414E-02	9.341E-02	5.522E-03	0.537
NB-95M	5.718E-01		1.978E-01	3.145E-01	2.376E-02	1.818
ZR-95	6.425E-02		8.577E-02	1.472E-01	1.037E-02	0.437

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	1.875E-01		5.990E-02	Half-Life too short		
ZR-97	3.767E+00		1.011E+00	Half-Life too short		
MO-99	6.966E+00		1.356E+01	2.278E+01	3.125E+00	0.306
TC-99M	5.622E+09		1.228E+10	Half-Life too short		
RH-101	2.231E-02		4.392E-02	7.003E-02	3.934E-03	0.319
RH-102	-1.769E-02		3.739E-02	5.956E-02	3.354E-03	-0.297
RU-103	-2.735E-02		5.139E-02	8.101E-02	1.018E-02	-0.338
RH-106	5.243E-02		4.054E-01	6.652E-01	7.614E-02	0.079
RU-106	5.243E-02		4.053E-01	6.652E-01	3.450E-02	0.079
AG-108M	-3.276E-02		4.098E-02	6.409E-02	3.930E-03	-0.511
AG-110M	5.654E-02		5.248E-02	8.192E-02	4.422E-03	0.690
IN-111	-7.136E-01		1.434E+00	1.931E+00	1.135E-01	-0.370
IN-113M	-6.040E-02		5.910E-02	9.226E-02	5.490E-03	-0.655
SN-113	-6.040E-02		5.910E-02	9.226E-02	5.490E-03	-0.655
IN-114M	5.313E-02		2.626E-01	3.762E-01	2.093E-02	0.141
CD-115	1.292E+01		1.261E+01	2.215E+01	1.231E+00	0.583
SN-117M	-3.240E-02		6.812E-02	1.089E-01	5.980E-03	-0.298
SB-122	2.765E+00		2.351E+00	4.171E+00	2.273E-01	0.663
I-123	-1.396E+00		2.639E+00	Half-Life too short		
TE-123M	-9.338E-03		3.532E-02	5.694E-02	3.171E-03	-0.164
I-124	1.051E-01		9.625E-01	1.368E+00	7.231E-02	0.077
SB-124	4.346E-02		7.689E-02	1.423E-01	9.240E-03	0.305
SB-125	-3.863E-02		1.169E-01	1.894E-01	1.111E-02	-0.204
TE-125M	2.702E+00		1.180E+01	1.963E+01	1.784E+00	0.138
I-126	1.383E-01		2.678E-01	3.955E-01	1.969E-02	0.350
SB-126	5.849E-02		1.895E-01	2.740E-01	1.501E-02	0.213
SB-127	-5.713E-01		1.556E+00	2.427E+00	2.173E-01	-0.235
XE-127	-4.122E-03		6.370E-02	9.472E-02	5.351E-03	-0.044
I-131	-1.069E-02		1.427E-01	2.370E-01	1.523E-02	-0.045
TE-132	3.070E-01		8.572E-01	1.400E+00	2.004E-01	0.219
BA-133	-6.777E-02		6.214E-02	8.113E-02	9.378E-03	-0.835
I-133	5.540E-03		3.175E-03	Half-Life too short		
CS-134	6.844E-02		5.648E-02	1.032E-01	6.495E-03	0.663
CS-135	3.719E-01		2.343E-01	3.598E-01	2.796E-02	1.034
I-135	-1.079E+09		1.953E+09	Half-Life too short		
CS-136	1.117E-02		1.268E-01	2.111E-01	1.515E-02	0.053
CE-139	1.518E-03		3.530E-02	5.758E-02	3.113E-03	0.026
BA-140	1.671E-01		3.147E-01	5.284E-01	1.716E-01	0.316
LA-140	1.476E-02		9.431E-02	1.612E-01	9.946E-03	0.092
CE-141	3.681E-02		8.003E-02	1.331E-01	7.852E-03	0.277
CE-143	8.830E-04		1.364E-04	Half-Life too short		
CE-144	-5.185E-02		2.477E-01	4.027E-01	5.727E-02	-0.129
PM-144	-1.747E-02		4.333E-02	6.750E-02	3.550E-03	-0.259
PR-144	-1.184E+00		2.936E+00	4.573E+00	2.403E-01	-0.259
PM-146	2.145E-02		5.689E-02	9.610E-02	8.179E-03	0.223
ND-147	1.167E-01		7.052E-01	1.169E+00	1.568E-01	0.100
PM-149	2.098E+01		1.032E+02	1.756E+02	2.501E+01	0.119
EU-152	-2.870E-02		1.406E-01	2.011E-01	1.325E-02	-0.143

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	8.320E-02		1.086E-01	1.637E-01	1.369E-02	0.508
EU-154	-1.260E-01		1.429E-01	2.067E-01	1.979E-02	-0.610
EU-155	-3.826E-02		1.333E-01	2.177E-01	1.652E-02	-0.176
TB-160	-4.333E-02		1.575E-01	2.553E-01	1.803E-02	-0.170
HO-166M	4.476E-02		7.297E-02	1.240E-01	6.692E-03	0.361
TM-171	-8.584E+00		4.287E+01	6.242E+01	5.576E+00	-0.138
LU-176	7.315E-03		3.028E-02	5.149E-02	3.071E-03	0.142
LU-177	2.735E+00	+	2.060E+00	2.472E+00	1.405E-01	1.106
LU-177M	-1.797E-01		2.383E-01	3.775E-01	2.111E-02	-0.476
HF-181	2.678E-02		5.272E-02	8.980E-02	5.053E-03	0.298
W-181	-2.463E-01		5.611E-01	8.085E-01	7.242E-02	-0.305
TA-182	-2.098E-01		2.819E-01	4.319E-01	2.608E-02	-0.486
RE-183	6.373E-02		1.335E-01	2.217E-01	1.208E-02	0.287
RE-184	-4.158E-02		2.993E-01	4.757E-01	2.810E-02	-0.087
OS-185	1.700E-02		5.104E-02	8.514E-02	4.292E-03	0.200
RE-188	2.383E-01		2.163E-01	3.674E-01	2.035E-02	0.649
W-188	-3.622E-01		1.012E+01	1.481E+01	8.846E-01	-0.024
IR-192	8.582E-03		4.475E-02	7.579E-02	4.530E-03	0.113
AU-195	1.656E-01		2.881E-01	4.709E-01	3.849E-02	0.352
TL-200	1.161E-04		2.333E-04	Half-Life	too short	
TL-201	-2.287E+00		7.930E+00	1.274E+01	6.895E-01	-0.179
TL-202	7.065E-02		8.724E-02	1.514E-01	8.519E-03	0.467
HG-203	3.010E-02		5.239E-02	8.875E-02	5.605E-03	0.339
BI-207	-3.778E-04		6.693E-02	1.103E-01	7.311E-03	-0.003
TL-207	6.789E-01		9.545E-01	1.454E+00	2.409E-01	0.467
PO-209	-9.012E+00		8.789E+00	1.309E+01	9.485E-01	-0.688
BI-210	2.636E-01		5.795E+00	9.625E+00	7.925E-01	0.027
PB-210	2.636E-01		5.795E+00	9.625E+00	7.925E-01	0.027
PO-210	2.636E-01		5.795E+00	9.625E+00	6.953E-01	0.027
PB-211	-1.011E+00		1.398E+00	1.976E+00	1.231E+00	-0.512
BI-212	1.344E+00	+	6.801E-01	8.532E-01	6.417E-02	1.575
PO-215	6.789E-01		9.545E-01	1.454E+00	2.409E-01	0.467
RN-219	-4.498E-02		5.282E-01	8.725E-01	1.179E-01	-0.052
RN-220	7.221E+00		3.191E+01	5.309E+01	2.918E+00	0.136
RA-223	6.789E-01		9.545E-01	1.454E+00	2.409E-01	0.467
AC-227	1.912E-01		4.927E-01	8.034E-01	1.126E-01	0.238
TH-227	1.912E-01		4.930E-01	8.034E-01	1.361E-01	0.238
TH-229	-3.643E-01		6.772E-01	1.071E+00	5.984E-02	-0.340
PA-231	-1.209E+00		1.897E+00	3.086E+00	4.275E-01	-0.392
TH-231	6.789E-01		9.545E-01	1.454E+00	2.409E-01	0.467
U-231	-3.088E-01		1.433E+00	2.063E+00	1.767E-01	-0.150
PA-233	1.120E-02		7.939E-02	1.342E-01	8.468E-03	0.083
PA-234	3.357E-01		3.653E-01	6.495E-01	1.177E-01	0.517
PA-234M	3.280E+00		5.918E+00	1.015E+01	8.672E-01	0.323
U-235	7.743E-02		2.738E-01	4.461E-01	7.255E-02	0.174
NP-236	-3.420E-02		9.886E-02	1.588E-01	8.688E-03	-0.215
NP-239	-1.451E-01		2.340E-01	3.757E-01	2.427E-02	-0.386
AM-241	1.129E-01		2.334E-01	3.523E-01	3.444E-02	0.321

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	1.798E-02		1.187E-01	1.973E-01	1.504E-02	0.091
AM-246	-2.180E-02		1.793E-01	2.918E-01	1.910E-02	-0.075
CM-247	8.703E-03		4.798E-02	8.049E-02	4.485E-03	0.108
CF-249	7.035E-02		5.289E-02	9.402E-02	5.244E-03	0.748
CF-251	6.458E-02		1.621E-01	2.676E-01	1.464E-02	0.241

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244231002          *
* Acquisition date   : 21-JAN-2010 09:01:59 Detector SN#      :             *
* Detector ID        : GAM06                      Sensitivity   : 5.000        *
* Geometry           : CAN                      Energy tolerance: 1.500        *
* Elapsed live time  : 0 02:00:00.00           Abundance limit : 75.000        *
* Elapsed real time  : 0 02:00:01.31           Half life ratio : 8.000        *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID         : G244231002           Analyst initials: MXR1             *
* Batch Number      : 941242              Sample Quantity : 1.2278E+02 GRAM    *
* Recovery          : 1.00000             Carrier Weight  : 0.00000           *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 4-FEB-2009 13:05:54 MS Isotope          :             *
* MSD DPM           : 0.000              MSD Isotope          :             *
* LCS DPM           : 0.000              LCS Isotope          :             *
* LCSD DPM          : 0.000              LCSD Isotope         :             *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.259E+01	2.913E+00	2.653E-01	1.486E+00
CD-109	2.421E+00	1.226E+00	8.124E-01	6.253E-01
SN-126	2.381E-01	1.205E-01	8.031E-02	6.149E-02
BA-137M	6.580E-01	1.004E-01	3.701E-02	5.122E-02
CS-137	6.956E-01	1.062E-01	3.912E-02	5.417E-02
TL-208	5.411E-01	1.014E-01	3.509E-02	5.173E-02
BI-211	3.893E+00	5.079E-01	2.008E-01	2.591E-01
PB-212	1.541E+00	1.638E-01	6.126E-02	8.358E-02
PO-212	1.541E+00	1.638E-01	6.126E-02	8.358E-02
BI-214	1.265E+00	2.053E-01	6.989E-02	1.047E-01
PB-214	1.354E+00	1.897E-01	6.974E-02	9.681E-02
PO-214	1.354E+00	1.897E-01	6.974E-02	9.681E-02
PO-216	1.541E+00	1.638E-01	6.126E-02	8.358E-02
PO-218	1.354E+00	1.897E-01	6.974E-02	9.681E-02
RA-224	4.376E+00	1.552E+00	6.972E-01	7.919E-01
RA-226	1.265E+00	2.053E-01	6.989E-02	1.047E-01
AC-228	1.561E+00	3.968E-01	1.368E-01	2.024E-01
RA-228	1.561E+00	3.968E-01	1.368E-01	2.024E-01
TH-228	1.564E+00	1.663E-01	6.218E-02	8.482E-02
TH-230	1.265E+00	2.053E-01	6.989E-02	1.047E-01
TH-232	1.561E+00	3.968E-01	1.368E-01	2.024E-01
TH-234	3.648E+00	2.369E+00	1.513E+00	1.209E+00
U-234	1.265E+00	2.053E-01	6.989E-02	1.047E-01
NP-237	6.992E-01	3.811E-01	2.389E-01	1.944E-01
U-238	3.648E+00	2.369E+00	1.513E+00	1.209E+00
AM-243	3.678E-01	1.021E-01	6.053E-02	5.208E-02
ANH-511	1.007E-01	8.394E-02	2.881E-02	4.283E-02

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	1.361E-01	3.939E-01	3.432E-01	2.010E-01	NOT IDENT.
NA-22	-4.511E-02	5.002E-02	3.703E-02	2.552E-02	NOT IDENT.
NA-24	-1.074E+05	7.494E+05	0.000E+00	3.824E+05	SHORT HLIF
AL-26	-3.883E-03	3.408E-02	2.798E-02	1.739E-02	NOT IDENT.
TI-44	3.867E-01	6.974E-02	4.862E-02	3.558E-02	FAIL ABUN
SC-46	1.877E-02	5.210E-02	4.581E-02	2.658E-02	FAIL ABUN
V-48	1.854E-02	8.153E-02	7.071E-02	4.159E-02	NOT IDENT.
CR-51	-3.885E-01	4.833E-01	4.003E-01	2.466E-01	NOT IDENT.
MN-52	1.193E-01	2.508E-01	2.221E-01	1.280E-01	NOT IDENT.
MN-54	1.743E-02	4.337E-02	3.844E-02	2.213E-02	NOT IDENT.
CO-56	-2.915E-02	4.859E-02	3.953E-02	2.479E-02	NOT IDENT.
CO-57	-9.831E-03	3.048E-02	2.605E-02	1.555E-02	NOT IDENT.
CO-58	-3.870E-02	4.461E-02	3.529E-02	2.276E-02	NOT IDENT.
FE-59	-5.118E-02	1.130E-01	9.093E-02	5.765E-02	NOT IDENT.
CO-60	7.884E-03	4.555E-02	3.831E-02	2.324E-02	NOT IDENT.
ZN-65	7.068E-04	1.158E-01	8.365E-02	5.909E-02	NOT IDENT.
GE-68	9.437E-01	1.559E+00	1.386E+00	7.955E-01	NOT IDENT.
AS-73	7.364E-01	1.198E+00	1.091E+00	6.112E-01	NOT IDENT.
AS-74	-4.392E-02	1.188E-01	9.701E-02	6.060E-02	NOT IDENT.
SE-75	7.656E-03	6.124E-02	4.489E-02	3.124E-02	NOT IDENT.
BR-77	-2.350E+00	1.180E+01	9.850E+00	6.021E+00	FAIL ABUN
SR-82	-3.366E-01	4.716E-01	3.839E-01	2.406E-01	NOT IDENT.
RB-83	-1.208E-02	8.385E-02	7.029E-02	4.278E-02	NOT IDENT.
RB-84	-5.153E-02	8.117E-02	6.518E-02	4.141E-02	NOT IDENT.
KR-85	1.490E+01	1.046E+01	8.593E+00	5.336E+00	NOT IDENT.
SR-85	7.622E-02	5.349E-02	4.395E-02	2.729E-02	NOT IDENT.
RB-86	9.201E-01	9.670E-01	8.845E-01	4.934E-01	NOT IDENT.
Y-88	2.565E-02	3.774E-02	3.583E-02	1.926E-02	NOT IDENT.
ZR-88	-3.513E-02	3.927E-02	3.207E-02	2.004E-02	NOT IDENT.
Y-91	-8.074E+00	2.345E+01	1.898E+01	1.196E+01	NOT IDENT.
NB-94	2.425E-02	4.148E-02	3.606E-02	2.117E-02	NOT IDENT.
NB-95	5.013E-02	5.306E-02	4.706E-02	2.707E-02	NOT IDENT.
NB-95M	5.718E-01	1.939E-01	1.609E-01	9.892E-02	NOT IDENT.
ZR-95	6.425E-02	8.405E-02	7.416E-02	4.288E-02	NOT IDENT.
NB-97	1.875E+05	1.174E+05	0.000E+00	5.990E+04	SHORT HLIF
ZR-97	3.767E+06	1.982E+06	0.000E+00	1.011E+06	SHORT HLIF
MO-99	6.966E+00	1.328E+01	1.148E+01	6.778E+00	NOT IDENT.
TC-99M	5.622E+15	2.406E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	2.231E-02	4.304E-02	3.591E-02	2.196E-02	NOT IDENT.
RH-102	-1.769E-02	3.664E-02	3.019E-02	1.869E-02	NOT IDENT.
RU-103	-2.735E-02	5.036E-02	4.105E-02	2.569E-02	FAIL ABUN
RH-106	5.243E-02	3.972E-01	3.361E-01	2.027E-01	NOT IDENT.
RU-106	5.243E-02	3.972E-01	3.361E-01	2.027E-01	NOT IDENT.
AG-108M	-3.276E-02	4.016E-02	3.253E-02	2.049E-02	NOT IDENT.
AG-110M	5.654E-02	5.143E-02	4.135E-02	2.624E-02	NOT IDENT.
IN-111	-7.136E-01	1.405E+00	9.873E-01	7.170E-01	NOT IDENT.
IN-113M	-6.040E-02	5.792E-02	4.689E-02	2.955E-02	NOT IDENT.
SN-113	-6.040E-02	5.792E-02	4.689E-02	2.955E-02	NOT IDENT.
IN-114M	5.313E-02	2.573E-01	1.930E-01	1.313E-01	NOT IDENT.
CD-115	1.292E+01	1.235E+01	1.121E+01	6.303E+00	NOT IDENT.
SN-117M	-3.240E-02	6.676E-02	5.597E-02	3.406E-02	NOT IDENT.
SB-122	2.765E+00	2.304E+00	2.110E+00	1.176E+00	NOT IDENT.
I-123	-1.396E+06	5.173E+06	0.000E+00	2.639E+06	SHORT HLIF
TE-123M	-9.338E-03	3.461E-02	2.927E-02	1.766E-02	NOT IDENT.
I-124	1.051E-01	9.432E-01	6.915E-01	4.812E-01	FAIL ABUN
SB-124	4.346E-02	7.535E-02	7.094E-02	3.845E-02	FAIL ABUN
SB-125	-3.863E-02	1.145E-01	9.613E-02	5.843E-02	FAIL ABUN
TE-125M	2.702E+00	1.157E+01	1.014E+01	5.901E+00	NOT IDENT.
I-126	1.383E-01	2.624E-01	1.996E-01	1.339E-01	NOT IDENT.
SB-126	5.849E-02	1.857E-01	1.382E-01	9.475E-02	NOT IDENT.
SB-127	-5.713E-01	1.525E+00	1.224E+00	7.782E-01	NOT IDENT.
XE-127	-4.122E-03	6.242E-02	4.855E-02	3.185E-02	NOT IDENT.
I-131	-1.069E-02	1.399E-01	1.206E-01	7.136E-02	NOT IDENT.
TE-132	3.070E-01	8.400E-01	7.163E-01	4.286E-01	NOT IDENT.
BA-133	-6.777E-02	6.090E-02	4.128E-02	3.107E-02	NOT IDENT.
I-133	5.540E+03	6.223E+03	0.000E+00	3.175E+03	SHORT HLIF
CS-134	6.844E-02	5.535E-02	5.197E-02	2.824E-02	NOT IDENT.
CS-135	3.719E-01	2.296E-01	1.837E-01	1.172E-01	NOT IDENT.
I-135	-1.079E+15	3.828E+15	0.000E+00	1.953E+15	SHORT HLIF
CS-136	1.117E-02	1.243E-01	1.059E-01	6.340E-02	FAIL ABUN
CE-139	1.518E-03	3.460E-02	2.959E-02	1.765E-02	NOT IDENT.
BA-140	1.671E-01	3.084E-01	2.675E-01	1.574E-01	NOT IDENT.
LA-140	1.476E-02	9.242E-02	8.043E-02	4.715E-02	FAIL ABUN
CE-141	3.681E-02	7.843E-02	6.850E-02	4.001E-02	NOT IDENT.
CE-143	8.830E+02	2.674E+02	0.000E+00	1.364E+02	SHORT HLIF
CE-144	-5.185E-02	2.428E-01	2.075E-01	1.239E-01	NOT IDENT.
PM-144	-1.747E-02	4.247E-02	3.405E-02	2.167E-02	NOT IDENT.
PR-144	-1.184E+00	2.877E+00	2.307E+00	1.468E+00	NOT IDENT.

PM-146	2.145E-02	5.575E-02	4.875E-02	2.844E-02	NOT IDENT.
ND-147	1.167E-01	6.911E-01	5.917E-01	3.526E-01	FAIL ABUN
PM-149	2.098E+01	1.012E+02	8.960E+01	5.162E+01	NOT IDENT.
EU-152	-2.870E-02	1.378E-01	1.024E-01	7.029E-02	NOT IDENT.
GD-153	8.320E-02	1.064E-01	8.470E-02	5.430E-02	NOT IDENT.
EU-154	-1.260E-01	1.400E-01	1.034E-01	7.144E-02	NOT IDENT.
EU-155	-3.826E-02	1.306E-01	1.125E-01	6.663E-02	FAIL ABUN
TB-160	-4.333E-02	1.543E-01	1.284E-01	7.873E-02	FAIL ABUN
HO-166M	4.476E-02	7.151E-02	6.255E-02	3.649E-02	FAIL ABUN
TM-171	-8.584E+00	4.201E+01	3.244E+01	2.143E+01	NOT IDENT.
LU-176	7.315E-03	2.967E-02	2.625E-02	1.514E-02	FAIL ABUN
LU-177	2.735E+00	2.019E+00	1.266E+00	1.030E+00	FAIL ABUN
LU-177M	-1.797E-01	2.335E-01	1.917E-01	1.191E-01	FAIL ABUN
HF-181	2.678E-02	5.167E-02	4.552E-02	2.636E-02	NOT IDENT.
W-181	-2.463E-01	5.499E-01	4.203E-01	2.806E-01	NOT IDENT.
TA-182	-2.098E-01	2.763E-01	2.163E-01	1.410E-01	FAIL ABUN
RE-183	6.373E-02	1.308E-01	1.140E-01	6.675E-02	FAIL ABUN
RE-184	-4.158E-02	2.933E-01	1.431E-01	1.496E-01	NOT IDENT.
OS-185	1.700E-02	5.002E-02	4.299E-02	2.552E-02	NOT IDENT.
RE-188	2.383E-01	2.120E-01	1.890E-01	1.082E-01	NOT IDENT.
W-188	-3.622E-01	9.917E+00	7.555E+00	5.060E+00	FAIL ABUN
IR-192	8.582E-03	4.386E-02	3.862E-02	2.238E-02	FAIL ABUN
AU-195	1.656E-01	2.824E-01	2.435E-01	1.441E-01	FAIL ABUN
TL-200	1.161E+02	4.572E+02	0.000E+00	2.333E+02	SHORT HLIF
TL-201	-2.287E+00	7.771E+00	6.545E+00	3.965E+00	NOT IDENT.
TL-202	7.065E-02	8.550E-02	7.684E-02	4.362E-02	NOT IDENT.
HG-203	3.010E-02	5.134E-02	4.530E-02	2.620E-02	NOT IDENT.
BI-207	-3.778E-04	6.559E-02	5.531E-02	3.346E-02	FAIL ABUN
TL-207	6.789E-01	9.354E-01	7.409E-01	4.772E-01	FAIL ABUN
PO-209	-9.012E+00	8.613E+00	6.582E+00	4.394E+00	NOT IDENT.
BI-210	2.636E-01	5.679E+00	5.025E+00	2.898E+00	NOT IDENT.
PB-210	2.636E-01	5.679E+00	5.025E+00	2.898E+00	NOT IDENT.
PO-210	2.636E-01	5.679E+00	5.025E+00	2.898E+00	NOT IDENT.
PB-211	-1.011E+00	1.370E+00	1.004E+00	6.991E-01	NOT IDENT.
BI-212	1.344E+00	6.665E-01	4.302E-01	3.400E-01	FAIL ABUN
PO-215	6.789E-01	9.354E-01	7.409E-01	4.772E-01	FAIL ABUN
RN-219	-4.498E-02	5.176E-01	4.433E-01	2.641E-01	FAIL ABUN
RN-220	7.221E+00	3.127E+01	2.686E+01	1.596E+01	NOT IDENT.
RA-223	6.789E-01	9.354E-01	7.409E-01	4.772E-01	FAIL ABUN
AC-227	1.912E-01	4.828E-01	4.105E-01	2.463E-01	FAIL ABUN
TH-227	1.912E-01	4.831E-01	4.105E-01	2.465E-01	FAIL ABUN
TH-229	-3.643E-01	6.636E-01	5.492E-01	3.386E-01	FAIL ABUN
PA-231	-1.209E+00	1.859E+00	1.575E+00	9.486E-01	FAIL ABUN
TH-231	6.789E-01	9.354E-01	7.409E-01	4.772E-01	FAIL ABUN
U-231	-3.088E-01	1.404E+00	1.067E+00	7.164E-01	FAIL ABUN
PA-233	1.120E-02	7.780E-02	6.843E-02	3.970E-02	FAIL ABUN
PA-234	3.357E-01	3.580E-01	3.263E-01	1.827E-01	FAIL ABUN
PA-234M	3.280E+00	5.800E+00	5.094E+00	2.959E+00	NOT IDENT.
U-235	7.743E-02	2.683E-01	2.296E-01	1.369E-01	FAIL ABUN
NP-236	-3.420E-02	9.689E-02	8.163E-02	4.943E-02	NOT IDENT.
NP-239	-1.451E-01	2.293E-01	1.939E-01	1.170E-01	FAIL ABUN
AM-241	1.129E-01	2.288E-01	1.833E-01	1.167E-01	NOT IDENT.
CM-243	1.798E-02	1.163E-01	1.020E-01	5.936E-02	FAIL ABUN
AM-246	-2.180E-02	1.757E-01	1.463E-01	8.965E-02	NOT IDENT.
CM-247	8.703E-03	4.702E-02	4.089E-02	2.399E-02	NOT IDENT.
CF-249	7.035E-02	5.183E-02	4.779E-02	2.644E-02	NOT IDENT.
CF-251	6.458E-02	1.589E-01	1.374E-01	8.105E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
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46.50	365.8888
46.50	365.8888
46.50	365.8888
48.70	381.8541
49.72	407.0767
51.35	371.7827
52.39	366.9685
52.97	349.9683
53.15	350.9890
53.44	353.9038
54.07	342.3773
56.28	403.3492
56.28	403.3508
57.37	0.0000
57.53	375.6293
57.53	375.6301
57.60	359.7114
57.98	365.5820
57.98	365.5820
59.32	373.7494
59.32	373.7494
59.40	373.7965
59.54	373.8792
59.72	378.4203
60.01	378.5930
61.10	389.6081
61.14	410.3730
61.30	410.4753
63.00	437.3654
63.29	457.8102
63.29	457.8102
63.58	490.7280
64.28	479.3386
65.12	484.4154
65.20	484.4730
65.20	484.4730
66.05	502.9988
66.72	476.6017
66.83	476.6815
66.91	493.1772
67.20	503.8524
67.20	503.8524
67.75	471.3387
67.85	471.4080
68.90	463.1360
68.90	463.1360
69.30	464.9035
69.67	514.6696
70.82	506.4955
70.82	506.4955
70.83	506.5038
72.80	510.9291
72.87	510.9788
72.87	510.9788
74.67	493.9356
74.81	494.0313
74.81	494.0313
74.81	494.0313
74.81	494.0313
74.81	494.0313
74.81	494.0313
74.81	494.0313
74.97	494.1391
75.28	494.3506
75.70	494.6339
77.11	495.5835
77.11	495.5835



77.11	495.5835
77.11	495.5835
77.11	495.5835
77.11	495.5835
77.11	495.5835
78.38	467.7656
79.62	468.5382
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79.80	468.6491
80.11	500.8094
80.18	500.8555
80.30	500.9338
80.30	500.9338
80.57	510.2514
81.00	533.3997
81.07	533.4488
81.07	533.4488
81.07	533.4488
81.07	533.4488
82.60	470.8821
83.37	499.8845
83.78	501.6794
83.78	501.6794
83.78	501.6794
83.78	501.6794
84.21	523.3828
84.90	506.9952
85.43	488.9438
86.29	436.3483
86.50	436.4646
86.54	436.4854
86.59	436.5132
86.72	436.5861
86.79	436.6226
86.94	436.7059
87.30	436.9037
87.30	436.9037
87.30	436.9037
87.30	436.9037
87.30	436.9037
87.30	436.9037
87.57	437.0513
87.88	437.2213
88.03	437.3029
88.36	437.4817
88.47	437.5424
89.95	438.3444
91.11	438.9692
92.29	439.5992
92.38	439.6479
92.38	439.6479
93.35	366.8351
94.00	370.2195
94.67	396.8680
94.67	396.8703
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94.90	400.0811
94.90	400.0811
94.90	400.0811
95.87	391.2275
95.87	391.2275
96.73	360.5445
97.43	337.5103
98.44	351.6627
98.44	351.6640
98.88	349.4321
99.55	346.9202
99.55	346.9202
99.86	358.7419
100.00	358.7994
100.10	358.8430
103.18	353.2565
103.76	341.7376
105.00	362.8059
105.31	360.9697
108.00	360.0802
109.28	368.4673

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111.00	353.3650
111.76	354.6423
112.95	347.1826
115.19	347.0200
116.30	370.2567
117.00	345.6941
117.00	345.6941
117.66	337.9806
121.11	295.2932
121.62	339.3658
121.78	328.4390
122.06	328.5331
122.32	352.5920
122.32	352.5920
122.32	352.5920
122.32	352.5920
123.07	344.8644
127.23	323.2203
129.76	326.0418
131.20	338.5942
133.02	355.3435
133.54	322.1931
135.34	296.4448
136.00	316.8781
136.25	329.1061
136.48	329.1780
140.51	339.5806
140.51	0.0000
142.18	325.8521
142.65	334.1435
143.76	352.8423
144.24	367.2812
144.24	367.2812
144.24	367.2812
144.24	367.2812
145.22	359.4417
145.44	346.2367
147.16	358.0322
152.43	334.0330
152.70	350.5610
153.22	331.1806
154.21	312.9387
154.21	312.9387
154.21	312.9387
154.21	312.9387
155.03	304.9248
156.02	314.4684
158.56	328.5974
159.00	0.0000
159.00	316.3166
160.31	316.6738
161.27	300.3635
162.32	285.0813
162.64	281.0112
163.35	285.3310
163.89	295.8425
165.85	275.5376
167.43	285.2717
171.28	325.8728
171.86	310.3554
172.10	310.4166
176.55	295.8083
176.60	295.8190
181.06	309.9317
184.41	276.9742
185.71	293.7397
186.00	293.8076
190.27	291.8121
192.34	303.4406
193.63	331.6833
197.04	272.8535
198.01	274.1194
198.60	276.3731
200.40	322.6929
201.83	303.7802
202.84	282.5988
205.31	265.9540

208.36	269.9856
208.81	274.1592
209.75	268.5344
209.75	268.5344
210.97	277.3850
215.65	269.1774
216.55	254.0586
218.09	294.3789
222.10	249.6235
223.80	251.0049
226.40	269.9596
227.00	270.0712
227.08	266.8192
227.20	266.8416
228.16	250.6676
228.18	250.6711
228.18	250.6711
231.56	0.0000
235.69	254.1376
236.00	268.2151
236.00	268.2151
238.63	268.9052
238.63	268.9052
238.63	268.9052
238.63	268.9052
239.00	268.9706
240.98	269.3239
241.98	218.2412
241.98	218.2412
241.98	218.2412
244.69	225.6813
245.39	224.0204
247.94	206.9748
248.90	218.7846
249.79	202.3259
252.40	220.3846
252.85	211.5861
252.85	211.5861
254.15	0.0000
256.20	200.9350
256.20	200.9350
260.50	213.7236
260.90	219.3465
262.80	210.6870
264.65	182.1357
268.24	184.3288
268.79	182.6014
269.46	186.2580
269.46	186.2580
269.46	186.2580
269.46	186.2580
271.23	173.9109
273.65	220.8505
276.40	205.3300
277.35	179.9536
277.60	168.7317
277.60	168.7317
278.00	173.7236
278.60	187.2914
279.20	193.6653
279.53	214.4237
280.46	228.0644
281.68	217.4060
283.67	201.4050
284.30	186.1217
285.00	166.3120
285.90	177.2542
286.10	181.7956
286.10	181.7956
287.40	192.7972
288.45	0.0000
290.67	182.8884
290.80	182.9007
291.72	187.5364
293.26	0.0000
293.70	189.2675
295.21	181.8530
295.21	181.8530

295.21	181.8530
295.96	136.4502
296.50	136.4923
297.23	136.5491
298.57	136.6534
299.80	162.5811
299.80	162.5811
300.09	156.5285
300.09	156.5285
300.09	156.5285
300.09	156.5285
300.12	156.5306
301.29	182.4878
302.84	191.7814
303.76	169.0383
303.91	169.0519
304.40	147.7715
304.40	147.7715
304.84	153.9021
306.84	162.0095
308.46	177.7307
311.98	163.3919
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318.01	177.7522
319.02	176.9274
319.41	178.8082
320.08	193.6271
323.87	158.6093
323.87	158.6093
323.87	158.6093
323.87	158.6093
325.23	171.0527
328.77	176.0121
333.44	148.5898
334.20	165.3736
334.20	165.3736
334.30	165.3822
338.28	154.5571
338.28	154.5571
338.28	154.5571
338.28	154.5571
338.32	154.5591
338.32	154.5591
338.32	154.5591
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340.57	158.4702
344.27	160.3340
345.85	165.9166
350.59	0.0000
351.07	135.9039
351.92	135.0246
351.92	135.0246
351.92	135.0246
355.39	0.0000
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367.43	137.0296
367.94	0.0000
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383.85	158.1418
387.95	125.9994
388.63	117.4461
391.69	166.3854
391.69	166.3854
392.90	157.8699
398.62	134.3125
400.65	143.0833
401.10	143.1142
401.81	138.3574
402.60	137.4472
404.84	164.5311
410.95	143.7690
411.60	144.7778
413.65	161.3369
414.70	138.2170
415.30	142.1227

415.76	129.5819
417.63	0.0000
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427.08	126.3580
427.89	125.4317
432.53	106.2045
433.93	125.7687
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439.56	104.5797
439.89	105.5729
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444.90	116.5799
445.03	116.5872
445.03	116.5872
445.03	116.5872
445.03	116.5872
453.90	113.1006
463.38	95.7851
468.07	97.2938
473.00	111.0457
475.06	115.1093
475.35	118.1008
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477.96	101.3388
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484.57	111.5775
487.03	92.7434
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492.35	96.9420
497.08	107.1411
507.63	0.0000
510.53	0.0000
510.84	92.6283
511.00	92.6340
511.85	92.6660
511.85	92.6660
513.99	102.4882
513.99	102.4882
520.41	92.9771
520.65	92.9860
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528.96	0.0000
529.64	80.1264
529.87	0.0000
531.02	91.3315
537.32	77.3100
543.00	93.7879
546.56	0.0000
549.76	80.7416
552.65	84.9210
555.20	64.5196
563.23	68.8206
563.90	68.8386
568.70	101.8956
569.32	98.8313
569.50	94.7200
569.67	94.7245
573.80	84.7856
574.00	76.7708
574.64	69.6259
578.91	94.6991
579.30	0.0000
583.14	78.6348
585.48	69.0365
591.81	79.9176
592.07	87.1910
593.00	88.2581
595.88	101.8592
600.56	99.4842
602.52	0.0000
602.71	97.2435
602.71	97.2435
603.60	112.9089
604.41	121.6284
604.70	121.6398
609.31	87.7222

609.31	87.7222
609.31	87.7222
609.31	87.7222
610.33	92.2799
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614.37	66.2572
618.01	75.4189
621.84	79.7128
621.84	79.7128
631.29	76.8158
633.02	71.5959
633.10	71.5976
634.78	83.2277
635.90	80.0969
636.97	67.4750
645.85	63.4468
646.12	64.5102
656.30	76.0479
657.75	70.7764
657.90	0.0000
661.65	80.7890
661.65	80.7890
664.57	0.0000
666.33	78.0742
666.33	78.0742
675.00	77.9386
677.61	74.7988
685.20	69.6259
692.80	60.1316
695.00	83.8138
696.49	82.7788
696.49	82.7788
697.00	74.1902
697.49	75.2773
698.33	80.6744
698.50	78.5285
699.00	78.5409
702.63	71.0902
706.10	83.0288
706.58	0.0000
706.67	79.8083
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711.68	59.4110
713.82	68.0972
717.42	72.5026
720.50	57.7682
721.93	0.0000
722.20	65.0237
722.78	61.4216
722.78	61.4216
722.89	61.4244
722.95	61.4258
723.30	66.8532
724.18	63.2566
727.18	58.6116
733.00	63.4275
735.90	68.0191
739.58	58.8331
742.81	69.7969
744.21	70.9176
747.13	62.2449
751.79	77.6406
752.31	78.7465
753.82	56.8991
755.35	42.6934
756.15	53.6536
756.87	45.9990
763.93	86.7033
765.79	66.9853
766.42	72.4888
766.84	70.3016
776.49	81.7010
778.00	76.2269
778.57	78.9943
778.89	79.0013
783.80	57.0364
785.46	60.7457
792.07	59.0182

795.84	54.4662
796.30	54.4734
798.80	77.6118
801.93	59.1862
805.60	49.9900
810.29	63.0347
810.76	64.8973
815.85	48.2792
817.79	52.9504
818.51	50.1735
819.60	50.1888
826.30	49.3521
828.27	0.0000
831.60	78.3347
831.96	75.5453
834.83	58.8049
836.80	0.0000
846.75	70.2362
848.13	59.9583
856.28	0.0000
856.80	75.1253
860.37	53.5790
867.32	61.2139
867.82	49.9193
871.10	46.1927
873.19	49.9916
874.81	59.4509
875.33	0.0000
876.40	56.6431
879.36	50.0746
880.27	57.6479
880.51	59.5419
881.50	58.6119
883.24	55.8010
884.67	58.6611
889.25	63.4695
896.60	61.6953
898.02	62.6672
899.00	56.9849
903.28	45.6396
911.07	60.0238
911.07	60.0238
911.07	60.0238
919.63	38.9589
920.93	44.8944
925.00	56.4156
925.24	59.2880
926.50	48.7858
935.52	40.2697
937.48	57.5562
944.10	50.9275
946.00	41.3387
949.00	58.6879
962.29	59.0771
964.01	81.1204
966.15	46.3799
968.20	92.8066
969.11	99.4587
969.11	99.4587
969.11	99.4587
977.42	52.9695
980.50	58.1812
983.50	45.6097
989.30	45.6747
996.32	69.1164
1001.03	48.7295
1001.68	49.7113
1004.76	51.6996
1021.30	0.0000
1024.50	0.0000
1034.80	45.1970
1036.00	45.2083
1037.82	44.2456
1038.57	43.2695
1038.76	0.0000
1045.16	49.2472
1046.59	51.2341
1048.07	46.3230

1050.47	46.3498
1050.47	46.3498
1062.04	53.3979
1063.62	54.4069
1076.63	42.6641
1077.35	47.6328
1078.86	53.6045
1085.78	43.7476
1099.22	58.8416
1112.02	49.7244
1112.84	54.8795
1115.52	48.0469
1120.29	44.0913
1120.29	44.0913
1120.29	44.0913
1120.29	44.0913
1120.51	44.0931
1121.28	53.2639
1124.00	0.0000
1129.67	50.3901
1131.51	0.0000
1147.95	0.0000
1167.94	53.6685
1173.22	63.8690
1175.09	49.6958
1177.93	69.0072
1189.05	63.0697
1204.90	65.3229
1205.75	0.0000
1213.00	62.3676
1221.42	90.1341
1230.97	83.1292
1235.34	88.3411
1236.41	0.0000
1238.25	61.6699
1246.25	57.6543
1260.41	0.0000
1271.85	43.4680
1274.45	46.5967
1274.54	46.5985
1291.56	41.5625
1298.22	0.0000
1312.09	29.2134
1325.50	28.2448
1325.50	28.2448
1332.49	26.1892
1333.61	31.4331
1360.21	22.1177
1362.66	0.0000
1365.15	23.1924
1368.21	28.1293
1368.53	0.0000
1376.25	25.3555
1384.27	29.0223
1394.10	32.8618
1395.20	37.1106
1407.95	27.6335
1434.06	17.0885
1436.60	23.5075
1457.56	0.0000
1460.81	14.7199
1489.15	17.2617
1509.49	16.2415
1596.49	16.9610
1620.62	14.1922
1678.03	0.0000
1691.02	7.6582
1691.02	7.6582
1706.46	0.0000
1750.46	0.0000
1764.49	6.7805
1764.49	6.7805
1764.49	6.7805
1764.49	6.7805
1770.23	58.1710
1771.40	41.6967
1791.20	0.0000
1808.65	11.7045



1836.01

7.8359

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244231002

Total Uranium Activity	1.0888E+01	ug/g
Total Uranium Counting Unc.	7.0485E+00	ug/g
Total Uranium Tpu	3.5962E-06	ug/g
Total Uranium Mda	4.5011E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941242          SAMPLE ID   : G244231002
*  ANALYST       : MXR1           DETECTOR    : GAM06
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 21-JAN-2010 09:01:59.88  SAMPLE ALQT: 122.780 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.002E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.496E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.415E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.658E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:04:01.86

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231003.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:02:27
Sample ID       : G244231003      Sample quantity   : 1.31220E+02 GRAM
Detector name   : GAM11          Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.94 0.0%
Energy tolerance: 1.50000 keV    Analyst Initials  : MXR1
Abundance limit : 75.00000      Sensitivity    : 5.00000
Batch ID        : 941242        Detector SN#     :
Matrix Spike ID :                LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.26*	96	474	1.17	125.40	122	7	1.34E-02	39.9	
2	3	74.76*	579	418	1.05	148.42	142	22	8.04E-02	7.1	3.00E+00
3	3	77.08*	949	329	0.91	153.07	142	22	1.32E-01	4.4	
4	6	84.09*	131	437	1.43	167.10	164	13	1.82E-02	28.7	3.05E-01
5	6	87.16*	387	458	1.17	173.23	164	13	5.37E-02	10.6	
6	0	89.98	234	295	1.02	178.87	177	5	3.26E-02	12.8	
7	0	92.89*	372	625	1.69	184.71	182	12	5.16E-02	14.9	
8	0	105.64	76	384	0.91	210.22	206	8	1.06E-02	46.2	
9	0	129.25	72	338	0.60	257.48	254	7	9.95E-03	44.2	
10	0	186.07*	166	374	1.07	371.20	367	8	2.31E-02	22.6	
11	0	209.37	159	349	1.02	417.84	413	10	2.21E-02	23.5	
12	5	238.64*	1626	152	0.99	476.42	470	21	2.26E-01	2.8	3.03E+00
13	5	241.56*	377	243	1.66	482.26	470	21	5.23E-02	12.1	
14	0	270.21*	151	236	0.85	539.60	535	10	2.10E-02	20.9	
15	0	277.49	61	170	1.38	554.18	550	7	8.52E-03	37.5	
16	1	295.28*	499	131	1.17	589.78	585	26	6.93E-02	5.9	2.02E+00
17	1	300.00	127	112	1.20	599.22	585	26	1.76E-02	17.1	
18	0	328.20	83	229	1.02	655.67	650	12	1.15E-02	38.1	
19	0	338.27	351	132	1.05	675.83	671	9	4.87E-02	8.0	
20	0	351.94*	761	200	1.17	703.17	698	10	1.06E-01	5.1	
21	0	463.14	125	134	1.61	925.72	920	14	1.74E-02	21.5	
22	0	510.85*	127	153	1.48	1021.20	1014	14	1.76E-02	25.9	
23	0	583.17*	449	115	1.41	1165.93	1159	13	6.23E-02	7.0	
24	0	609.63*	512	139	1.18	1218.86	1212	14	7.11E-02	6.7	
25	0	727.20	110	62	1.54	1454.14	1448	11	1.53E-02	16.9	
26	0	768.74	61	65	1.88	1537.26	1532	10	8.53E-03	27.7	
27	0	795.59*	49	83	0.98	1590.99	1585	10	6.77E-03	38.6	
28	0	861.03	58	91	1.64	1721.93	1716	13	8.06E-03	36.4	
29	0	911.58*	346	64	1.47	1823.08	1817	14	4.81E-02	7.4	
30	0	934.60	31	58	1.48	1869.14	1864	12	4.32E-03	51.9	
31	1	965.68	48	77	1.73	1931.32	1922	24	6.63E-03	35.2	1.76E+00
32	1	969.48*	189	56	1.51	1938.94	1922	24	2.63E-02	10.5	
33	0	1120.93*	95	65	1.90	2241.95	2236	11	1.32E-02	19.7	
34	0	1238.83	52	114	0.91	2477.82	2472	12	7.22E-03	43.3	
35	0	1378.46	36	17	1.26	2757.16	2752	10	5.00E-03	27.3	
36	0	1461.44*	1639	24	1.82	2923.16	2915	16	2.28E-01	2.6	
37	0	1765.40*	75	25	1.81	3531.20	3522	17	1.04E-02	19.6	

Flag: "\*" = Peak area was modified by background subtraction

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Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231003.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 21-JAN-2010 09:02:27
Sample ID        : G244231003             Sample quantity  : 131.22 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA11                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00           Elapsed real time: 0 02:00:01.94   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                Half life ratio   : 8.00
Errors propagated: Yes                     Systematic Error  : 0.00 %
Efficiency type  : Empirical                Efficiencies at   : Peak Energy
Abundance limit  : 75.00                   WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.588E+01	3.608E+00	4.263E-01	3.686E-02	84.157
CD-109	+	88.03	*	4.482E+00	1.035E+00	9.683E-01	9.182E-02	4.629
SN-126	+	64.28		6.714E-01	5.447E-01	5.985E-01	8.681E-02	1.122
	+	86.94		1.832E+00	8.533E-01	3.822E-01	1.587E-01	4.794
	+	87.57	*	4.407E-01	1.018E-01	9.551E-02	9.009E-03	4.614
EU-155		48.70		-5.843E-01	1.553E+00	2.448E+00	1.979E-01	-0.239
		60.01		1.207E+00	3.812E+00	5.683E+00	4.055E-01	0.212
	+	86.54		5.307E-01	1.227E-01	1.110E-01	1.043E-02	4.779
	+	105.31	*	1.432E-01	1.330E-01	1.432E-01	1.250E-02	1.000
TL-208	+	277.35		5.521E-01	4.251E-01	5.685E-01	1.008E-01	0.971
	+	510.84		5.677E-01	3.039E-01	2.001E-01	2.713E-02	2.837
	+	583.14	*	5.730E-01	1.010E-01	5.073E-02	5.479E-03	11.295
	+	860.37		6.915E-01	5.080E-01	4.127E-01	4.299E-02	1.675
BI-211		72.87		4.602E+00	2.618E+00	4.065E+00	3.229E-01	1.132
	+	351.07	*	4.290E+00	7.120E-01	2.922E-01	3.855E-02	14.681
PB-212	+	74.81		2.675E+00	5.045E-01	3.928E-01	4.859E-02	6.810
	+	77.11		2.504E+00	3.044E-01	2.252E-01	1.871E-02	11.122
	+	87.30		2.038E+00	5.130E-01	4.240E-01	5.820E-02	4.806
	+	238.63	*	2.002E+00	3.018E-01	7.767E-02	1.088E-02	25.771
	+	300.09		2.410E+00	9.111E-01	1.078E+00	1.728E-01	2.235
PO-212	+	74.81		2.675E+00	5.045E-01	3.928E-01	4.859E-02	6.810
	+	77.11		2.504E+00	3.044E-01	2.252E-01	1.871E-02	11.122
	+	87.30		2.038E+00	5.130E-01	4.240E-01	5.820E-02	4.806
		115.19		1.952E+00	2.886E+00	5.035E+00	4.266E-01	0.388
	+	238.63	*	2.002E+00	3.018E-01	7.767E-02	1.088E-02	25.771
	+	300.09		2.410E+00	9.111E-01	1.078E+00	1.728E-01	2.235
BI-214	+	609.31	*	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
	+	1120.29		1.176E+00	4.806E-01	4.909E-01	5.301E-02	2.396
	+	1764.49		1.269E+00	5.085E-01	2.698E-01	2.223E-02	4.705
PB-214	+	74.81		4.610E+00	8.287E-01	6.769E-01	7.432E-02	6.810
	+	77.11		4.293E+00	6.159E-01	3.860E-01	4.352E-02	11.122
	+	87.30		3.491E+00	8.502E-01	7.264E-01	8.831E-02	4.807
	+	241.98		2.787E+00	7.848E-01	4.679E-01	6.817E-02	5.956
	+	295.21		1.665E+00	3.345E-01	1.888E-01	3.078E-02	8.818

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	351.92	*	1.492E+00	2.596E-01	1.019E-01	1.441E-02	14.650
	+	74.81		4.610E+00	8.287E-01	6.769E-01	7.432E-02	6.810
	+	77.11		4.293E+00	6.159E-01	3.860E-01	4.352E-02	11.122
	+	87.30		3.491E+00	8.502E-01	7.264E-01	8.831E-02	4.807
	+	241.98		2.787E+00	7.848E-01	4.679E-01	6.817E-02	5.956
PO-216	+	295.21		1.665E+00	3.345E-01	1.888E-01	3.078E-02	8.818
	+	351.92	*	1.492E+00	2.596E-01	1.019E-01	1.441E-02	14.650
	+	74.81		2.675E+00	5.045E-01	3.928E-01	4.859E-02	6.810
	+	77.11		2.504E+00	3.044E-01	2.252E-01	1.871E-02	11.122
	+	87.30		2.038E+00	5.130E-01	4.240E-01	5.820E-02	4.806
PO-218	+	238.63	*	2.002E+00	3.018E-01	7.767E-02	1.088E-02	25.771
	+	300.09		2.410E+00	9.111E-01	1.078E+00	1.728E-01	2.235
	+	74.81		4.610E+00	8.287E-01	6.769E-01	7.432E-02	6.810
	+	77.11		4.293E+00	6.159E-01	3.860E-01	4.352E-02	11.122
	+	87.30		3.491E+00	8.502E-01	7.264E-01	8.831E-02	4.807
RA-224	+	241.98		2.787E+00	7.848E-01	4.679E-01	6.817E-02	5.956
	+	295.21		1.665E+00	3.345E-01	1.888E-01	3.078E-02	8.818
	+	351.92	*	1.492E+00	2.596E-01	1.019E-01	1.441E-02	14.650
	+	240.98	*	5.284E+00	1.458E+00	8.842E-01	1.184E-01	5.977
	+	609.31	*	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
RA-226	+	1120.29		1.176E+00	4.806E-01	4.909E-01	5.301E-02	2.396
	+	1764.49		1.269E+00	5.085E-01	2.698E-01	2.223E-02	4.705
	+	338.32		2.180E+00	9.903E-01	3.253E-01	1.384E-01	6.700
	+	911.07	*	1.950E+00	3.727E-01	1.904E-01	2.318E-02	10.242
	+	969.11		1.876E+00	5.935E-01	3.591E-01	8.511E-02	5.224
RA-228	+	338.32		2.180E+00	9.903E-01	3.253E-01	1.384E-01	6.700
	+	911.07	*	1.950E+00	3.727E-01	1.904E-01	2.318E-02	10.242
	+	969.11		1.876E+00	5.935E-01	3.591E-01	8.511E-02	5.224
	+	74.81		2.715E+00	4.458E-01	3.987E-01	3.262E-02	6.810
	+	77.11		2.542E+00	3.090E-01	2.285E-01	1.899E-02	11.122
TH-228	+	87.30		2.069E+00	4.778E-01	4.304E-01	4.045E-02	4.806
	+	238.63	*	2.031E+00	3.063E-01	7.883E-02	1.104E-02	25.771
	+	300.09		2.446E+00	1.701E+00	1.094E+00	6.623E-01	2.235
	+	609.31	*	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
	+	1120.29		1.176E+00	4.806E-01	4.909E-01	5.301E-02	2.396
TH-230	+	1764.49		1.269E+00	5.085E-01	2.698E-01	2.223E-02	4.705
	+	338.32		2.180E+00	4.551E-01	3.253E-01	4.387E-02	6.700
	+	911.07	*	1.950E+00	3.727E-01	1.904E-01	2.318E-02	10.242
	+	969.11		1.876E+00	5.935E-01	3.591E-01	8.511E-02	5.224
	+	63.29	*	1.696E+00	1.386E+00	1.564E+00	2.720E-01	1.085
TH-234	+	92.38		2.782E+00	9.716E-01	5.701E-01	1.046E-01	4.879
	+	609.31	*	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
	+	1120.29		1.176E+00	4.806E-01	4.909E-01	5.301E-02	2.396
	+	1764.49		1.269E+00	5.085E-01	2.698E-01	2.223E-02	4.705
	+	89.95		3.582E+00	1.444E+00	1.220E+00	3.789E-01	2.936
U-234	+	93.35		3.344E+00	1.370E+00	6.950E-01	1.958E-01	4.812
	+	105.00		1.404E+00	1.363E+00	1.404E+00	4.190E-01	1.000
	+	143.76	*	2.048E-02	1.842E-01	3.049E-01	5.390E-02	0.067
	+	163.35		-7.167E-02	4.004E-01	6.638E-01	1.298E-01	-0.108

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	+	185.71		1.432E-01	6.657E-02	6.441E-02	6.831E-03	2.223
		205.31		6.234E-01	5.229E-01	8.026E-01	1.651E-01	0.777
NP-237	+	86.50	*	1.294E+00	4.008E-01	2.708E-01	6.131E-02	4.778
		95.87		-2.270E-01	8.291E-01	1.159E+00	2.870E-01	-0.196
U-238	+	63.29	*	1.696E+00	1.386E+00	1.564E+00	2.720E-01	1.085
	+	92.38		2.782E+00	8.651E-01	5.701E-01	5.221E-02	4.879
AM-243	+	74.67	*	4.337E-01	7.105E-02	6.384E-02	5.166E-03	6.794
	+	86.72		4.853E+01	1.121E+01	1.014E+01	9.461E-01	4.786
		117.66		-2.983E+00	3.037E+00	4.944E+00	4.182E-01	-0.603
		142.18		-8.153E+00	1.456E+01	2.394E+01	2.134E+00	-0.341
ANH-511	+	511.00	*	1.226E-01	6.484E-02	4.324E-02	4.624E-03	2.836

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	2.094E-01	2.868E-01	5.012E-01	5.672E-02	0.418
NA-22		1274.54	*	-3.836E-02	4.174E-02	6.071E-02	4.986E-03	-0.632
NA-24		1368.53	*	6.165E-02	4.174E-02	Half-Life too short		
AL-26		1129.67		-6.986E-01	1.642E+00	2.590E+00	2.187E-01	-0.270
		1808.65	*	-1.316E-03	2.384E-02	3.879E-02	3.167E-03	-0.034
TI-44		67.85		-6.109E-03	3.544E-02	5.563E-02	4.215E-03	-0.110
	+	78.38	*	4.621E-01	5.618E-02	5.851E-02	4.932E-03	7.899
SC-46		889.25	*	-2.065E-02	3.572E-02	5.666E-02	5.580E-03	-0.365
	+	1120.51		2.009E-01	8.102E-02	1.251E-01	1.067E-02	1.606
V-48		944.10		-6.234E-01	8.399E-01	1.303E+00	1.260E-01	-0.479
		983.50	*	-4.047E-03	6.694E-02	1.108E-01	1.051E-02	-0.037
		1312.09		3.914E-02	7.447E-02	1.280E-01	1.055E-02	0.306
CR-51		320.08	*	7.529E-02	3.164E-01	5.141E-01	7.461E-02	0.146
MN-52		744.21		2.139E-02	2.263E-01	3.675E-01	3.571E-02	0.058
		848.13		-2.524E+00	6.510E+00	1.062E+01	1.046E+00	-0.238
	+	935.52		3.334E-01	3.475E-01	4.397E-01	4.269E-02	0.758
		1246.25		5.142E+00	7.744E+00	1.266E+01	1.033E+00	0.406
		1333.61		2.262E+00	5.142E+00	8.722E+00	7.209E-01	0.259
		1434.06	*	3.524E-02	2.210E-01	3.635E-01	3.045E-02	0.097
MN-54		834.83	*	2.222E-02	3.774E-02	6.617E-02	6.515E-03	0.336
CO-56		846.75	*	-2.482E-02	4.037E-02	6.466E-02	6.371E-03	-0.384
		977.42		-7.982E-01	2.865E+00	4.515E+00	4.297E-01	-0.177
		1037.82		-2.001E-01	3.091E-01	4.803E-01	4.609E-02	-0.417
		1175.09		7.800E-01	2.278E+00	3.840E+00	3.087E-01	0.203
	+	1238.25		1.803E-01	1.571E-01	1.974E-01	1.661E-02	0.913
		1360.21		3.076E-01	8.782E-01	1.488E+00	1.236E-01	0.207
		1771.40		-2.302E-01	2.709E-01	2.925E-01	2.406E-02	-0.787
CO-57		122.06	*	1.178E-02	2.035E-02	3.532E-02	2.988E-03	0.333
		136.48		-7.597E-02	1.736E-01	2.877E-01	2.703E-02	-0.264
CO-58		810.76	*	-4.462E-02	3.943E-02	5.522E-02	5.437E-03	-0.808
FE-59		142.65		-1.333E-01	2.289E+00	3.759E+00	3.358E-01	-0.035
		192.34		1.379E-01	7.942E-01	1.325E+00	1.988E-01	0.104
		1099.22	*	-9.759E-02	9.181E-02	1.355E-01	1.274E-02	-0.720

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-60		1291.56		-5.210E-03	1.430E-01	2.314E-01	2.184E-02	-0.023
		1173.22		1.354E-02	4.655E-02	7.812E-02	6.276E-03	0.173
		1332.49	*	2.739E-02	4.219E-02	7.294E-02	6.027E-03	0.376
		1115.52	*	-6.469E-03	9.991E-02	1.413E-01	1.212E-02	-0.046
ZN-65		1077.35	*	1.422E-01	1.342E+00	2.235E+00	1.984E-01	0.064
GE-68		53.44	*	-5.201E-02	5.454E-01	8.683E-01	6.520E-02	-0.060
AS-73		595.88	*	-1.958E-02	8.771E-02	1.414E-01	1.438E-02	-0.138
AS-74		634.78		-1.750E-01	3.252E-01	5.055E-01	4.944E-02	-0.346
SE-75		66.05		2.434E+00	3.932E+00	5.880E+00	5.580E-01	0.414
		96.73		-6.745E-01	7.154E-01	9.518E-01	1.315E-01	-0.709
		121.11		-1.198E-02	1.099E-01	1.858E-01	2.061E-02	-0.064
		136.00		-7.957E-03	3.204E-02	5.355E-02	4.714E-03	-0.149
BR-77		198.60		2.648E-02	1.627E+00	2.646E+00	3.165E-01	0.010
		264.65	*	-2.516E-02	4.104E-02	6.043E-02	8.883E-03	-0.416
		279.53		9.612E-02	1.083E-01	1.650E-01	2.584E-02	0.582
		303.91		-3.605E-01	1.893E+00	3.001E+00	4.988E-01	-0.120
		400.65		-3.692E-02	2.144E-01	3.583E-01	4.584E-02	-0.103
	+	87.88		9.031E+02	2.086E+02	2.748E+02	2.603E+01	3.286
		200.40		6.740E+01	1.334E+02	2.249E+02	2.544E+01	0.300
	+	239.00		2.997E+02	4.314E+01	3.687E+01	4.900E+00	8.127
		249.79		5.160E+00	5.471E+01	8.950E+01	1.241E+01	0.058
		281.68		-2.665E+01	7.659E+01	1.146E+02	1.767E+01	-0.233
		297.23		1.214E+02	5.198E+01	8.815E+01	1.322E+01	1.378
		303.76		-1.760E+01	1.512E+02	2.408E+02	3.565E+01	-0.073
		439.47		8.696E+01	1.177E+02	2.066E+02	2.228E+01	0.421
		484.57		-3.751E+01	1.946E+02	3.200E+02	3.445E+01	-0.117
		520.65	*	4.111E-01	8.208E+00	1.367E+01	1.456E+00	0.030
		574.64		1.081E+02	1.759E+02	3.025E+02	3.128E+01	0.357
SR-82		578.91		1.525E+01	7.420E+01	1.096E+02	1.130E+01	0.139
		585.48		8.640E+02	2.287E+02	3.919E+02	4.019E+01	2.205
		755.35		8.613E+01	1.504E+02	2.537E+02	2.471E+01	0.340
		817.79		4.007E+01	1.167E+02	1.928E+02	1.896E+01	0.208
RB-83		698.33		2.331E+01	2.941E+01	5.081E+01	4.873E+00	0.459
		776.49	*	-1.462E-01	3.728E-01	5.764E-01	5.638E-02	-0.254
		1395.20		2.419E+00	8.392E+00	1.418E+01	1.183E+00	0.171
RB-84		520.41	*	-3.280E-02	6.120E-02	9.711E-02	1.035E-02	-0.338
		529.64		-4.710E-02	9.542E-02	1.518E-01	1.611E-02	-0.310
		552.65		-3.511E-02	1.872E-01	3.045E-01	3.195E-02	-0.115
RB-85		881.50	*	3.890E-02	6.728E-02	1.181E-01	1.164E-02	0.329
KR-85		513.99	*	7.643E+00	7.517E+00	1.189E+01	1.270E+00	0.643
SR-85		513.99	*	3.909E-02	3.844E-02	6.081E-02	6.496E-03	0.643
RB-86		1076.63	*	-1.133E-01	8.263E-01	1.348E+00	1.198E-01	-0.084
Y-88		898.02		-5.091E-03	4.122E-02	6.840E-02	6.760E-03	-0.074
ZR-88		1836.01	*	-2.970E-04	3.078E-02	5.056E-02	4.104E-03	-0.006
		392.90	*	-5.234E-03	2.683E-02	4.486E-02	4.784E-03	-0.117
Y-91		1204.90	*	8.727E+00	2.030E+01	3.428E+01	2.775E+00	0.255
NB-94		702.63	*	5.506E-04	3.169E-02	5.137E-02	4.934E-03	0.011
NB-95		871.10		-5.101E-03	2.891E-02	4.776E-02	4.707E-03	-0.107
		765.79	*	1.180E-02	4.688E-02	6.763E-02	6.602E-03	0.174



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NB-95M	235.69	*		5.262E-03	1.128E-01	1.652E-01	2.306E-02	0.032
ZR-95	724.18			1.191E-02	8.786E-02	1.261E-01	1.304E-02	0.094
	756.15	*		2.782E-02	6.897E-02	1.148E-01	1.208E-02	0.242
NB-97	657.90	*		-7.798E-02	6.897E-02	Half-Life	too short	
	1024.50			-5.125E-01	6.897E-02	Half-Life	too short	
ZR-97	254.15			2.861E+00	6.897E-02	Half-Life	too short	
	355.39			-1.080E+00	6.897E-02	Half-Life	too short	
	507.63	*		8.473E-01	6.897E-02	Half-Life	too short	
	602.52			-1.670E+00	6.897E-02	Half-Life	too short	
	1021.30			6.821E+00	6.897E-02	Half-Life	too short	
	1147.95			4.951E-01	6.897E-02	Half-Life	too short	
	1362.66			-1.695E+00	6.897E-02	Half-Life	too short	
	1750.46			3.783E-01	6.897E-02	Half-Life	too short	
MO-99	140.51			-1.886E+01	2.162E+01	3.349E+01	9.300E+00	-0.563
	181.06			-1.005E+01	1.476E+01	2.240E+01	4.297E+00	-0.449
	366.43			-1.183E+01	7.105E+01	1.110E+02	1.344E+01	-0.107
	739.58	*		-3.900E+00	1.019E+01	1.580E+01	2.500E+00	-0.247
	778.00			-1.857E+01	3.083E+01	4.654E+01	4.553E+00	-0.399
TC-99M	140.51	*		-1.500E+10	3.083E+01	Half-Life	too short	
RH-101	127.23			-6.540E-03	2.867E-02	4.319E-02	3.689E-03	-0.151
	198.01	*		3.670E-03	2.897E-02	4.732E-02	5.296E-03	0.078
	325.23			8.022E-02	2.234E-01	3.269E-01	4.586E-02	0.245
RH-102	418.52			1.079E-01	2.525E-01	4.365E-01	4.692E-02	0.247
	475.06	*		-8.347E-03	2.644E-02	4.315E-02	4.652E-03	-0.193
	631.29			-1.352E-02	5.053E-02	8.062E-02	7.917E-03	-0.168
	697.49			3.365E-02	6.828E-02	1.152E-01	1.105E-02	0.292
	766.84			7.203E-02	1.300E-01	1.925E-01	1.880E-02	0.374
	1046.59			1.569E-02	1.137E-01	1.905E-01	1.735E-02	0.082
	1112.84			-5.582E-02	2.325E-01	3.640E-01	3.129E-02	-0.153
RU-103	497.08	*		-7.239E-03	3.467E-02	5.674E-02	8.819E-03	-0.128
	610.33			1.323E+01	2.920E+00	2.934E+00	5.123E-01	4.510
RH-106	511.85	+		6.122E-01	3.237E-01	4.205E-01	4.496E-02	1.456
	621.84	*		3.527E-01	3.025E-01	5.327E-01	7.581E-02	0.662
	1050.47			2.727E-01	2.282E+00	3.816E+00	3.464E-01	0.071
RU-106	511.85	+		6.122E-01	3.237E-01	4.205E-01	4.496E-02	1.456
	621.84	*		3.527E-01	3.004E-01	5.327E-01	5.284E-02	0.662
	1050.47			2.727E-01	2.282E+00	3.816E+00	3.464E-01	0.071
AG-108M	433.93	*		-9.270E-03	2.600E-02	4.250E-02	4.698E-03	-0.218
	614.37			9.633E-03	3.780E-02	5.580E-02	5.742E-03	0.173
	722.95			8.778E-03	3.706E-02	5.402E-02	5.383E-03	0.162
AG-110M	657.75	*		-3.198E-02	3.259E-02	4.824E-02	4.701E-03	-0.663
	677.61			2.134E-01	2.709E-01	4.694E-01	4.573E-02	0.455
	706.67			-3.773E-02	2.015E-01	3.208E-01	3.153E-02	-0.118
	763.93			1.009E-01	1.835E-01	2.733E-01	2.726E-02	0.369
	884.67			-2.229E-02	4.577E-02	7.338E-02	7.408E-03	-0.304
	937.48			-1.289E-03	1.152E-01	1.671E-01	1.668E-02	-0.008
	1384.27			1.441E-01	1.670E-01	2.700E-01	2.317E-02	0.534
IN-111	171.28			-1.326E-01	7.955E-01	1.316E+00	1.309E-01	-0.101
	245.39	*		1.543E-01	9.649E-01	1.420E+00	1.935E-01	0.109

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IN-113M	391.69	*		4.264E-03	3.850E-02	6.562E-02	7.137E-03	0.065
SN-113	391.69	*		4.264E-03	3.850E-02	6.562E-02	7.137E-03	0.065
IN-114M	190.27	*		1.749E-02	1.624E-01	2.580E-01	2.792E-02	0.068
CD-115	260.90			9.747E+01	1.083E+02	1.831E+02	2.649E+01	0.532
	492.35			9.413E-01	2.989E+01	4.989E+01	5.362E+00	0.019
	527.90	*		9.572E-01	8.674E+00	1.449E+01	1.540E+00	0.066
SN-117M	156.02			-1.142E+00	1.894E+00	3.088E+00	2.891E-01	-0.370
	158.56	*		-1.791E-02	4.511E-02	7.417E-02	7.010E-03	-0.241
SB-122	563.90	*		2.894E+00	1.788E+00	3.249E+00	3.385E-01	0.891
	692.80			-3.302E+01	3.679E+01	5.444E+01	5.211E+00	-0.607
I-123	159.00	*		-5.754E-01	3.679E+01	Half-Life	too short	
	528.96			-2.106E+02	3.679E+01	Half-Life	too short	
TE-123M	159.00	*		-3.849E-03	2.298E-02	3.818E-02	3.632E-03	-0.101
I-124	602.71	*		-1.368E-01	6.707E-01	9.987E-01	1.009E-01	-0.137
	722.78			9.340E-01	3.724E+00	5.439E+00	5.255E-01	0.172
	1325.50			-1.107E+01	3.207E+01	4.973E+01	4.107E+00	-0.223
	1376.25			9.480E+00	3.655E+01	5.294E+01	4.406E+00	0.179
	1509.49			1.578E+01	1.483E+01	2.779E+01	2.339E+00	0.568
	1691.02			2.719E-01	3.200E+00	5.390E+00	4.494E-01	0.050
SB-124	602.71			-8.252E-03	4.046E-02	6.024E-02	6.089E-03	-0.137
	645.85			2.208E-01	4.486E-01	7.615E-01	7.706E-02	0.290
	709.31			1.630E+00	2.642E+00	4.484E+00	4.316E-01	0.364
	713.82			-3.912E-01	1.495E+00	2.358E+00	3.015E-01	-0.166
	722.78			8.166E-02	3.256E-01	4.755E-01	4.674E-02	0.172
+	968.20			1.926E+01	4.436E+00	7.579E+00	7.248E-01	2.541
	1045.16			-5.222E-01	2.462E+00	3.996E+00	3.642E-01	-0.131
	1325.50			-1.034E+00	2.995E+00	4.644E+00	3.835E-01	-0.223
	1368.21			-7.915E-01	1.643E+00	2.468E+00	3.278E-01	-0.321
	1436.60			-9.755E-01	3.567E+00	5.500E+00	4.609E-01	-0.177
	1691.02	*		5.607E-03	6.600E-02	1.112E-01	9.660E-03	0.050
SB-125	427.89	*		8.504E-02	8.020E-02	1.432E-01	1.562E-02	0.594
+	463.38			1.096E+00	4.878E-01	5.492E-01	6.227E-02	1.996
	600.56			6.554E-03	1.721E-01	2.831E-01	3.021E-02	0.023
	635.90			9.268E-02	2.367E-01	3.993E-01	4.148E-02	0.232
TE-125M	109.28	*		5.178E+00	7.939E+00	1.261E+01	1.294E+00	0.411
I-126	388.63			1.903E-02	1.726E-01	2.943E-01	3.193E-02	0.065
	666.33	*		1.331E-01	1.741E-01	2.991E-01	2.836E-02	0.445
	753.82			1.096E+00	1.314E+00	2.270E+00	2.210E-01	0.483
SB-126	223.80			4.444E-01	3.675E+00	6.059E+00	7.568E-01	0.073
+	278.60			3.602E+00	2.755E+00	4.055E+00	6.264E-01	0.888
+	296.50			1.635E+01	3.123E+00	3.462E+00	5.201E-01	4.723
	414.70			2.035E-02	6.577E-02	1.130E-01	1.213E-02	0.180
	415.30			-9.984E-01	5.634E+00	9.395E+00	1.009E+00	-0.106
	555.20			2.130E+00	3.633E+00	6.246E+00	6.543E-01	0.341
	573.80			5.842E-01	9.499E-01	1.632E+00	1.689E-01	0.358
	593.00			1.067E-01	8.529E-01	1.414E+00	1.441E-01	0.076
	656.30			-6.167E-01	2.866E+00	4.573E+00	4.358E-01	-0.135
	666.33			5.559E-02	7.272E-02	1.249E-01	1.184E-02	0.445
	675.00			-5.148E-01	1.819E+00	2.879E+00	2.739E-01	-0.179

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127		695.00		-1.202E-03	7.203E-02	1.086E-01	1.040E-02	-0.011
		697.00		-2.161E-02	2.568E-01	3.866E-01	3.706E-02	-0.056
		720.50	*	1.245E-02	1.330E-01	2.006E-01	1.937E-02	0.062
		856.80		-1.098E-01	4.925E-01	7.025E-01	6.923E-02	-0.156
		989.30		1.907E-02	1.087E+00	1.811E+00	2.712E-01	0.011
		1034.80		5.730E+00	8.714E+00	1.523E+01	1.399E+00	0.376
		1213.00		4.186E-01	4.751E+00	7.817E+00	6.339E-01	0.054
		61.10		1.642E+01	4.145E+01	6.197E+01	6.208E+00	0.265
		252.40		-2.991E+00	3.946E+00	5.781E+00	2.511E+00	-0.517
		290.80		-1.037E+01	2.203E+01	3.036E+01	5.074E+00	-0.342
		411.60		-2.749E+00	1.084E+01	1.800E+01	3.047E+00	-0.153
		444.90		-8.992E+00	8.052E+00	1.224E+01	1.720E+00	-0.735
		473.00		-5.427E-01	1.441E+00	2.340E+00	3.357E-01	-0.232
		543.00		-1.294E+01	1.537E+01	2.359E+01	3.674E+00	-0.549
		603.60		-1.786E+00	1.226E+01	1.735E+01	2.344E+00	-0.103
		685.20	*	1.210E-01	1.232E+00	2.015E+00	2.425E-01	0.060
		698.50		1.001E+01	1.270E+01	2.182E+01	3.560E+00	0.459
		722.20		1.097E+01	2.506E+01	3.751E+01	4.470E+00	0.292
		783.80		4.332E+00	3.346E+00	5.888E+00	7.771E-01	0.736
		57.60		2.883E+00	4.253E+00	6.977E+00	5.022E-01	0.413
XE-127		145.22		3.918E-01	6.072E-01	1.024E+00	9.222E-02	0.383
		172.10		-1.281E-02	9.919E-02	1.643E-01	1.641E-02	-0.078
		202.84	*	-1.802E-02	4.120E-02	6.651E-02	7.602E-03	-0.271
		374.96		1.658E-01	1.784E-01	2.996E-01	3.489E-02	0.553
I-131		80.18		7.989E-01	3.754E+00	5.473E+00	4.740E-01	0.146
		284.30		1.140E+00	1.243E+00	2.101E+00	3.280E-01	0.543
		364.48	*	-3.243E-02	1.034E-01	1.597E-01	2.005E-02	-0.203
TE-132		636.97		5.295E-01	1.386E+00	2.334E+00	2.377E-01	0.227
		722.89		1.479E+00	6.116E+00	8.921E+00	8.662E-01	0.166
		49.72		2.865E+00	1.169E+01	1.898E+01	1.947E+00	0.151
		111.76		-1.802E+00	2.262E+01	3.814E+01	4.081E+00	-0.047
BA-133		116.30		-3.548E-01	2.084E+01	3.546E+01	3.784E+00	-0.010
		228.16	*	-2.520E-02	5.909E-01	9.655E-01	1.762E-01	-0.026
		53.15		-2.476E-01	2.351E+00	3.741E+00	2.819E-01	-0.066
		79.62		-5.753E-02	1.066E+00	1.533E+00	2.328E-01	-0.038
I-133		81.00		-5.632E-03	8.106E-02	1.164E-01	1.852E-02	-0.048
	+	276.40		5.456E-01	4.220E-01	6.019E-01	1.157E-01	0.907
		302.84		-1.509E-02	1.292E-01	2.059E-01	3.696E-02	-0.073
		356.01	*	-1.953E-02	4.456E-02	5.994E-02	9.667E-03	-0.326
I-133	+	383.85		-7.072E-02	2.503E-01	4.163E-01	6.012E-02	-0.170
		510.53		1.029E+00	2.503E-01	Half-Life	too short	
		529.87	*	-1.826E-03	2.503E-01	Half-Life	too short	
		706.58		-6.158E-02	2.503E-01	Half-Life	too short	
		856.28		-1.888E-01	2.503E-01	Half-Life	too short	
		875.33		-1.673E-02	2.503E-01	Half-Life	too short	
		1236.41		1.184E+00	2.503E-01	Half-Life	too short	
CS-134		1298.22		-9.536E-02	2.503E-01	Half-Life	too short	
		475.35		-3.374E-01	1.726E+00	2.842E+00	3.064E-01	-0.119
		563.23		4.542E-01	3.312E-01	5.947E-01	6.238E-02	0.764

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		569.32		-1.818E-01	1.810E-01	2.716E-01	2.846E-02	-0.669
		604.70		1.965E-02	3.550E-02	5.380E-02	5.438E-03	0.365
	+	795.84	*	8.925E-02	6.939E-02	9.470E-02	9.342E-03	0.942
		801.93		-4.042E-01	3.918E-01	5.648E-01	5.569E-02	-0.716
		1038.57		-2.474E+00	3.797E+00	5.893E+00	5.397E-01	-0.420
		1167.94		2.659E+00	2.461E+00	4.393E+00	3.552E-01	0.605
		1365.15		3.474E-01	1.101E+00	1.857E+00	1.618E-01	0.187
CS-135		268.24	*	2.486E-01	1.559E-01	2.446E-01	3.838E-02	1.016
I-135		288.45		5.157E+09	1.559E-01	Half-Life	too short	
		417.63		3.355E+09	1.559E-01	Half-Life	too short	
		546.56		4.736E+09	1.559E-01	Half-Life	too short	
		836.80		2.608E+09	1.559E-01	Half-Life	too short	
		1038.76		-2.605E+09	1.559E-01	Half-Life	too short	
		1124.00		4.131E+10	1.559E-01	Half-Life	too short	
		1131.51		2.237E+08	1.559E-01	Half-Life	too short	
		1260.41	*	2.212E+09	1.559E-01	Half-Life	too short	
		1457.56		7.168E+10	1.559E-01	Half-Life	too short	
		1678.03		-1.729E+09	1.559E-01	Half-Life	too short	
		1706.46		2.862E+09	1.559E-01	Half-Life	too short	
		1791.20		5.190E+09	1.559E-01	Half-Life	too short	
CS-136		66.91		8.273E-02	6.302E-01	9.207E-01	1.367E-01	0.090
	+	86.29		5.678E+00	1.419E+00	1.718E+00	2.285E-01	3.306
		153.22		5.005E-01	5.667E-01	9.800E-01	1.001E-01	0.511
		163.89		-4.279E-01	9.150E-01	1.497E+00	1.584E-01	-0.286
		176.55		1.050E-01	3.119E-01	5.263E-01	5.584E-02	0.199
		273.65		5.449E-02	5.244E-01	6.027E-01	9.343E-02	0.090
		340.57		2.255E-01	1.266E-01	2.003E-01	2.714E-02	1.126
		818.51		5.026E-03	6.791E-02	1.093E-01	1.076E-02	0.046
		1048.07	*	-9.701E-03	1.035E-01	1.697E-01	1.603E-02	-0.057
		1235.34		3.361E-01	6.450E-01	9.631E-01	1.108E-01	0.349
BA-137M		661.65	*	1.429E-02	3.545E-02	5.941E-02	5.622E-03	0.240
CS-137		661.65	*	1.510E-02	3.747E-02	6.281E-02	5.952E-03	0.240
CE-139		165.85	*	1.974E-02	2.620E-02	4.500E-02	4.373E-03	0.439
BA-140		162.64		1.380E-01	6.279E-01	1.059E+00	1.065E-01	0.130
		304.84		-4.510E-01	1.244E+00	1.709E+00	5.211E-01	-0.264
		423.70		-7.825E-02	1.639E+00	2.751E+00	9.094E-01	-0.028
		537.32	*	-1.045E-01	2.447E-01	3.877E-01	1.307E-01	-0.270
LA-140	+	328.77		6.303E-01	4.890E-01	5.048E-01	7.165E-02	1.249
		432.53		-3.732E-01	1.610E+00	2.659E+00	2.956E-01	-0.140
		487.03		4.006E-02	1.248E-01	2.125E-01	2.378E-02	0.188
		751.79		-2.296E+00	1.657E+00	2.284E+00	2.412E-01	-1.005
		815.85		4.920E-02	3.049E-01	4.949E-01	5.302E-02	0.099
		867.82		-7.846E-01	1.270E+00	1.788E+00	1.834E-01	-0.439
		919.63		-8.194E-01	2.512E+00	3.954E+00	4.586E-01	-0.207
		925.24		-6.818E-01	9.942E-01	1.547E+00	1.583E-01	-0.441
		1596.49	*	-2.025E-02	7.140E-02	1.136E-01	9.556E-03	-0.178
CE-141		145.44	*	1.535E-02	5.484E-02	9.127E-02	8.365E-03	0.168
CE-143		57.37		2.213E-04	5.484E-02	Half-Life	too short	
		231.56		-3.140E-04	5.484E-02	Half-Life	too short	

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	293.26	*		3.747E-04	5.484E-02	Half-Life	too short	
	350.59			3.013E-02	5.484E-02	Half-Life	too short	
	490.36			-7.852E-04	5.484E-02	Half-Life	too short	
	664.57			-3.785E-04	5.484E-02	Half-Life	too short	
	721.93			6.480E-04	5.484E-02	Half-Life	too short	
CE-144	80.11			3.669E-01	1.763E+00	2.570E+00	2.210E-01	0.143
	133.54	*		-1.387E-02	1.792E-01	2.886E-01	4.503E-02	-0.048
PM-144	476.78			5.529E-02	5.937E-02	1.049E-01	1.200E-02	0.527
	618.01			-1.958E-02	3.002E-02	4.637E-02	4.714E-03	-0.422
	696.49	*		-8.335E-03	3.301E-02	4.878E-02	4.676E-03	-0.171
	778.57			-1.640E+00	2.162E+00	3.201E+00	3.132E-01	-0.512
PR-144	696.49	*		-5.647E-01	2.237E+00	3.305E+00	3.168E-01	-0.171
	1489.15			1.031E-01	9.517E+00	1.599E+01	1.345E+00	0.006
PM-146	453.90	*		3.299E-02	3.882E-02	6.833E-02	8.567E-03	0.483
	633.02			-7.343E-01	1.299E+00	1.968E+00	7.412E-01	-0.373
	735.90			5.930E-02	1.471E-01	2.439E-01	7.058E-02	0.243
	747.13			2.505E-02	8.828E-02	1.456E-01	2.147E-02	0.172
ND-147	91.11			8.857E-01	2.441E-01	3.920E-01	3.885E-02	2.259
	319.41			7.900E-01	2.778E+00	4.528E+00	6.456E-01	0.174
	439.89			3.240E+00	5.095E+00	8.890E+00	9.591E-01	0.364
	531.02	*		-7.427E-02	4.989E-01	8.164E-01	1.321E-01	-0.091
PM-149	285.90	*		-7.761E+01	7.752E+01	1.145E+02	2.295E+01	-0.678
EU-152	121.78			2.412E-02	5.939E-02	1.024E-01	1.002E-02	0.235
	244.69			5.383E-03	3.182E-01	4.636E-01	6.300E-02	0.012
	344.27	*		8.875E-03	8.308E-02	1.331E-01	1.805E-02	0.067
	443.98			-7.784E-01	8.311E-01	1.294E+00	1.397E-01	-0.601
	778.89			-2.924E-01	2.587E-01	3.669E-01	3.590E-02	-0.797
	867.32			-3.074E-01	7.953E-01	1.100E+00	1.084E-01	-0.279
	964.01			5.612E-01	2.996E-01	5.555E-01	5.323E-02	1.010
	1085.78			-2.455E-01	4.025E-01	6.258E-01	5.517E-02	-0.392
	1112.02			-6.095E-03	3.171E-01	5.212E-01	4.483E-02	-0.012
	1407.95			2.691E-01	2.067E-01	3.779E-01	3.158E-02	0.712
GD-153	69.67			5.349E-02	1.331E+00	1.939E+00	1.493E-01	0.028
	83.37			2.697E+01	1.569E+01	1.985E+01	1.775E+00	1.359
	97.43	*		-1.121E-01	7.777E-02	1.003E-01	8.914E-03	-1.117
	103.18			-2.392E-02	8.930E-02	1.360E-01	1.180E-02	-0.176
EU-154	123.07			1.198E-02	4.231E-02	7.261E-02	8.167E-03	0.165
	247.94			1.773E-02	3.600E-01	5.252E-01	8.253E-02	0.034
	591.81			-7.530E-02	5.679E-01	9.223E-01	1.188E-01	-0.082
	723.30			1.271E-02	1.605E-01	2.288E-01	2.399E-02	0.056
	756.87			1.189E-01	7.657E-01	1.248E+00	1.599E-01	0.095
	873.19			1.304E-01	2.619E-01	4.588E-01	6.030E-02	0.284
	996.32			-1.058E-01	3.171E-01	5.082E-01	9.232E-02	-0.208
	1004.76			-4.357E-03	2.069E-01	3.430E-01	4.186E-02	-0.013
	1274.45	*		-1.061E-01	1.170E-01	1.700E-01	1.869E-02	-0.624
TB-160	86.79			1.414E+00	3.267E-01	4.510E-01	4.212E-02	3.136
	197.04			9.627E-03	4.841E-01	7.867E-01	8.768E-02	0.012
	215.65			-5.987E-02	6.471E-01	1.059E+00	1.278E-01	-0.057
	298.57			3.498E-01	1.307E-01	1.861E-01	2.784E-02	1.880

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HO-166M		879.36	*	8.422E-02	1.320E-01	2.330E-01	2.295E-02	0.362
		962.29		1.966E-02	5.620E-01	8.175E-01	7.841E-02	0.024
	+	966.15		3.736E-01	2.651E-01	3.984E-01	3.814E-02	0.938
		1177.93		-2.422E-01	3.650E-01	5.614E-01	4.516E-02	-0.431
		1271.85		-1.150E-01	6.836E-01	1.092E+00	8.952E-02	-0.105
		80.57		4.965E-02	2.261E-01	3.297E-01	2.851E-02	0.151
		184.41		3.000E-02	3.681E-02	5.885E-02	6.205E-03	0.510
		280.46		7.284E-02	8.127E-02	1.243E-01	1.921E-02	0.586
		410.95		1.363E-01	2.217E-01	3.867E-01	4.149E-02	0.353
		711.68	*	-1.641E-02	5.844E-02	9.217E-02	8.877E-03	-0.178
TM-171		752.31		-2.886E-01	2.660E-01	3.817E-01	3.715E-02	-0.756
		810.29		-7.377E-02	5.950E-02	8.211E-02	8.069E-03	-0.898
		51.35		-2.168E+00	1.981E+01	3.156E+01	2.441E+00	-0.069
		52.39		-2.423E+00	1.032E+01	1.633E+01	1.244E+00	-0.148
		59.40		-1.265E+00	2.084E+01	3.047E+01	2.168E+00	-0.042
LU-176	+	66.72	*	2.587E+00	2.316E+01	3.382E+01	2.538E+00	0.077
		88.36		1.045E+00	2.414E-01	2.958E-01	2.796E-02	3.534
		201.83		-2.029E-02	2.585E-02	4.095E-02	4.660E-03	-0.496
LU-177		306.84	*	-9.231E-03	2.436E-02	3.353E-02	4.929E-03	-0.275
		401.10		-2.738E+00	5.684E+00	9.298E+00	9.947E-01	-0.294
		112.95		-7.220E-01	1.299E+00	2.148E+00	1.824E-01	-0.336
LU-177M	+	208.36	*	3.388E+00	1.644E+00	1.851E+00	2.166E-01	1.831
		52.97		-1.621E-01	1.059E+00	1.682E+00	1.271E-01	-0.096
		54.07		9.355E-02	5.584E-01	8.998E-01	6.704E-02	0.104
		61.30		5.328E-01	1.121E+00	1.682E+00	1.211E-01	0.317
		121.62		1.213E-01	3.040E-01	5.244E-01	4.431E-02	0.231
		147.16		-1.567E-01	5.534E-01	9.197E-01	8.340E-02	-0.170
		171.86		-4.247E-02	4.015E-01	6.659E-01	6.642E-02	-0.064
		218.09		-4.937E-01	7.683E-01	1.218E+00	1.486E-01	-0.405
	+	268.79		2.848E+00	1.265E+00	1.340E+00	1.997E-01	2.126
		319.02		-1.434E-02	2.219E-01	3.533E-01	5.042E-02	-0.041
		367.43		8.649E-02	8.055E-01	1.285E+00	1.550E-01	0.067
		413.65	*	-2.904E-02	1.591E-01	2.653E-01	2.849E-02	-0.109
		56.28		9.135E-02	6.534E-01	1.049E+00	7.636E-02	0.087
HF-181		57.53		2.318E-01	3.575E-01	5.859E-01	4.219E-02	0.396
		65.20		-8.226E-02	7.640E-01	1.104E+00	8.185E-02	-0.074
		133.02		-1.406E-02	6.030E-02	9.056E-02	7.851E-03	-0.155
		136.25		-1.524E-01	3.763E-01	6.245E-01	5.466E-02	-0.244
		345.85		-6.527E-02	1.602E-01	2.463E-01	3.237E-02	-0.265
W-181		482.03	*	-1.969E-03	3.770E-02	6.265E-02	6.747E-03	-0.031
		56.28		3.610E-02	2.564E-01	4.118E-01	2.997E-02	0.088
		57.53		9.090E-02	1.404E-01	2.301E-01	1.657E-02	0.395
TA-182		65.20	*	-3.205E-02	2.977E-01	4.302E-01	3.189E-02	-0.074
		67.75		-6.665E-03	8.472E-02	1.335E-01	1.011E-02	-0.050
		100.10		1.141E-01	1.429E-01	2.514E-01	2.206E-02	0.454
		152.43		-4.360E-02	2.890E-01	4.820E-01	4.454E-02	-0.090
		222.10		2.312E-01	3.212E-01	5.424E-01	6.728E-02	0.426
		1001.68		-4.956E-01	1.932E+00	3.110E+00	2.918E-01	-0.159
	+	1121.28		5.553E-01	2.239E-01	3.524E-01	3.003E-02	1.576

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-183	1189.05			-1.394E-02	3.225E-01	5.258E-01	4.241E-02	-0.027
	1221.42	*		-5.050E-02	2.007E-01	3.206E-01	2.605E-02	-0.158
	1230.97			-1.832E-01	4.884E-01	7.480E-01	6.088E-02	-0.245
	57.98			7.829E-02	1.405E-01	2.293E-01	1.646E-02	0.341
	59.32			-1.156E-02	8.529E-02	1.242E-01	8.838E-03	-0.093
	67.20			-3.680E-03	1.538E-01	2.415E-01	1.819E-02	-0.015
	162.32	*		1.044E-01	9.144E-02	1.594E-01	1.528E-02	0.655
	208.81	+		3.115E+00	1.511E+00	1.706E+00	2.000E-01	1.826
	291.72			-1.339E-02	9.551E-01	1.368E+00	2.074E-01	-0.010
	57.98			2.889E-01	5.186E-01	8.463E-01	6.075E-02	0.341
RE-184	59.32			-4.261E-02	3.145E-01	4.579E-01	3.259E-02	-0.093
	67.20			-1.357E-02	5.675E-01	8.907E-01	6.712E-02	-0.015
	161.27			8.147E-02	2.916E-01	4.936E-01	4.713E-02	0.165
	216.55			1.184E-01	2.296E-01	3.860E-01	4.678E-02	0.307
	252.85	*		-8.042E-02	2.054E-01	3.261E-01	4.575E-02	-0.247
	318.01			-3.465E-01	4.108E-01	6.092E-01	8.716E-02	-0.569
	792.07			3.041E-01	1.045E+00	1.514E+00	1.485E-01	0.201
	903.28			6.196E-01	9.715E-01	1.708E+00	1.679E-01	0.363
	920.93			1.028E-02	3.911E-01	6.560E-01	6.407E-02	0.016
	59.72			1.201E-01	2.249E-01	3.392E-01	2.415E-02	0.354
OS-185	61.14			4.779E-02	1.228E-01	1.836E-01	1.321E-02	0.260
	69.30			2.635E-02	2.408E-01	3.522E-01	2.703E-02	0.075
	592.07			-3.528E-01	2.340E+00	3.795E+00	3.872E-01	-0.093
	646.12	*		3.019E-03	3.885E-02	6.376E-02	6.155E-03	0.047
	717.42			-1.038E-01	7.942E-01	1.267E+00	1.223E-01	-0.082
	874.81			-1.558E-01	5.256E-01	8.589E-01	8.464E-02	-0.181
	880.27			6.398E-01	7.367E-01	1.321E+00	1.302E-01	0.484
	155.03	*		1.254E-01	1.487E-01	2.570E-01	2.397E-02	0.488
	477.96			1.290E+00	2.747E+00	4.729E+00	5.096E-01	0.273
	633.10			-1.532E+00	2.560E+00	3.954E+00	3.875E-01	-0.387
W-188	63.58	+		6.801E+01	5.452E+01	6.982E+01	5.111E+00	0.974
	227.08			6.188E-01	1.138E+01	1.868E+01	2.365E+00	0.033
IR-192	290.67	*		-5.246E-01	7.741E+00	1.105E+01	1.678E+00	-0.047
	295.96	+		1.266E+00	2.422E-01	2.906E-01	4.381E-02	4.359
AU-195	308.46			6.990E-02	8.721E-02	1.402E-01	2.057E-02	0.499
	316.51	*		4.766E-04	3.065E-02	4.872E-02	7.003E-03	0.010
	468.07			-6.868E-03	6.643E-02	9.678E-02	1.093E-02	-0.071
	604.41			3.647E-01	4.747E-01	7.315E-01	1.027E-01	0.499
	612.46			2.107E-02	7.460E-01	1.073E+00	1.195E-01	0.020
	65.12			-9.619E-02	1.425E-01	1.998E-01	1.480E-02	-0.482
	66.83			9.429E-03	7.658E-02	1.119E-01	8.402E-03	0.084
	75.70	+		1.402E+00	2.297E-01	3.564E-01	2.916E-02	3.935
	98.88	*		3.329E-01	1.967E-01	3.258E-01	2.874E-02	1.022
	129.76	+		3.677E+00	3.263E+00	4.462E+00	3.835E-01	0.824
TL-200	367.94	*		-7.455E-05	3.263E+00	Half-Life	too short	
	579.30			-1.045E-04	3.263E+00	Half-Life	too short	
	828.27			-3.088E-03	3.263E+00	Half-Life	too short	
TL-201	1205.75			2.479E-04	3.263E+00	Half-Life	too short	
	68.90			-4.147E-01	3.460E+00	5.439E+00	4.159E-01	-0.076

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		70.82		4.545E-01	2.066E+00	3.034E+00	2.362E-01	0.150
		80.30		8.734E-01	3.956E+00	5.769E+00	4.973E-01	0.151
		135.34		-3.784E+00	1.996E+01	3.345E+01	2.920E+00	-0.113
		167.43	*	1.632E+00	5.722E+00	9.664E+00	9.454E-01	0.169
		68.90		-3.886E-02	3.242E-01	5.096E-01	3.898E-02	-0.076
		70.82		4.247E-02	1.930E-01	2.836E-01	2.207E-02	0.150
HG-203		80.30		8.165E-02	3.698E-01	5.393E-01	4.649E-02	0.151
		439.56	*	4.533E-02	6.035E-02	1.060E-01	1.143E-02	0.428
		70.83		1.916E-01	8.455E-01	1.242E+00	1.626E-01	0.154
		72.87		9.120E-01	5.268E-01	8.056E-01	1.029E-01	1.132
BI-207	+	82.60		1.999E+00	1.182E+00	1.370E+00	1.904E-01	1.459
		279.20	*	5.543E-02	4.185E-02	6.487E-02	1.013E-02	0.855
		72.80		2.452E-01	1.519E-01	2.348E-01	1.864E-02	1.044
	+	74.97		7.785E-01	1.275E-01	1.903E-01	1.545E-02	4.091
	+	84.90		3.491E-01	2.030E-01	2.555E-01	2.330E-02	1.366
		569.67		-3.051E-02	2.841E-02	4.236E-02	4.396E-03	-0.720
TL-207		1063.62	*	2.731E-02	4.883E-02	8.482E-02	7.619E-03	0.322
		1770.23		-2.342E-01	5.184E-01	6.450E-01	5.309E-02	-0.363
		81.07		-1.372E-02	1.789E-01	2.567E-01	2.233E-02	-0.053
	+	83.78		2.302E-01	1.339E-01	1.731E-01	1.556E-02	1.330
		94.90		1.614E-01	2.009E-01	2.992E-01	2.695E-02	0.540
		122.32		6.090E-01	1.410E+00	2.435E+00	2.215E-01	0.250
PO-209		144.24		2.780E-01	5.938E-01	9.952E-01	9.916E-02	0.279
		154.21		4.886E-01	3.434E-01	6.025E-01	6.086E-02	0.811
	+	269.46		6.675E-01	2.966E-01	3.449E-01	5.188E-02	1.935
		323.87	*	-2.234E-01	6.806E-01	9.367E-01	1.959E-01	-0.238
	+	338.28		9.102E+00	2.062E+00	2.534E+00	4.079E-01	3.592
		445.03		-2.033E+00	1.966E+00	3.018E+00	4.141E-01	-0.674
BI-210		260.50		1.016E+01	8.579E+00	1.465E+01	2.116E+00	0.694
		262.80		-3.765E-01	2.341E+01	3.792E+01	5.527E+00	-0.010
		896.60	*	-3.913E+00	7.111E+00	1.133E+01	1.116E+00	-0.345
		46.50	*	-1.964E+00	2.236E+00	3.444E+00	3.206E-01	-0.570
PB-210		46.50	*	-1.964E+00	2.236E+00	3.444E+00	3.206E-01	-0.570
PO-210		46.50	*	-1.964E+00	2.235E+00	3.444E+00	2.903E-01	-0.570
PB-211		404.84	*	9.370E-02	8.252E-01	1.400E+00	8.818E-01	0.067
BI-212		427.08		9.303E-01	1.887E+00	3.123E+00	1.951E+00	0.298
		831.96		-2.044E-01	1.286E+00	2.013E+00	1.265E+00	-0.102
	+	727.18	*	1.203E+00	4.265E-01	6.346E-01	6.936E-02	1.896
		785.46		1.636E+00	1.734E+00	2.993E+00	2.931E-01	0.547
PO-215		1620.62		3.543E-01	1.092E+00	1.909E+00	1.603E-01	0.186
		81.07		-1.372E-02	1.789E-01	2.567E-01	2.233E-02	-0.053
	+	83.78		2.302E-01	1.339E-01	1.731E-01	1.556E-02	1.330
		94.90		1.614E-01	2.009E-01	2.992E-01	2.695E-02	0.540
		122.32		6.090E-01	1.410E+00	2.435E+00	2.215E-01	0.250
		144.24		2.780E-01	5.938E-01	9.952E-01	9.916E-02	0.279
PO-215		154.21		4.886E-01	3.434E-01	6.025E-01	6.086E-02	0.811
	+	269.46		6.675E-01	2.966E-01	3.449E-01	5.188E-02	1.935
		323.87	*	-2.234E-01	6.806E-01	9.367E-01	1.959E-01	-0.238
	+	338.28		9.102E+00	2.062E+00	2.534E+00	4.079E-01	3.592



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RN-219	+	445.03		-2.033E+00	1.966E+00	3.018E+00	4.141E-01	-0.674
		271.23		8.564E-01	3.834E-01	4.373E-01	7.027E-02	1.958
		401.81	*	-2.000E-01	3.566E-01	5.787E-01	9.438E-02	-0.346
		549.76	*	-1.476E+01	2.526E+01	3.982E+01	4.185E+00	-0.371
RN-220		81.07		-1.372E-02	1.789E-01	2.567E-01	2.233E-02	-0.053
RA-223	+	83.78		2.302E-01	1.339E-01	1.731E-01	1.556E-02	1.330
		94.90		1.614E-01	2.009E-01	2.992E-01	2.695E-02	0.540
		122.32		6.090E-01	1.410E+00	2.435E+00	2.215E-01	0.250
		144.24		2.780E-01	5.938E-01	9.952E-01	9.916E-02	0.279
AC-227	+	154.21		4.886E-01	3.434E-01	6.025E-01	6.086E-02	0.811
		269.46		6.675E-01	2.966E-01	3.449E-01	5.188E-02	1.935
		323.87	*	-2.234E-01	6.806E-01	9.367E-01	1.959E-01	-0.238
		338.28		9.102E+00	2.062E+00	2.534E+00	4.079E-01	3.592
	+	445.03		-2.033E+00	1.966E+00	3.018E+00	4.141E-01	-0.674
		79.80		7.518E-02	1.358E+00	1.964E+00	4.218E-01	0.038
		236.00		-1.322E-02	2.137E-01	3.105E-01	4.890E-02	-0.043
		256.20	*	9.594E-02	3.380E-01	5.572E-01	1.062E-01	0.172
	+	286.10		-1.133E+00	1.378E+00	2.081E+00	3.805E-01	-0.544
		299.80		4.466E+00	1.801E+00	2.572E+00	5.482E-01	1.736
		304.40		1.959E-01	1.813E+00	2.614E+00	5.751E-01	0.075
		334.20		3.648E-01	2.406E+00	3.151E+00	6.970E-01	0.116
TH-227	+	79.80		7.518E-02	1.358E+00	1.964E+00	4.273E-01	0.038
		94.00		1.075E+01	3.975E+00	3.068E+00	6.736E-01	3.503
		236.00		-1.322E-02	2.137E-01	3.105E-01	4.613E-02	-0.043
		256.20	*	9.594E-02	3.381E-01	5.572E-01	1.187E-01	0.172
	+	286.10		-1.133E+00	1.780E+00	2.081E+00	2.105E+00	-0.544
		299.80		4.466E+00	1.801E+00	2.572E+00	5.482E-01	1.736
		304.40		1.959E-01	1.813E+00	2.614E+00	5.751E-01	0.075
		334.20		3.648E-01	2.406E+00	3.151E+00	6.970E-01	0.116
TH-229	+	85.43		3.446E-01	2.004E-01	2.536E-01	2.328E-02	1.359
		88.47		6.017E-01	1.390E-01	1.674E-01	1.581E-02	3.595
	+	100.00		1.230E-01	1.552E-01	2.624E-01	2.303E-02	0.469
		193.63	*	-2.828E-01	4.293E-01	6.860E-01	7.533E-02	-0.412
PA-231	+	210.97		7.800E-01	7.131E-01	1.113E+00	1.318E-01	0.701
		283.67	*	4.559E-01	1.289E+00	2.122E+00	4.204E-01	0.215
		301.29		1.786E+00	6.851E-01	9.978E-01	1.720E-01	1.790
TH-231	+	81.07		-1.372E-02	1.789E-01	2.567E-01	2.233E-02	-0.053
		83.78		2.302E-01	1.339E-01	1.731E-01	1.556E-02	1.330
		94.90		1.614E-01	2.009E-01	2.992E-01	2.695E-02	0.540
		122.32		6.090E-01	1.410E+00	2.435E+00	2.215E-01	0.250
	+	144.24		2.780E-01	5.938E-01	9.952E-01	9.916E-02	0.279
		154.21		4.886E-01	3.434E-01	6.025E-01	6.086E-02	0.811
		269.46		6.675E-01	2.966E-01	3.449E-01	5.188E-02	1.935
		323.87	*	-2.234E-01	6.806E-01	9.367E-01	1.959E-01	-0.238
U-231	+	338.28		9.102E+00	2.062E+00	2.534E+00	4.079E-01	3.592
		445.03		-2.033E+00	1.966E+00	3.018E+00	4.141E-01	-0.674
		84.21		9.526E+00	5.540E+00	7.167E+00	6.478E-01	1.329
		92.29		1.020E+01	3.173E+00	3.277E+00	3.003E-01	3.113
		95.87	*	-2.473E-01	9.011E-01	1.263E+00	1.131E-01	-0.196

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-233		108.00		6.465E-01	1.689E+00	2.654E+00	2.272E-01	0.244
	+	75.28		2.272E+01	4.709E+00	5.597E+00	8.443E-01	4.059
	+	86.59		8.627E+00	2.962E+00	2.739E+00	7.409E-01	3.150
	+	300.12		1.245E+00	4.889E-01	7.135E-01	1.371E-01	1.745
		311.98	*	-2.562E-02	5.972E-02	9.281E-02	1.362E-02	-0.276
		340.50		1.309E+00	7.017E-01	1.018E+00	2.641E-01	1.286
		398.62		-1.396E+00	1.875E+00	2.957E+00	8.092E-01	-0.472
PA-234		415.76		-1.492E-01	1.497E+00	2.507E+00	5.638E-01	-0.059
	+	63.00		1.977E+00	1.605E+00	2.073E+00	3.068E-01	0.954
		94.67		2.256E-01	1.497E-01	2.274E-01	2.885E-02	0.992
		98.44		7.343E-02	8.986E-02	1.293E-01	7.220E-02	0.568
		99.86		3.451E-01	3.943E-01	6.685E-01	5.873E-02	0.516
		111.00		-1.477E-01	1.498E-01	2.418E-01	2.905E-02	-0.611
		131.20		4.885E-03	9.608E-02	1.467E-01	1.265E-02	0.033
		152.70		3.992E-02	2.810E-01	4.741E-01	8.237E-02	0.084
	+	186.00		3.867E+00	2.139E+00	2.441E+00	7.769E-01	1.584
		226.40		5.350E-02	3.593E-01	5.928E-01	9.547E-02	0.090
		227.20		8.437E-03	3.856E-01	6.322E-01	8.008E-02	0.013
		248.90		9.364E-02	7.198E-01	1.180E+00	2.935E-01	0.079
		293.70		4.143E+00	1.198E+00	1.495E+00	3.183E-01	2.770
		369.80		4.388E-01	7.567E-01	1.239E+00	2.885E-01	0.354
		568.70		-9.853E-01	9.236E-01	1.378E+00	1.431E-01	-0.715
		569.50		-2.674E-01	2.523E-01	3.768E-01	3.911E-02	-0.710
		574.00		1.091E+00	1.362E+00	2.370E+00	2.452E-01	0.460
		699.00		2.522E-01	6.208E-01	1.039E+00	2.029E-01	0.243
		706.10		-2.762E-01	1.014E+00	1.591E+00	7.126E-01	-0.174
		733.00		1.247E-02	4.058E-01	6.063E-01	1.372E-01	0.021
		742.81		1.577E-01	1.308E+00	2.124E+00	1.431E+00	0.074
	+	796.30		1.735E+00	1.420E+00	1.830E+00	5.025E-01	0.948
		805.60		1.038E+00	1.052E+00	1.748E+00	5.421E-01	0.594
		819.60		-6.081E-02	1.154E+00	1.834E+00	7.027E-01	-0.033
		826.30		-2.296E-01	7.567E-01	1.157E+00	5.207E-01	-0.198
		831.60		-1.244E-01	6.620E-01	1.037E+00	3.133E-01	-0.120
		876.40		-1.783E-01	7.904E-01	1.265E+00	1.302E+00	-0.141
		880.51		2.199E-01	2.656E-01	4.752E-01	4.682E-02	0.463
		883.24		7.721E-02	2.767E-01	4.671E-01	3.148E-01	0.165
		899.00		-3.881E-01	8.537E-01	1.348E+00	5.930E-01	-0.288
		925.00		-6.074E-01	1.038E+00	1.633E+00	1.592E-01	-0.372
		926.50		-3.206E-02	1.531E-01	2.504E-01	6.432E-02	-0.128
		946.00	*	-1.113E-01	2.875E-01	4.619E-01	8.899E-02	-0.241
		949.00		1.760E-01	4.478E-01	7.709E-01	7.440E-02	0.228
		980.50		2.519E-01	6.972E-01	1.197E+00	1.137E-01	0.210
		1394.10		-4.941E-01	1.023E+00	1.431E+00	9.310E-01	-0.345
PA-234M		766.42		7.026E+00	1.358E+01	1.944E+01	9.906E+00	0.361
		1001.03	*	-2.272E+00	4.394E+00	6.888E+00	7.327E-01	-0.330
NP-236		94.67		1.729E-01	1.126E-01	1.727E-01	1.558E-02	1.001
		98.44		5.543E-02	6.065E-02	9.776E-02	8.643E-03	0.567
		111.00		-1.118E-01	1.129E-01	1.829E-01	1.558E-02	-0.611
		160.31	*	-5.143E-02	6.600E-02	1.063E-01	1.011E-02	-0.484

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.401E-01	1.327E-01	2.262E-01	1.990E-02	0.619
		117.00	*	-8.702E-02	1.492E-01	2.476E-01	2.095E-02	-0.351
	+	209.75		2.463E+00	1.195E+00	1.342E+00	1.580E-01	1.836
		228.18		-3.879E-02	2.050E-01	3.324E-01	4.227E-02	-0.117
	+	277.60		2.663E-01	2.036E-01	3.018E-01	4.646E-02	0.882
AM-241		334.30		2.067E-01	1.363E+00	1.786E+00	2.439E-01	0.116
		59.54	*	5.480E-02	1.187E-01	1.784E-01	1.402E-02	0.307
CM-243		99.55		1.442E-01	1.366E-01	2.328E-01	2.048E-02	0.619
		103.76	*	-1.189E-02	8.423E-02	1.292E-01	1.119E-02	-0.092
		117.00		-8.953E-02	1.535E-01	2.547E-01	2.155E-02	-0.351
	+	209.75		2.428E+00	1.178E+00	1.323E+00	1.557E-01	1.836
		228.18		-3.919E-02	2.071E-01	3.359E-01	4.272E-02	-0.117
AM-246	+	277.60		2.684E-01	2.053E-01	3.043E-01	4.684E-02	0.882
		798.80		2.168E-02	1.428E-01	2.034E-01	1.996E-02	0.107
		1036.00		8.048E-03	3.023E-01	5.019E-01	4.604E-02	0.016
		1062.04		1.456E-01	2.160E-01	3.785E-01	3.405E-02	0.385
		1078.86	*	8.199E-02	1.518E-01	2.631E-01	2.334E-02	0.312
CM-247	+	278.00		1.104E+00	8.445E-01	1.250E+00	1.927E-01	0.883
		287.40		-2.855E-01	1.099E+00	1.741E+00	2.660E-01	-0.164
		402.60	*	-2.447E-03	3.149E-02	5.296E-02	5.668E-03	-0.046
CF-249		252.85		-3.021E-01	7.717E-01	1.225E+00	1.718E-01	-0.247
		333.44		8.990E-02	2.073E-01	2.442E-01	3.344E-02	0.368
		387.95	*	1.910E-02	3.305E-02	5.791E-02	6.306E-03	0.330
CF-251		176.60	*	3.870E-02	1.090E-01	1.841E-01	1.876E-02	0.210
		227.00		2.000E-02	3.422E-01	5.622E-01	7.115E-02	0.036
		285.00		4.597E-01	1.504E+00	2.469E+00	3.788E-01	0.186

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231003      *
* Acquisition date   : 21-JAN-2010 09:02:27 Detector SN#      :              *
* Detector ID        : GAM11 Sensitivity      : 5.000           *
* Geometry           : CAN Energy tolerance: 1.500           *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000    *
* Elapsed real time  : 0 02:00:01.94 Half life ratio : 8.000     *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244231003 Analyst initials: MXR1           *
* Batch Number       : 941242 Sample Quantity : 1.3122E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000           *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                           *
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22 MS Isotope      :              *
* MSD DPM             : 0.000 MSD Isotope      :                  *
* LCS DPM             : 0.000 LCS Isotope      :                  *
* LCSD DPM            : 0.000 LCSD Isotope     :                  *
*****

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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.588E+01	3.536E+00	4.268E-01	0.000E+00
CD-109	4.482E+00	1.014E+00	1.015E+00	0.000E+00
SN-126	4.407E-01	9.975E-02	1.002E-01	0.000E+00
EU-155	1.432E-01	1.303E-01	1.497E-01	0.000E+00
TL-208	5.730E-01	9.901E-02	5.159E-02	0.000E+00
BI-211	4.290E+00	6.978E-01	2.996E-01	0.000E+00
PB-212	2.002E+00	2.958E-01	8.015E-02	0.000E+00
PO-212	2.002E+00	2.958E-01	8.015E-02	0.000E+00
BI-214	1.231E+00	2.122E-01	1.049E-01	0.000E+00
PB-214	1.492E+00	2.544E-01	1.044E-01	0.000E+00
PO-214	1.492E+00	2.544E-01	1.044E-01	0.000E+00
PO-216	2.002E+00	2.958E-01	8.015E-02	0.000E+00
PO-218	1.492E+00	2.544E-01	1.044E-01	0.000E+00
RA-224	5.284E+00	1.429E+00	9.123E-01	0.000E+00
RA-226	1.231E+00	2.122E-01	1.049E-01	0.000E+00
AC-228	1.950E+00	3.653E-01	1.922E-01	0.000E+00
RA-228	1.950E+00	3.653E-01	1.922E-01	0.000E+00
TH-228	2.031E+00	3.002E-01	8.134E-02	0.000E+00
TH-230	1.231E+00	2.122E-01	1.049E-01	0.000E+00
TH-232	1.950E+00	3.653E-01	1.922E-01	0.000E+00
TH-234	1.696E+00	1.358E+00	1.648E+00	0.000E+00
U-234	1.231E+00	2.122E-01	1.049E-01	0.000E+00
U-235	2.048E-02	1.805E-01	3.172E-01	0.000E+00
NP-237	1.294E+00	3.928E-01	2.841E-01	0.000E+00
U-238	1.696E+00	1.358E+00	1.648E+00	0.000E+00
AM-243	4.337E-01	6.962E-02	6.711E-02	0.000E+00
ANH-511	1.226E-01	6.354E-02	4.406E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	2.094E-01	2.811E-01	5.113E-01	0.000E+00	NOT IDENT.
NA-22	-3.836E-02	4.090E-02	6.092E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.837E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-1.316E-03	2.336E-02	3.869E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.506E-02	6.146E-02	0.000E+00	FAIL ABUN
SC-46	-2.065E-02	3.500E-02	5.720E-02	0.000E+00	FAIL ABUN
V-48	-4.047E-03	6.560E-02	1.116E-01	0.000E+00	NOT IDENT.
CR-51	7.529E-02	3.101E-01	5.280E-01	0.000E+00	NOT IDENT.
MN-52	3.524E-02	2.166E-01	3.640E-01	0.000E+00	FAIL ABUN
MN-54	2.222E-02	3.699E-02	6.687E-02	0.000E+00	NOT IDENT.
CO-56	-2.482E-02	3.956E-02	6.534E-02	0.000E+00	FAIL ABUN
CO-57	1.178E-02	1.994E-02	3.684E-02	0.000E+00	NOT IDENT.
CO-58	-4.462E-02	3.864E-02	5.584E-02	0.000E+00	NOT IDENT.
FE-59	-9.759E-02	8.998E-02	1.363E-01	0.000E+00	NOT IDENT.
CO-60	2.739E-02	4.135E-02	7.313E-02	0.000E+00	NOT IDENT.
ZN-65	-6.469E-03	9.791E-02	1.421E-01	0.000E+00	NOT IDENT.
GE-68	1.422E-01	1.315E+00	2.249E+00	0.000E+00	NOT IDENT.
AS-73	-5.201E-02	5.345E-01	9.175E-01	0.000E+00	NOT IDENT.
AS-74	-1.958E-02	8.595E-02	1.438E-01	0.000E+00	NOT IDENT.
SE-75	-2.516E-02	4.022E-02	6.226E-02	0.000E+00	NOT IDENT.
BR-77	4.111E-01	8.043E+00	1.392E+01	0.000E+00	FAIL ABUN
SR-82	-1.462E-01	3.654E-01	5.833E-01	0.000E+00	NOT IDENT.
RB-83	-3.280E-02	5.998E-02	9.893E-02	0.000E+00	NOT IDENT.
RB-84	3.890E-02	6.594E-02	1.193E-01	0.000E+00	NOT IDENT.
KR-85	7.643E+00	7.366E+00	1.212E+01	0.000E+00	NOT IDENT.
SR-85	3.909E-02	3.767E-02	6.197E-02	0.000E+00	NOT IDENT.
RB-86	-1.133E-01	8.097E-01	1.356E+00	0.000E+00	NOT IDENT.
Y-88	-2.970E-04	3.016E-02	5.041E-02	0.000E+00	NOT IDENT.
ZR-88	-5.234E-03	2.629E-02	4.592E-02	0.000E+00	NOT IDENT.
Y-91	8.727E+00	1.990E+01	3.443E+01	0.000E+00	NOT IDENT.
NB-94	5.506E-04	3.106E-02	5.207E-02	0.000E+00	NOT IDENT.
NB-95	1.180E-02	4.594E-02	6.845E-02	0.000E+00	NOT IDENT.
NB-95M	5.262E-03	1.105E-01	1.705E-01	0.000E+00	NOT IDENT.
ZR-95	2.782E-02	6.759E-02	1.162E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.172E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.301E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-3.900E+00	9.985E+00	1.600E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.688E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	3.670E-03	2.839E-02	4.898E-02	0.000E+00	NOT IDENT.
RH-102	-8.347E-03	2.591E-02	4.402E-02	0.000E+00	NOT IDENT.
RU-103	-7.239E-03	3.398E-02	5.785E-02	0.000E+00	FAIL ABUN
RH-106	3.527E-01	2.965E-01	5.411E-01	0.000E+00	FAIL ABUN
RU-106	3.527E-01	2.944E-01	5.411E-01	0.000E+00	FAIL ABUN
AG-108M	-9.270E-03	2.548E-02	4.343E-02	0.000E+00	NOT IDENT.
AG-110M	-3.198E-02	3.194E-02	4.895E-02	0.000E+00	NOT IDENT.
IN-111	1.543E-01	9.456E-01	1.465E+00	0.000E+00	NOT IDENT.
IN-113M	4.264E-03	3.773E-02	6.717E-02	0.000E+00	NOT IDENT.
SN-113	4.264E-03	3.773E-02	6.717E-02	0.000E+00	NOT IDENT.
IN-114M	1.749E-02	1.591E-01	2.673E-01	0.000E+00	NOT IDENT.
CD-115	9.572E-01	8.500E+00	1.476E+01	0.000E+00	NOT IDENT.
SN-117M	-1.791E-02	4.421E-02	7.704E-02	0.000E+00	NOT IDENT.
SB-122	2.894E+00	1.752E+00	3.306E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.367E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-3.849E-03	2.252E-02	3.965E-02	0.000E+00	NOT IDENT.
I-124	-1.368E-01	6.573E-01	1.015E+00	0.000E+00	NOT IDENT.
SB-124	5.607E-03	6.468E-02	1.110E-01	0.000E+00	FAIL ABUN
SB-125	8.504E-02	7.860E-02	1.464E-01	0.000E+00	FAIL ABUN
TE-125M	5.178E+00	7.780E+00	1.318E+01	0.000E+00	NOT IDENT.
I-126	1.331E-01	1.706E-01	3.035E-01	0.000E+00	NOT IDENT.
SB-126	1.245E-02	1.303E-01	2.032E-01	0.000E+00	FAIL ABUN
SB-127	1.210E-01	1.207E+00	2.043E+00	0.000E+00	NOT IDENT.
XE-127	-1.802E-02	4.038E-02	6.882E-02	0.000E+00	NOT IDENT.
I-131	-3.243E-02	1.013E-01	1.637E-01	0.000E+00	NOT IDENT.
TE-132	-2.520E-02	5.791E-01	9.971E-01	0.000E+00	NOT IDENT.
BA-133	-1.953E-02	4.366E-02	6.145E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.460E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	8.925E-02	6.801E-02	9.579E-02	0.000E+00	FAIL ABUN
CS-135	2.486E-01	1.528E-01	2.519E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.192E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-9.701E-03	1.014E-01	1.709E-01	0.000E+00	FAIL ABUN
BA-137M	1.429E-02	3.474E-02	6.029E-02	0.000E+00	NOT IDENT.
CS-137	1.510E-02	3.672E-02	6.373E-02	0.000E+00	NOT IDENT.
CE-139	1.974E-02	2.567E-02	4.671E-02	0.000E+00	NOT IDENT.
BA-140	-1.045E-01	2.398E-01	3.948E-01	0.000E+00	NOT IDENT.
LA-140	-2.025E-02	6.997E-02	1.136E-01	0.000E+00	FAIL ABUN
CE-141	1.535E-02	5.375E-02	9.494E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.540E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.387E-02	1.757E-01	3.006E-01	0.000E+00	NOT IDENT.

PM-144	-8.335E-03	3.235E-02	4.945E-02	0.000E+00	NOT IDENT.
PR-144	-5.647E-01	2.192E+00	3.350E+00	0.000E+00	NOT IDENT.
PM-146	3.299E-02	3.805E-02	6.977E-02	0.000E+00	NOT IDENT.
ND-147	-7.427E-02	4.889E-01	8.314E-01	0.000E+00	FAIL ABUN
PM-149	-7.761E+01	7.597E+01	1.178E+02	0.000E+00	NOT IDENT.
EU-152	8.875E-03	8.142E-02	1.366E-01	0.000E+00	NOT IDENT.
GD-153	-1.121E-01	7.622E-02	1.050E-01	0.000E+00	FAIL ABUN
EU-154	-1.061E-01	1.146E-01	1.706E-01	0.000E+00	NOT IDENT.
TB-160	8.422E-02	1.293E-01	2.352E-01	0.000E+00	FAIL ABUN
HO-166M	-1.641E-02	5.727E-02	9.341E-02	0.000E+00	NOT IDENT.
TM-171	2.587E+00	2.270E+01	3.561E+01	0.000E+00	NOT IDENT.
LU-176	-9.231E-03	2.387E-02	3.446E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.611E+00	1.914E+00	0.000E+00	FAIL ABUN
LU-177M	-2.904E-02	1.559E-01	2.713E-01	0.000E+00	FAIL ABUN
HF-181	-1.969E-03	3.695E-02	6.391E-02	0.000E+00	NOT IDENT.
W-181	-3.205E-02	2.917E-01	4.533E-01	0.000E+00	NOT IDENT.
TA-182	-5.050E-02	1.967E-01	3.220E-01	0.000E+00	FAIL ABUN
RE-183	1.044E-01	8.961E-02	1.656E-01	0.000E+00	FAIL ABUN
RE-184	-8.042E-02	2.013E-01	3.362E-01	0.000E+00	NOT IDENT.
OS-185	3.019E-03	3.808E-02	6.472E-02	0.000E+00	NOT IDENT.
RE-188	1.254E-01	1.458E-01	2.670E-01	0.000E+00	NOT IDENT.
W-188	-5.246E-01	7.587E+00	1.136E+01	0.000E+00	FAIL ABUN
IR-192	4.766E-04	3.004E-02	5.004E-02	0.000E+00	FAIL ABUN
AU-195	3.329E-01	1.928E-01	3.410E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.473E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.632E+00	5.608E+00	1.003E+01	0.000E+00	NOT IDENT.
TL-202	4.533E-02	5.914E-02	1.083E-01	0.000E+00	NOT IDENT.
HG-203	5.543E-02	4.102E-02	6.677E-02	0.000E+00	FAIL ABUN
BI-207	2.731E-02	4.786E-02	8.537E-02	0.000E+00	FAIL ABUN
TL-207	-2.234E-01	6.669E-01	9.618E-01	0.000E+00	FAIL ABUN
PO-209	-3.913E+00	6.969E+00	1.144E+01	0.000E+00	NOT IDENT.
BI-210	-1.964E+00	2.192E+00	3.647E+00	0.000E+00	NOT IDENT.
PB-210	-1.964E+00	2.192E+00	3.647E+00	0.000E+00	NOT IDENT.
PO-210	-1.964E+00	2.190E+00	3.647E+00	0.000E+00	NOT IDENT.
PB-211	9.370E-02	8.087E-01	1.432E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.180E-01	6.429E-01	0.000E+00	FAIL ABUN
PO-215	-2.234E-01	6.669E-01	9.618E-01	0.000E+00	FAIL ABUN
RN-219	-2.000E-01	3.495E-01	5.921E-01	0.000E+00	FAIL ABUN
RN-220	-1.476E+01	2.475E+01	4.053E+01	0.000E+00	NOT IDENT.
RA-223	-2.234E-01	6.669E-01	9.618E-01	0.000E+00	FAIL ABUN
AC-227	9.594E-02	3.313E-01	5.743E-01	0.000E+00	FAIL ABUN
TH-227	9.594E-02	3.314E-01	5.743E-01	0.000E+00	FAIL ABUN
TH-229	-2.828E-01	4.207E-01	7.103E-01	0.000E+00	FAIL ABUN
PA-231	4.559E-01	1.263E+00	2.183E+00	0.000E+00	FAIL ABUN
TH-231	-2.234E-01	6.669E-01	9.618E-01	0.000E+00	FAIL ABUN
U-231	-2.473E-01	8.831E-01	1.322E+00	0.000E+00	FAIL ABUN
PA-233	-2.562E-02	5.852E-02	9.535E-02	0.000E+00	FAIL ABUN
PA-234	-1.113E-01	2.817E-01	4.658E-01	0.000E+00	FAIL ABUN
PA-234M	-2.272E+00	4.306E+00	6.940E+00	0.000E+00	NOT IDENT.
NP-236	-5.143E-02	6.468E-02	1.104E-01	0.000E+00	NOT IDENT.
NP-239	-8.702E-02	1.462E-01	2.585E-01	0.000E+00	FAIL ABUN
AM-241	5.480E-02	1.163E-01	1.882E-01	0.000E+00	NOT IDENT.
CM-243	-1.189E-02	8.255E-02	1.351E-01	0.000E+00	FAIL ABUN
AM-246	8.199E-02	1.487E-01	2.648E-01	0.000E+00	NOT IDENT.
CM-247	-2.447E-03	3.086E-02	5.418E-02	0.000E+00	FAIL ABUN
CF-249	1.910E-02	3.239E-02	5.929E-02	0.000E+00	NOT IDENT.
CF-251	3.870E-02	1.068E-01	1.909E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231003.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:02:27
Sample ID          : G244231003      Sample quantity   : 1.31220E+02 GRAM
Detector name      : GAM11           Detector geometry: CAN
Elapsed live time   : 0 02:00:00.00  Elapsed real time: 0 02:00:01.94  0.0%
Energy tolerance    : 1.50000 keV     Analyst Initials : MXR1
Abundance limit     : 75.00000         Sensitivity      : 5.00000
Batch ID           : 941242           Detector SN#     :
Matrix Spike ID    :                  LCS ID          : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1639	10.67*	1.225E+00	3.588E+01	3.588E+01	10.06
CD-109	88.03	387	3.72*	6.787E+00	4.383E+00	4.482E+00	23.10
SN-126	64.28	96	9.60	4.278E+00	6.714E-01	6.714E-01	81.13
	86.94	387	8.90	6.787E+00	1.832E+00	1.832E+00	46.58
	87.57	387	37.00*	6.787E+00	4.407E-01	4.407E-01	23.10
EU-155	48.70	-----	4.60	1.854E+00	-----	Line Not Found	-----
	60.01	-----	1.11	3.761E+00	-----	Line Not Found	-----
	86.54	387	30.90	6.787E+00	5.277E-01	5.307E-01	23.13
	105.31	76	20.70*	7.371E+00	1.424E-01	1.432E-01	92.82
TL-208	277.35	61	6.80	4.674E+00	5.521E-01	5.521E-01	76.99
	510.84	127	21.60	2.954E+00	5.677E-01	5.677E-01	53.52
	583.14	449	84.20*	2.661E+00	5.730E-01	5.730E-01	17.63
	860.37	58	12.46	1.926E+00	6.915E-01	6.915E-01	73.46
BI-211	72.87	-----	1.27	5.576E+00	-----	Line Not Found	-----
	351.07	761	12.94*	3.921E+00	4.290E+00	4.290E+00	16.60
PB-212	74.81	579	10.70	5.784E+00	2.675E+00	2.675E+00	18.86
	77.11	949	18.00	6.020E+00	2.504E+00	2.504E+00	12.16
	87.30	387	8.00	6.787E+00	2.038E+00	2.038E+00	25.17
	238.63	1626	44.60*	5.210E+00	2.002E+00	2.002E+00	15.08
	300.09	127	3.41	4.415E+00	2.410E+00	2.410E+00	37.81
PO-212	74.81	579	10.70	5.784E+00	2.675E+00	2.675E+00	18.86
	77.11	949	18.00	6.020E+00	2.504E+00	2.504E+00	12.16
	87.30	387	8.00	6.787E+00	2.038E+00	2.038E+00	25.17
	115.19	-----	0.60	7.407E+00	-----	Line Not Found	-----
	238.63	1626	44.60*	5.210E+00	2.002E+00	2.002E+00	15.08
	300.09	127	3.41	4.415E+00	2.410E+00	2.410E+00	37.81
BI-214	609.31	512	46.30*	2.569E+00	1.231E+00	1.231E+00	17.60
	1120.29	95	15.10	1.530E+00	1.176E+00	1.176E+00	40.86
	1764.49	75	15.80	1.071E+00	1.269E+00	1.269E+00	40.07
PB-214	74.81	579	6.21	5.784E+00	4.610E+00	4.610E+00	17.98
	77.11	949	10.50	6.020E+00	4.293E+00	4.293E+00	14.35
	87.30	387	4.67	6.787E+00	3.491E+00	3.491E+00	24.35

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	241.98	377	7.49	5.165E+00	2.787E+00	2.787E+00	28.16
	295.21	499	19.20	4.466E+00	1.665E+00	1.665E+00	20.09
	351.92	761	37.20*	3.921E+00	1.492E+00	1.492E+00	17.40
	74.81	579	6.21	5.784E+00	4.610E+00	4.610E+00	17.98
	77.11	949	10.50	6.020E+00	4.293E+00	4.293E+00	14.35
	87.30	387	4.67	6.787E+00	3.491E+00	3.491E+00	24.35
PO-216	241.98	377	7.49	5.165E+00	2.787E+00	2.787E+00	28.16
	295.21	499	19.20	4.466E+00	1.665E+00	1.665E+00	20.09
	351.92	761	37.20*	3.921E+00	1.492E+00	1.492E+00	17.40
	74.81	579	10.70	5.784E+00	2.675E+00	2.675E+00	18.86
	77.11	949	18.00	6.020E+00	2.504E+00	2.504E+00	12.16
	87.30	387	8.00	6.787E+00	2.038E+00	2.038E+00	25.17
PO-218	238.63	1626	44.60*	5.210E+00	2.002E+00	2.002E+00	15.08
	300.09	127	3.41	4.415E+00	2.410E+00	2.410E+00	37.81
	74.81	579	6.21	5.784E+00	4.610E+00	4.610E+00	17.98
	77.11	949	10.50	6.020E+00	4.293E+00	4.293E+00	14.35
	87.30	387	4.67	6.787E+00	3.491E+00	3.491E+00	24.35
	241.98	377	7.49	5.165E+00	2.787E+00	2.787E+00	28.16
RA-224	295.21	499	19.20	4.466E+00	1.665E+00	1.665E+00	20.09
	351.92	761	37.20*	3.921E+00	1.492E+00	1.492E+00	17.40
	240.98	377	3.95*	5.165E+00	5.284E+00	5.284E+00	27.60
RA-226	609.31	512	46.30*	2.569E+00	1.231E+00	1.231E+00	17.60
	1120.29	95	15.10	1.530E+00	1.176E+00	1.176E+00	40.86
	1764.49	75	15.80	1.071E+00	1.269E+00	1.269E+00	40.07
AC-228	338.32	351	11.40	4.039E+00	2.180E+00	2.180E+00	45.43
	911.07	346	27.70*	1.833E+00	1.950E+00	1.950E+00	19.11
	969.11	189	16.60	1.737E+00	1.876E+00	1.876E+00	31.63
RA-228	338.32	351	11.40	4.039E+00	2.180E+00	2.180E+00	45.43
	911.07	346	27.70*	1.833E+00	1.950E+00	1.950E+00	19.11
	969.11	189	16.60	1.737E+00	1.876E+00	1.876E+00	31.63
TH-228	74.81	579	10.70	5.784E+00	2.675E+00	2.715E+00	16.42
	77.11	949	18.00	6.020E+00	2.504E+00	2.542E+00	12.16
	87.30	387	8.00	6.787E+00	2.038E+00	2.069E+00	23.10
TH-230	238.63	1626	44.60*	5.210E+00	2.002E+00	2.031E+00	15.08
	300.09	127	3.41	4.415E+00	2.410E+00	2.446E+00	69.53
	609.31	512	46.30*	2.569E+00	1.231E+00	1.231E+00	17.60
TH-232	1120.29	95	15.10	1.530E+00	1.176E+00	1.176E+00	40.86
	1764.49	75	15.80	1.071E+00	1.269E+00	1.269E+00	40.07
	338.32	351	11.40	4.039E+00	2.180E+00	2.180E+00	20.88
TH-234	911.07	346	27.70*	1.833E+00	1.950E+00	1.950E+00	19.11
	969.11	189	16.60	1.737E+00	1.876E+00	1.876E+00	31.63
	63.29	96	3.80*	4.278E+00	1.696E+00	1.696E+00	81.71
U-234	92.38	372	5.41	7.064E+00	2.782E+00	2.782E+00	34.93
	609.31	512	46.30*	2.569E+00	1.231E+00	1.231E+00	17.60
	1120.29	95	15.10	1.530E+00	1.176E+00	1.176E+00	40.86
U-235	1764.49	75	15.80	1.071E+00	1.269E+00	1.269E+00	40.07
	89.95	234	2.70	6.936E+00	3.582E+00	3.582E+00	40.31
	93.35	372	4.50	7.064E+00	3.344E+00	3.344E+00	40.97
	105.00	76	2.10	7.371E+00	1.404E+00	1.404E+00	97.11



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	143.76	-----	10.50*	7.034E+00	-----	Line Not Found	-----
	163.35	-----	4.70	6.629E+00	-----	Line Not Found	-----
	185.71	166	54.00	6.152E+00	1.432E-01	1.432E-01	46.48
	205.31	-----	4.70	5.777E+00	-----	Line Not Found	-----
NP-237	86.50	387	12.60*	6.787E+00	1.294E+00	1.294E+00	30.97
	95.87	-----	2.60	7.169E+00	-----	Line Not Found	-----
U-238	63.29	96	3.80*	4.278E+00	1.696E+00	1.696E+00	81.71
	92.38	372	5.41	7.064E+00	2.782E+00	2.782E+00	31.10
AM-243	74.67	579	66.00*	5.784E+00	4.337E-01	4.337E-01	16.38
	86.72	387	0.34	6.787E+00	4.853E+01	4.853E+01	23.10
	117.66	-----	0.55	7.397E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.065E+00	-----	Line Not Found	-----
ANH-511	511.00	127	100.00*	2.954E+00	1.226E-01	1.226E-01	52.87

Flag: "\*" = Keyline

Total number of lines in spectrum 37  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 35 94.59%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.588E+01	3.588E+01	0.361E+01	10.06	
CD-109	464.00D	1.02	4.383E+00	4.482E+00	1.035E+00	23.10	
SN-126	1.00E+05Y	1.00	4.407E-01	4.407E-01	1.018E-01	23.10	
EU-155	4.96Y	1.01	1.424E-01	1.432E-01	1.330E-01	92.82	
TL-208	1.41E+10Y	1.00	5.730E-01	5.730E-01	1.010E-01	17.63	
BI-211	7.04E+08Y	1.00	4.290E+00	4.290E+00	0.712E+00	16.60	
PB-212	1.41E+10Y	1.00	2.002E+00	2.002E+00	0.302E+00	15.08	
PO-212	1.41E+10Y	1.00	2.002E+00	2.002E+00	0.302E+00	15.08	
BI-214	1600.00Y	1.00	1.231E+00	1.231E+00	0.217E+00	17.60	
PB-214	1600.00Y	1.00	1.492E+00	1.492E+00	0.260E+00	17.40	
PO-214	1600.00Y	1.00	1.492E+00	1.492E+00	0.260E+00	17.40	
PO-216	1.41E+10Y	1.00	2.002E+00	2.002E+00	0.302E+00	15.08	
PO-218	1600.00Y	1.00	1.492E+00	1.492E+00	0.260E+00	17.40	
RA-224	1.41E+10Y	1.00	5.284E+00	5.284E+00	1.458E+00	27.60	
RA-226	1600.00Y	1.00	1.231E+00	1.231E+00	0.217E+00	17.60	
AC-228	1.41E+10Y	1.00	1.950E+00	1.950E+00	0.373E+00	19.11	
RA-228	1.41E+10Y	1.00	1.950E+00	1.950E+00	0.373E+00	19.11	
TH-228	1.91Y	1.01	2.002E+00	2.031E+00	0.306E+00	15.08	
TH-230	4.47E+09Y	1.00	1.231E+00	1.231E+00	0.217E+00	17.60	
TH-232	1.41E+10Y	1.00	1.950E+00	1.950E+00	0.373E+00	19.11	
TH-234	4.47E+09Y	1.00	1.696E+00	1.696E+00	1.386E+00	81.71	
U-234	4.47E+09Y	1.00	1.231E+00	1.231E+00	0.217E+00	17.60	
U-235	7.04E+08Y	1.00	1.432E-01	1.432E-01	0.666E-01	46.48	K
NP-237	2.14E+06Y	1.00	1.294E+00	1.294E+00	0.401E+00	30.97	
U-238	4.47E+09Y	1.00	1.696E+00	1.696E+00	1.386E+00	81.71	
AM-243	7380.00Y	1.00	4.337E-01	4.337E-01	0.710E-01	16.38	
ANH-511	1.00E+09Y	1.00	1.226E-01	1.226E-01	0.648E-01	52.87	

Total Activity : 7.963E+01 7.976E+01

Grand Total Activity : 7.963E+01 7.976E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
6	84.09	131	437	1.43	167.10	164	13	1.82E-02	57.4	6.59E+00	T
0	129.25	72	338	0.60	257.48	254	7	9.95E-03	88.3	7.28E+00	T
0	209.37	159	349	1.02	417.84	413	10	2.21E-02	47.1	5.70E+00	T
0	270.21	151	236	0.85	539.60	535	10	2.10E-02	41.8	4.77E+00	T
0	328.20	83	229	1.02	655.67	650	12	1.15E-02	76.3	4.13E+00	T
0	463.14	125	134	1.61	925.72	920	14	1.74E-02	43.0	3.19E+00	T
0	727.20	110	62	1.54	1454.14	1448	11	1.53E-02	33.7	2.22E+00	T
0	768.74	61	65	1.88	1537.26	1532	10	8.53E-03	55.3	2.12E+00	
0	795.59	49	83	0.98	1590.99	1585	10	6.77E-03	77.1	2.06E+00	T
0	934.60	31	58	1.48	1869.14	1864	12	4.32E-03	****	1.79E+00	T
1	965.68	48	77	1.73	1931.32	1922	24	6.63E-03	70.3	1.74E+00	T
0	1238.83	52	114	0.91	2477.82	2472	12	7.22E-03	86.7	1.40E+00	T
0	1378.46	36	17	1.26	2757.16	2752	10	5.00E-03	54.6	1.28E+00	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231003.CNF;1
* Acquisition date   : 21-JAN-2010 09:02:27  Detector SN#      :
* Detector ID        : GAM11                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.94          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244231003           Analyst initials: MXR1
* Batch Number       : 941242               Sample Quantity : 1.31220E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 18-NOV-2009 15:33:22.2MS Isotope      :
* MSD ID            :                          MSD Isotope   :
* LCS ID            : 1032-A                  LCS Isotope    :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.588E+01	3.608E+00	4.263E-01	3.686E-02	84.157
CD-109	4.482E+00	1.035E+00	9.683E-01	9.182E-02	4.629
SN-126	4.407E-01	1.018E-01	9.551E-02	9.009E-03	4.614
EU-155	1.432E-01	1.330E-01	1.432E-01	1.250E-02	1.000
TL-208	5.730E-01	1.010E-01	5.073E-02	5.479E-03	11.295
BI-211	4.290E+00	7.120E-01	2.922E-01	3.855E-02	14.681
PB-212	2.002E+00	3.018E-01	7.767E-02	1.088E-02	25.771
PO-212	2.002E+00	3.018E-01	7.767E-02	1.088E-02	25.771
BI-214	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
PB-214	1.492E+00	2.596E-01	1.019E-01	1.441E-02	14.650
PO-214	1.492E+00	2.596E-01	1.019E-01	1.441E-02	14.650
PO-216	2.002E+00	3.018E-01	7.767E-02	1.088E-02	25.771
PO-218	1.492E+00	2.596E-01	1.019E-01	1.441E-02	14.650
RA-224	5.284E+00	1.458E+00	8.842E-01	1.184E-01	5.977
RA-226	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
AC-228	1.950E+00	3.727E-01	1.904E-01	2.318E-02	10.242
RA-228	1.950E+00	3.727E-01	1.904E-01	2.318E-02	10.242
TH-228	2.031E+00	3.063E-01	7.883E-02	1.104E-02	25.771

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
TH-232	1.950E+00	3.727E-01	1.904E-01	2.318E-02	10.242
TH-234	1.696E+00	1.386E+00	1.564E+00	2.720E-01	1.085
U-234	1.231E+00	2.166E-01	1.032E-01	1.167E-02	11.922
U-235	1.432E-01	6.657E-02	3.049E-01	5.390E-02	0.470
NP-237	1.294E+00	4.008E-01	2.708E-01	6.131E-02	4.778
U-238	1.696E+00	1.386E+00	1.564E+00	2.720E-01	1.085
AM-243	4.337E-01	7.105E-02	6.384E-02	5.166E-03	6.794
ANH-511	1.226E-01	6.484E-02	4.324E-02	4.624E-03	2.836

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	2.094E-01		2.868E-01	5.012E-01	5.672E-02	0.418
NA-22	-3.836E-02		4.174E-02	6.071E-02	4.986E-03	-0.632
NA-24	6.165E-02		2.468E-01	Half-Life too short		
AL-26	-1.316E-03		2.384E-02	3.879E-02	3.167E-03	-0.034
TI-44	4.621E-01	+	5.618E-02	5.851E-02	4.932E-03	7.899
SC-46	-2.065E-02		3.572E-02	5.666E-02	5.580E-03	-0.365
V-48	-4.047E-03		6.694E-02	1.108E-01	1.051E-02	-0.037
CR-51	7.529E-02		3.164E-01	5.141E-01	7.461E-02	0.146
MN-52	3.524E-02		2.210E-01	3.635E-01	3.045E-02	0.097
MN-54	2.222E-02		3.774E-02	6.617E-02	6.515E-03	0.336
CO-56	-2.482E-02		4.037E-02	6.466E-02	6.371E-03	-0.384
CO-57	1.178E-02		2.035E-02	3.532E-02	2.988E-03	0.333
CO-58	-4.462E-02		3.943E-02	5.522E-02	5.437E-03	-0.808
FE-59	-9.759E-02		9.181E-02	1.355E-01	1.274E-02	-0.720
CO-60	2.739E-02		4.219E-02	7.294E-02	6.027E-03	0.376
ZN-65	-6.469E-03		9.991E-02	1.413E-01	1.212E-02	-0.046
GE-68	1.422E-01		1.342E+00	2.235E+00	1.984E-01	0.064
AS-73	-5.201E-02		5.454E-01	8.683E-01	6.520E-02	-0.060
AS-74	-1.958E-02		8.771E-02	1.414E-01	1.438E-02	-0.138
SE-75	-2.516E-02		4.104E-02	6.043E-02	8.883E-03	-0.416
BR-77	4.111E-01		8.208E+00	1.367E+01	1.456E+00	0.030
SR-82	-1.462E-01		3.728E-01	5.764E-01	5.638E-02	-0.254
RB-83	-3.280E-02		6.120E-02	9.711E-02	1.035E-02	-0.338
RB-84	3.890E-02		6.728E-02	1.181E-01	1.164E-02	0.329
KR-85	7.643E+00		7.517E+00	1.189E+01	1.270E+00	0.643
SR-85	3.909E-02		3.844E-02	6.081E-02	6.496E-03	0.643
RB-86	-1.133E-01		8.263E-01	1.348E+00	1.198E-01	-0.084
Y-88	-2.970E-04		3.078E-02	5.056E-02	4.104E-03	-0.006
ZR-88	-5.234E-03		2.683E-02	4.486E-02	4.784E-03	-0.117
Y-91	8.727E+00		2.030E+01	3.428E+01	2.775E+00	0.255
NB-94	5.506E-04		3.169E-02	5.137E-02	4.934E-03	0.011
NB-95	1.180E-02		4.688E-02	6.763E-02	6.602E-03	0.174
NB-95M	5.262E-03		1.128E-01	1.652E-01	2.306E-02	0.032
ZR-95	2.782E-02		6.897E-02	1.148E-01	1.208E-02	0.242

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-97	-7.798E-02		3.659E-02	Half-Life too short		
ZR-97	8.473E-01		6.636E-01	Half-Life too short		
MO-99	-3.900E+00		1.019E+01	1.580E+01	2.500E+00	-0.247
TC-99M	-1.500E+10		8.613E+09	Half-Life too short		
RH-101	3.670E-03		2.897E-02	4.732E-02	5.296E-03	0.078
RH-102	-8.347E-03		2.644E-02	4.315E-02	4.652E-03	-0.193
RU-103	-7.239E-03		3.467E-02	5.674E-02	8.819E-03	-0.128
RH-106	3.527E-01		3.025E-01	5.327E-01	7.581E-02	0.662
RU-106	3.527E-01		3.004E-01	5.327E-01	5.284E-02	0.662
AG-108M	-9.270E-03		2.600E-02	4.250E-02	4.698E-03	-0.218
AG-110M	-3.198E-02		3.259E-02	4.824E-02	4.701E-03	-0.663
IN-111	1.543E-01		9.649E-01	1.420E+00	1.935E-01	0.109
IN-113M	4.264E-03		3.850E-02	6.562E-02	7.137E-03	0.065
SN-113	4.264E-03		3.850E-02	6.562E-02	7.137E-03	0.065
IN-114M	1.749E-02		1.624E-01	2.580E-01	2.792E-02	0.068
CD-115	9.572E-01		8.674E+00	1.449E+01	1.540E+00	0.066
SN-117M	-1.791E-02		4.511E-02	7.417E-02	7.010E-03	-0.241
SB-122	2.894E+00		1.788E+00	3.249E+00	3.385E-01	0.891
I-123	-5.754E-01		1.718E+00	Half-Life too short		
TE-123M	-3.849E-03		2.298E-02	3.818E-02	3.632E-03	-0.101
I-124	-1.368E-01		6.707E-01	9.987E-01	1.009E-01	-0.137
SB-124	5.607E-03		6.600E-02	1.112E-01	9.660E-03	0.050
SB-125	8.504E-02		8.020E-02	1.432E-01	1.562E-02	0.594
TE-125M	5.178E+00		7.939E+00	1.261E+01	1.294E+00	0.411
I-126	1.331E-01		1.741E-01	2.991E-01	2.836E-02	0.445
SB-126	1.245E-02		1.330E-01	2.006E-01	1.937E-02	0.062
SB-127	1.210E-01		1.232E+00	2.015E+00	2.425E-01	0.060
XE-127	-1.802E-02		4.120E-02	6.651E-02	7.602E-03	-0.271
I-131	-3.243E-02		1.034E-01	1.597E-01	2.005E-02	-0.203
TE-132	-2.520E-02		5.909E-01	9.655E-01	1.762E-01	-0.026
BA-133	-1.953E-02		4.456E-02	5.994E-02	9.667E-03	-0.326
I-133	-1.826E-03		2.276E-03	Half-Life too short		
CS-134	8.925E-02	+	6.939E-02	9.470E-02	9.342E-03	0.942
CS-135	2.486E-01		1.559E-01	2.446E-01	3.838E-02	1.016
I-135	2.212E+09		1.629E+09	Half-Life too short		
CS-136	-9.701E-03		1.035E-01	1.697E-01	1.603E-02	-0.057
BA-137M	1.429E-02		3.545E-02	5.941E-02	5.622E-03	0.240
CS-137	1.510E-02		3.747E-02	6.281E-02	5.952E-03	0.240
CE-139	1.974E-02		2.620E-02	4.500E-02	4.373E-03	0.439
BA-140	-1.045E-01		2.447E-01	3.877E-01	1.307E-01	-0.270
LA-140	-2.025E-02		7.140E-02	1.136E-01	9.556E-03	-0.178
CE-141	1.535E-02		5.484E-02	9.127E-02	8.365E-03	0.168
CE-143	3.747E-04		7.858E-05	Half-Life too short		
CE-144	-1.387E-02		1.792E-01	2.886E-01	4.503E-02	-0.048
PM-144	-8.335E-03		3.301E-02	4.878E-02	4.676E-03	-0.171
PR-144	-5.647E-01		2.237E+00	3.305E+00	3.168E-01	-0.171
PM-146	3.299E-02		3.882E-02	6.833E-02	8.567E-03	0.483
ND-147	-7.427E-02		4.989E-01	8.164E-01	1.321E-01	-0.091

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PM-149	-7.761E+01		7.752E+01	1.145E+02	2.295E+01	-0.678
EU-152	8.875E-03		8.308E-02	1.331E-01	1.805E-02	0.067
GD-153	-1.121E-01		7.777E-02	1.003E-01	8.914E-03	-1.117
EU-154	-1.061E-01		1.170E-01	1.700E-01	1.869E-02	-0.624
TB-160	8.422E-02		1.320E-01	2.330E-01	2.295E-02	0.362
HO-166M	-1.641E-02		5.844E-02	9.217E-02	8.877E-03	-0.178
TM-171	2.587E+00		2.316E+01	3.382E+01	2.538E+00	0.077
LU-176	-9.231E-03		2.436E-02	3.353E-02	4.929E-03	-0.275
LU-177	3.388E+00	+	1.644E+00	1.851E+00	2.166E-01	1.831
LU-177M	-2.904E-02		1.591E-01	2.653E-01	2.849E-02	-0.109
HF-181	-1.969E-03		3.770E-02	6.265E-02	6.747E-03	-0.031
W-181	-3.205E-02		2.977E-01	4.302E-01	3.189E-02	-0.074
TA-182	-5.050E-02		2.007E-01	3.206E-01	2.605E-02	-0.158
RE-183	1.044E-01		9.144E-02	1.594E-01	1.528E-02	0.655
RE-184	-8.042E-02		2.054E-01	3.261E-01	4.575E-02	-0.247
OS-185	3.019E-03		3.885E-02	6.376E-02	6.155E-03	0.047
RE-188	1.254E-01		1.487E-01	2.570E-01	2.397E-02	0.488
W-188	-5.246E-01		7.741E+00	1.105E+01	1.678E+00	-0.047
IR-192	4.766E-04		3.065E-02	4.872E-02	7.003E-03	0.010
AU-195	3.329E-01		1.967E-01	3.258E-01	2.874E-02	1.022
TL-200	-7.455E-05		1.772E-04	Half-Life too short		
TL-201	1.632E+00		5.722E+00	9.664E+00	9.454E-01	0.169
TL-202	4.533E-02		6.035E-02	1.060E-01	1.143E-02	0.428
HG-203	5.543E-02		4.185E-02	6.487E-02	1.013E-02	0.855
BI-207	2.731E-02		4.883E-02	8.482E-02	7.619E-03	0.322
TL-207	-2.234E-01		6.806E-01	9.367E-01	1.959E-01	-0.238
PO-209	-3.913E+00		7.111E+00	1.133E+01	1.116E+00	-0.345
BI-210	-1.964E+00		2.236E+00	3.444E+00	3.206E-01	-0.570
PB-210	-1.964E+00		2.236E+00	3.444E+00	3.206E-01	-0.570
PO-210	-1.964E+00		2.235E+00	3.444E+00	2.903E-01	-0.570
PB-211	9.370E-02		8.252E-01	1.400E+00	8.818E-01	0.067
BI-212	1.203E+00	+	4.265E-01	6.346E-01	6.936E-02	1.896
PO-215	-2.234E-01		6.806E-01	9.367E-01	1.959E-01	-0.238
RN-219	-2.000E-01		3.566E-01	5.787E-01	9.438E-02	-0.346
RN-220	-1.476E+01		2.526E+01	3.982E+01	4.185E+00	-0.371
RA-223	-2.234E-01		6.806E-01	9.367E-01	1.959E-01	-0.238
AC-227	9.594E-02		3.380E-01	5.572E-01	1.062E-01	0.172
TH-227	9.594E-02		3.381E-01	5.572E-01	1.187E-01	0.172
TH-229	-2.828E-01		4.293E-01	6.860E-01	7.533E-02	-0.412
PA-231	4.559E-01		1.289E+00	2.122E+00	4.204E-01	0.215
TH-231	-2.234E-01		6.806E-01	9.367E-01	1.959E-01	-0.238
U-231	-2.473E-01		9.011E-01	1.263E+00	1.131E-01	-0.196
PA-233	-2.562E-02		5.972E-02	9.281E-02	1.362E-02	-0.276
PA-234	-1.113E-01		2.875E-01	4.619E-01	8.899E-02	-0.241
PA-234M	-2.272E+00		4.394E+00	6.888E+00	7.327E-01	-0.330
NP-236	-5.143E-02		6.600E-02	1.063E-01	1.011E-02	-0.484
NP-239	-8.702E-02		1.492E-01	2.476E-01	2.095E-02	-0.351
AM-241	5.480E-02		1.187E-01	1.784E-01	1.402E-02	0.307

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-1.189E-02		8.423E-02	1.292E-01	1.119E-02	-0.092
AM-246	8.199E-02		1.518E-01	2.631E-01	2.334E-02	0.312
CM-247	-2.447E-03		3.149E-02	5.296E-02	5.668E-03	-0.046
CF-249	1.910E-02		3.305E-02	5.791E-02	6.306E-03	0.330
CF-251	3.870E-02		1.090E-01	1.841E-01	1.876E-02	0.210



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244231003          *
* Acquisition date   : 21-JAN-2010 09:02:27 Detector SN# :                  *
* Detector ID        : GAM11 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                      *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000           *
* Elapsed real time  : 0 02:00:01.94 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244231003 Analyst initials: MXR1                 *
* Batch Number       : 941242 Sample Quantity : 1.3122E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 18-NOV-2009 15:33:22 MS Isotope :                  *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.588E+01	3.536E+00	2.135E-01	1.804E+00
CD-109	4.482E+00	1.014E+00	5.079E-01	5.176E-01
SN-126	4.407E-01	9.975E-02	5.011E-02	5.089E-02
EU-155	1.432E-01	1.303E-01	7.491E-02	6.648E-02
TL-208	5.730E-01	9.901E-02	2.581E-02	5.052E-02
BI-211	4.290E+00	6.978E-01	1.499E-01	3.560E-01
PB-212	2.002E+00	2.958E-01	4.010E-02	1.509E-01
PO-212	2.002E+00	2.958E-01	4.010E-02	1.509E-01
BI-214	1.231E+00	2.122E-01	5.248E-02	1.083E-01
PB-214	1.492E+00	2.544E-01	5.226E-02	1.298E-01
PO-214	1.492E+00	2.544E-01	5.226E-02	1.298E-01
PO-216	2.002E+00	2.958E-01	4.010E-02	1.509E-01
PO-218	1.492E+00	2.544E-01	5.226E-02	1.298E-01
RA-224	5.284E+00	1.429E+00	4.564E-01	7.292E-01
RA-226	1.231E+00	2.122E-01	5.248E-02	1.083E-01
AC-228	1.950E+00	3.653E-01	9.615E-02	1.864E-01
RA-228	1.950E+00	3.653E-01	9.615E-02	1.864E-01
TH-228	2.031E+00	3.002E-01	4.070E-02	1.532E-01
TH-230	1.231E+00	2.122E-01	5.248E-02	1.083E-01
TH-232	1.950E+00	3.653E-01	9.615E-02	1.864E-01
TH-234	1.696E+00	1.358E+00	8.246E-01	6.929E-01
U-234	1.231E+00	2.122E-01	5.248E-02	1.083E-01
U-235	2.048E-02	1.805E-01	1.587E-01	9.211E-02
NP-237	1.294E+00	3.928E-01	1.421E-01	2.004E-01
U-238	1.696E+00	1.358E+00	8.246E-01	6.929E-01
AM-243	4.337E-01	6.962E-02	3.358E-02	3.552E-02
ANH-511	1.226E-01	6.354E-02	2.205E-02	3.242E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	2.094E-01	2.811E-01	2.558E-01	1.434E-01	NOT IDENT.
NA-22	-3.836E-02	4.090E-02	3.048E-02	2.087E-02	NOT IDENT.
NA-24	6.165E+04	4.837E+05	0.000E+00	2.468E+05	SHORT HLIF
AL-26	-1.316E-03	2.336E-02	1.936E-02	1.192E-02	NOT IDENT.
TI-44	4.621E-01	5.506E-02	3.075E-02	2.809E-02	FAIL ABUN
SC-46	-2.065E-02	3.500E-02	2.862E-02	1.786E-02	FAIL ABUN
V-48	-4.047E-03	6.560E-02	5.585E-02	3.347E-02	NOT IDENT.
CR-51	7.529E-02	3.101E-01	2.641E-01	1.582E-01	NOT IDENT.
MN-52	3.524E-02	2.166E-01	1.821E-01	1.105E-01	FAIL ABUN
MN-54	2.222E-02	3.699E-02	3.346E-02	1.887E-02	NOT IDENT.
CO-56	-2.482E-02	3.956E-02	3.269E-02	2.018E-02	FAIL ABUN
CO-57	1.178E-02	1.994E-02	1.843E-02	1.017E-02	NOT IDENT.
CO-58	-4.462E-02	3.864E-02	2.794E-02	1.971E-02	NOT IDENT.
FE-59	-9.759E-02	8.998E-02	6.819E-02	4.591E-02	NOT IDENT.
CO-60	2.739E-02	4.135E-02	3.659E-02	2.110E-02	NOT IDENT.
ZN-65	-6.469E-03	9.791E-02	7.107E-02	4.995E-02	NOT IDENT.
GE-68	1.422E-01	1.315E+00	1.125E+00	6.709E-01	NOT IDENT.
AS-73	-5.201E-02	5.345E-01	4.590E-01	2.727E-01	NOT IDENT.
AS-74	-1.958E-02	8.595E-02	7.193E-02	4.385E-02	NOT IDENT.
SE-75	-2.516E-02	4.022E-02	3.115E-02	2.052E-02	NOT IDENT.
BR-77	4.111E-01	8.043E+00	6.965E+00	4.104E+00	FAIL ABUN
SR-82	-1.462E-01	3.654E-01	2.918E-01	1.864E-01	NOT IDENT.
RB-83	-3.280E-02	5.998E-02	4.949E-02	3.060E-02	NOT IDENT.
RB-84	3.890E-02	6.594E-02	5.968E-02	3.364E-02	NOT IDENT.
KR-85	7.643E+00	7.366E+00	6.062E+00	3.758E+00	NOT IDENT.
SR-85	3.909E-02	3.767E-02	3.100E-02	1.922E-02	NOT IDENT.
RB-86	-1.133E-01	8.097E-01	6.787E-01	4.131E-01	NOT IDENT.
Y-88	-2.970E-04	3.016E-02	2.522E-02	1.539E-02	NOT IDENT.
ZR-88	-5.234E-03	2.629E-02	2.297E-02	1.341E-02	NOT IDENT.
Y-91	8.727E+00	1.990E+01	1.723E+01	1.015E+01	NOT IDENT.
NB-94	5.506E-04	3.106E-02	2.605E-02	1.584E-02	NOT IDENT.
NB-95	1.180E-02	4.594E-02	3.425E-02	2.344E-02	NOT IDENT.
NB-95M	5.262E-03	1.105E-01	8.529E-02	5.640E-02	NOT IDENT.
ZR-95	2.782E-02	6.759E-02	5.813E-02	3.449E-02	NOT IDENT.
NB-97	-7.798E+04	7.172E+04	0.000E+00	3.659E+04	SHORT HLIF
ZR-97	8.473E+05	1.301E+06	0.000E+00	6.636E+05	SHORT HLIF
MO-99	-3.900E+00	9.985E+00	8.004E+00	5.095E+00	NOT IDENT.
TC-99M	-1.500E+16	1.688E+16	0.000E+00	8.613E+15	SHORT HLIF
RH-101	3.670E-03	2.839E-02	2.450E-02	1.449E-02	NOT IDENT.
RH-102	-8.347E-03	2.591E-02	2.202E-02	1.322E-02	NOT IDENT.
RU-103	-7.239E-03	3.398E-02	2.894E-02	1.734E-02	FAIL ABUN
RH-106	3.527E-01	2.965E-01	2.707E-01	1.513E-01	FAIL ABUN
RU-106	3.527E-01	2.944E-01	2.707E-01	1.502E-01	FAIL ABUN
AG-108M	-9.270E-03	2.548E-02	2.173E-02	1.300E-02	NOT IDENT.
AG-110M	-3.198E-02	3.194E-02	2.449E-02	1.629E-02	NOT IDENT.
IN-111	1.543E-01	9.456E-01	7.328E-01	4.825E-01	NOT IDENT.
IN-113M	4.264E-03	3.773E-02	3.360E-02	1.925E-02	NOT IDENT.
SN-113	4.264E-03	3.773E-02	3.360E-02	1.925E-02	NOT IDENT.
IN-114M	1.749E-02	1.591E-01	1.337E-01	8.119E-02	NOT IDENT.
CD-115	9.572E-01	8.500E+00	7.385E+00	4.337E+00	NOT IDENT.
SN-117M	-1.791E-02	4.421E-02	3.855E-02	2.255E-02	NOT IDENT.
SB-122	2.894E+00	1.752E+00	1.654E+00	8.938E-01	NOT IDENT.
I-123	-5.754E+05	3.367E+06	0.000E+00	1.718E+06	SHORT HLIF
TE-123M	-3.849E-03	2.252E-02	1.984E-02	1.149E-02	NOT IDENT.
I-124	-1.368E-01	6.573E-01	5.078E-01	3.354E-01	NOT IDENT.
SB-124	5.607E-03	6.468E-02	5.553E-02	3.300E-02	FAIL ABUN
SB-125	8.504E-02	7.860E-02	7.324E-02	4.010E-02	FAIL ABUN
TE-125M	5.178E+00	7.780E+00	6.594E+00	3.970E+00	NOT IDENT.
I-126	1.331E-01	1.706E-01	1.518E-01	8.706E-02	NOT IDENT.
SB-126	1.245E-02	1.303E-01	1.017E-01	6.650E-02	FAIL ABUN
SE-127	1.210E-01	1.207E+00	1.022E+00	6.159E-01	NOT IDENT.
XB-127	-1.802E-02	4.038E-02	3.443E-02	2.060E-02	NOT IDENT.
I-131	-3.243E-02	1.013E-01	8.189E-02	5.171E-02	NOT IDENT.
TE-132	-2.520E-02	5.791E-01	4.988E-01	2.955E-01	NOT IDENT.
BA-133	-1.953E-02	4.366E-02	3.074E-02	2.228E-02	FAIL ABUN
I-133	-1.826E+03	4.460E+03	0.000E+00	2.276E+03	SHORT HLIF
CS-134	8.925E-02	6.801E-02	4.792E-02	3.470E-02	FAIL ABUN
CS-135	2.486E-01	1.528E-01	1.260E-01	7.795E-02	NOT IDENT.
I-135	2.212E+15	3.192E+15	0.000E+00	1.629E+15	SHORT HLIF
CS-136	-9.701E-03	1.014E-01	8.550E-02	5.174E-02	FAIL ABUN
BA-137M	1.429E-02	3.474E-02	3.016E-02	1.772E-02	NOT IDENT.
CS-137	1.510E-02	3.672E-02	3.188E-02	1.874E-02	NOT IDENT.
CE-139	1.974E-02	2.567E-02	2.337E-02	1.310E-02	NOT IDENT.
BA-140	-1.045E-01	2.398E-01	1.975E-01	1.223E-01	NOT IDENT.
LA-140	-2.025E-02	6.997E-02	5.682E-02	3.570E-02	FAIL ABUN
CE-141	1.535E-02	5.375E-02	4.750E-02	2.742E-02	NOT IDENT.
CE-143	3.747E+02	1.540E+02	0.000E+00	7.858E+01	SHORT HLIF
CE-144	-1.387E-02	1.757E-01	1.504E-01	8.962E-02	NOT IDENT.

PM-144	-8.335E-03	3.235E-02	2.474E-02	1.651E-02	NOT IDENT.
PR-144	-5.647E-01	2.192E+00	1.676E+00	1.118E+00	NOT IDENT.
PM-146	3.299E-02	3.805E-02	3.491E-02	1.941E-02	NOT IDENT.
ND-147	-7.427E-02	4.889E-01	4.159E-01	2.494E-01	FAIL ABUN
PM-149	-7.761E+01	7.597E+01	5.893E+01	3.876E+01	NOT IDENT.
EU-152	8.875E-03	8.142E-02	6.833E-02	4.154E-02	NOT IDENT.
GD-153	-1.121E-01	7.622E-02	5.255E-02	3.889E-02	FAIL ABUN
EU-154	-1.061E-01	1.146E-01	8.534E-02	5.848E-02	NOT IDENT.
TB-160	8.422E-02	1.293E-01	1.177E-01	6.599E-02	FAIL ABUN
HO-166M	-1.641E-02	5.727E-02	4.673E-02	2.922E-02	NOT IDENT.
TM-171	2.587E+00	2.270E+01	1.782E+01	1.158E+01	NOT IDENT.
LU-176	-9.231E-03	2.387E-02	1.724E-02	1.218E-02	FAIL ABUN
LU-177	3.388E+00	1.611E+00	9.576E-01	8.219E-01	FAIL ABUN
LU-177M	-2.904E-02	1.559E-01	1.357E-01	7.955E-02	FAIL ABUN
HF-181	-1.969E-03	3.695E-02	3.197E-02	1.885E-02	NOT IDENT.
W-181	-3.205E-02	2.917E-01	2.268E-01	1.488E-01	NOT IDENT.
TA-182	-5.050E-02	1.967E-01	1.611E-01	1.004E-01	FAIL ABUN
RE-183	1.044E-01	8.961E-02	8.283E-02	4.572E-02	FAIL ABUN
RE-184	-8.042E-02	2.013E-01	1.682E-01	1.027E-01	NOT IDENT.
OS-185	3.019E-03	3.808E-02	3.238E-02	1.943E-02	NOT IDENT.
RE-188	1.254E-01	1.458E-01	1.336E-01	7.437E-02	NOT IDENT.
W-188	-5.246E-01	7.587E+00	5.684E+00	3.871E+00	FAIL ABUN
IR-192	4.766E-04	3.004E-02	2.504E-02	1.532E-02	FAIL ABUN
AU-195	3.329E-01	1.928E-01	1.706E-01	9.836E-02	FAIL ABUN
TL-200	-7.455E+01	3.473E+02	0.000E+00	1.772E+02	SHORT HLIF
TL-201	1.632E+00	5.608E+00	5.018E+00	2.861E+00	NOT IDENT.
TL-202	4.533E-02	5.914E-02	5.417E-02	3.017E-02	NOT IDENT.
HG-203	5.543E-02	4.102E-02	3.340E-02	2.093E-02	FAIL ABUN
BI-207	2.731E-02	4.786E-02	4.271E-02	2.442E-02	FAIL ABUN
TL-207	-2.234E-01	6.669E-01	4.812E-01	3.403E-01	FAIL ABUN
PO-209	-3.913E+00	6.969E+00	5.724E+00	3.555E+00	NOT IDENT.
BI-210	-1.964E+00	2.192E+00	1.825E+00	1.118E+00	NOT IDENT.
PB-210	-1.964E+00	2.192E+00	1.825E+00	1.118E+00	NOT IDENT.
PO-210	-1.964E+00	2.190E+00	1.825E+00	1.117E+00	NOT IDENT.
PB-211	9.370E-02	8.087E-01	7.165E-01	4.126E-01	NOT IDENT.
BI-212	1.203E+00	4.180E-01	3.217E-01	2.132E-01	FAIL ABUN
PO-215	-2.234E-01	6.669E-01	4.812E-01	3.403E-01	FAIL ABUN
RN-219	-2.000E-01	3.495E-01	2.962E-01	1.783E-01	FAIL ABUN
RN-220	-1.476E+01	2.475E+01	2.028E+01	1.263E+01	NOT IDENT.
RA-223	-2.234E-01	6.669E-01	4.812E-01	3.403E-01	FAIL ABUN
AC-227	9.594E-02	3.313E-01	2.873E-01	1.690E-01	FAIL ABUN
TH-227	9.594E-02	3.314E-01	2.873E-01	1.691E-01	FAIL ABUN
TH-229	-2.828E-01	4.207E-01	3.554E-01	2.147E-01	FAIL ABUN
PA-231	4.559E-01	1.263E+00	1.092E+00	6.445E-01	FAIL ABUN
TH-231	-2.234E-01	6.669E-01	4.812E-01	3.403E-01	FAIL ABUN
U-231	-2.473E-01	8.831E-01	6.614E-01	4.506E-01	FAIL ABUN
PA-233	-2.562E-02	5.852E-02	4.771E-02	2.986E-02	FAIL ABUN
PA-234	-1.113E-01	2.817E-01	2.331E-01	1.437E-01	FAIL ABUN
PA-234M	-2.272E+00	4.306E+00	3.472E+00	2.197E+00	NOT IDENT.
NP-236	-5.143E-02	6.468E-02	5.524E-02	3.300E-02	NOT IDENT.
NP-239	-8.702E-02	1.462E-01	1.293E-01	7.460E-02	FAIL ABUN
AM-241	5.480E-02	1.163E-01	9.414E-02	5.935E-02	NOT IDENT.
CM-243	-1.189E-02	8.255E-02	6.759E-02	4.212E-02	FAIL ABUN
AM-246	8.199E-02	1.487E-01	1.325E-01	7.588E-02	NOT IDENT.
CM-247	-2.447E-03	3.086E-02	2.711E-02	1.575E-02	FAIL ABUN
CF-249	1.910E-02	3.239E-02	2.966E-02	1.653E-02	NOT IDENT.
CF-251	3.870E-02	1.068E-01	9.552E-02	5.451E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	259.9083
46.50	259.9083
46.50	259.9083
48.70	260.8218
49.72	238.6401
51.35	246.5867
52.39	251.8740
52.97	247.9061
53.15	248.0516
53.44	249.3981
54.07	239.8648
56.28	270.7600
56.28	270.7628
57.37	0.0000
57.53	268.4318
57.53	268.4337
57.60	268.4899
57.98	275.5807
57.98	275.5807
59.32	312.9953
59.32	312.9953
59.40	313.0711
59.54	288.9938
59.72	287.6363
60.01	296.9783
61.10	293.3834
61.14	293.4178
61.30	293.5562
63.00	365.7176
63.29	366.0242
63.29	366.0242
63.58	366.3309
64.28	366.6841
65.12	384.4783
65.20	347.6471
65.20	347.6471
66.05	329.9776
66.72	342.9523
66.83	343.0607
66.91	343.1353
67.20	361.9759
67.20	361.9759
67.75	370.6594
67.85	370.7616
68.90	370.6644
68.90	370.6644
69.30	350.0633
69.67	344.1884
70.82	345.2518
70.82	345.2518
70.83	345.2608
72.80	332.9343
72.87	332.9947
72.87	332.9947
74.67	334.5560
74.81	334.6768
74.81	334.6768
74.81	334.6768
74.81	334.6768
74.81	334.6768
74.81	334.6768
74.81	334.6768
74.97	334.8148
75.28	335.0822
75.70	335.4424
77.11	336.6436
77.11	336.6436

77.11	336.6436
77.11	336.6436
77.11	336.6436
77.11	336.6436
77.11	336.6436
78.38	337.7176
79.62	338.7570
79.80	338.9080
79.80	338.9080
80.11	339.1668
80.18	339.2250
80.30	339.3242
80.30	339.3242
80.57	339.5485
81.00	339.9065
81.07	339.9647
81.07	339.9647
81.07	339.9647
81.07	339.9647
82.60	294.5473
83.37	295.0890
83.78	297.8005
83.78	297.8005
83.78	297.8005
83.78	297.8005
84.21	298.1046
84.90	298.5926
85.43	298.9642
86.29	299.5667
86.50	299.7130
86.54	299.7412
86.59	299.7769
86.72	299.8669
86.79	299.9138
86.94	300.0190
87.30	300.2704
87.30	300.2704
87.30	300.2704
87.30	300.2704
87.30	300.2704
87.30	300.2704
87.57	327.3263
87.88	327.5615
88.03	327.6739
88.36	327.9234
88.47	328.0052
89.95	294.7284
91.11	265.9493
92.29	266.6514
92.38	266.7041
92.38	266.7041
93.35	277.1768
94.00	277.5732
94.67	277.9783
94.67	277.9817
94.90	278.1201
94.90	278.1201
94.90	278.1201
94.90	278.1201
95.87	278.7080
95.87	278.7080
96.73	312.4689
97.43	351.2202
98.44	272.7395
98.44	272.7412
98.88	247.9502
99.55	277.8961
99.55	277.8961
99.86	278.0786
100.00	278.1598
100.10	277.0489
103.18	267.8726
103.76	275.7832
105.00	266.3340
105.31	266.5022
108.00	252.6331
109.28	244.3195

111.00	289.2120
111.00	289.2120
111.76	265.6463
112.95	286.0127
115.19	254.4609
116.30	257.5898
117.00	258.7948
117.00	258.7948
117.66	274.7146
121.11	253.7976
121.62	240.9399
121.78	241.0101
122.06	234.1442
122.32	238.6251
122.32	238.6251
122.32	238.6251
122.32	238.6251
123.07	250.3286
127.23	267.1886
129.76	280.3350
131.20	263.7210
133.02	269.8933
133.54	269.5988
135.34	265.5942
136.00	256.9377
136.25	265.1064
136.48	269.6887
140.51	276.9134
140.51	0.0000
142.18	277.6691
142.65	257.9710
143.76	271.1299
144.24	257.7274
144.24	257.7274
144.24	257.7274
144.24	257.7274
145.22	255.4080
145.44	262.7706
147.16	277.1699
152.43	272.1162
152.70	269.4715
153.22	253.1212
154.21	232.3022
154.21	232.3022
154.21	232.3022
154.21	232.3022
155.03	250.1328
156.02	268.0753
158.56	246.8369
159.00	0.0000
159.00	228.4279
160.31	251.2051
161.27	224.5450
162.32	209.9648
162.64	239.9388
163.35	249.5357
163.89	265.6346
165.85	241.0708
167.43	240.6823
171.28	229.7258
171.86	224.2368
172.10	224.3139
176.55	226.6694
176.60	226.6864
181.06	263.3472
184.41	268.5869
185.71	259.4143
186.00	259.5128
190.27	225.8636
192.34	212.0790
193.63	228.9997
197.04	214.3484
198.01	219.5133
198.60	236.3494
200.40	218.2151
201.83	258.9816
202.84	241.5632
205.31	209.1764

208.36	227.3367
208.81	227.4625
209.75	227.7234
209.75	227.7234
210.97	189.7210
215.65	208.3195
216.55	192.5020
218.09	231.0248
222.10	209.9149
223.80	219.4326
226.40	202.8503
227.00	204.0057
227.08	204.0241
227.20	205.0679
228.16	208.3428
228.18	214.4450
228.18	214.4450
231.56	0.0000
235.69	190.6489
236.00	201.4813
236.00	201.4813
238.63	184.0748
238.63	184.0748
238.63	184.0748
238.63	184.0748
239.00	184.1495
240.98	184.5519
241.98	184.7558
241.98	184.7558
241.98	184.7558
244.69	177.0204
245.39	169.3844
247.94	171.4101
248.90	164.3069
249.79	166.5446
252.40	184.7531
252.85	172.3097
252.85	172.3097
254.15	0.0000
256.20	160.3431
256.20	160.3431
260.50	137.9029
260.90	145.3307
262.80	156.1690
264.65	168.7275
268.24	132.1014
268.79	154.4694
269.46	148.7329
269.46	148.7329
269.46	148.7329
269.46	148.7329
271.23	140.4836
273.65	147.2230
276.40	147.6273
277.35	184.7061
277.60	178.3256
277.60	178.3256
278.00	178.3967
278.60	141.5149
279.20	141.5981
279.53	141.6438
280.46	127.2732
281.68	150.9746
283.67	126.0549
284.30	116.4287
285.00	131.6107
285.90	165.1959
286.10	159.8275
286.10	159.8275
287.40	151.3790
288.45	0.0000
290.67	169.2063
290.80	183.8733
291.72	161.2315
293.26	0.0000
293.70	146.8488
295.21	148.1468
295.21	148.1468

295.21	148.1468
295.96	148.2520
296.50	148.3267
297.23	148.4290
298.57	148.6144
299.80	148.7832
299.80	148.7832
300.09	148.8247
300.09	148.8247
300.09	148.8247
300.09	148.8247
300.12	148.8275
301.29	148.9879
302.84	149.2010
303.76	149.3283
303.91	149.3477
304.40	130.1904
304.40	130.1904
304.84	140.1353
306.84	133.7830
308.46	111.1544
311.98	148.2364
316.51	117.7382
318.01	136.8010
319.02	119.1124
319.41	111.3586
320.08	113.6522
323.87	142.5400
323.87	142.5400
323.87	142.5400
323.87	142.5400
325.23	129.2772
328.77	138.0947
333.44	114.9783
334.20	117.3089
334.20	117.3089
334.30	117.3195
338.28	126.7702
338.28	126.7702
338.28	126.7702
338.28	126.7702
338.32	126.7747
338.32	126.7747
338.32	126.7747
340.50	108.8633
340.57	108.8711
344.27	108.0714
345.85	110.4906
350.59	0.0000
351.07	124.6962
351.92	124.7827
351.92	124.7827
351.92	124.7827
355.39	0.0000
356.01	125.7740
364.48	115.6453
366.43	107.7167
367.43	103.1652
367.94	0.0000
369.80	94.0682
374.96	93.2829
383.85	107.4276
387.95	93.6299
388.63	107.8185
391.69	108.9538
391.69	108.9538
392.90	115.2576
398.62	123.7651
400.65	105.2234
401.10	112.3956
401.81	116.9177
402.60	107.1625
404.84	112.7052
410.95	110.5116
411.60	129.4409
413.65	118.8294
414.70	104.5055
415.30	118.0691



415.76	114.5027
417.63	0.0000
418.52	98.4686
423.70	102.4580
427.08	92.7036
427.89	82.7534
432.53	83.0214
433.93	84.9283
439.47	87.0882
439.56	87.0925
439.89	89.8637
443.98	105.7471
444.90	104.8937
445.03	104.9024
445.03	104.9024
445.03	104.9024
453.90	84.2405
463.38	94.0865
468.07	95.6844
473.00	98.4279
475.06	99.4979
475.35	97.6381
476.78	76.1155
477.59	81.7961
477.96	85.5777
482.03	90.5142
484.57	96.3269
487.03	89.8554
490.36	0.0000
492.35	86.3609
497.08	82.8090
507.63	0.0000
510.53	0.0000
510.84	92.1511
511.00	92.1599
511.85	92.2083
511.85	92.2083
513.99	95.4045
513.99	95.4045
520.41	88.8218
520.65	73.3861
527.90	74.6736
528.96	0.0000
529.64	90.2811
529.87	0.0000
531.02	84.5255
537.32	96.5407
543.00	103.7097
546.56	0.0000
549.76	100.1852
552.65	90.5120
555.20	75.8650
563.23	66.3109
563.90	62.3752
568.70	86.3708
569.32	84.4138
569.50	86.4079
569.67	86.4159
573.80	76.6593
574.00	71.6880
574.64	72.7104
578.91	65.4939
579.30	0.0000
583.14	73.0512
585.48	88.1719
591.81	80.4321
592.07	82.4554
593.00	79.4774
595.88	92.6991
600.56	93.9423
602.52	0.0000
602.71	99.7808
602.71	99.7808
603.60	100.3655
604.41	79.3570
604.70	84.2283
609.31	85.2458

609.31	85.2458
609.31	85.2458
609.31	85.2458
610.33	85.2894
612.46	91.0793
614.37	70.0052
618.01	88.6913
621.84	63.3320
621.84	63.3320
631.29	76.9844
633.02	79.1078
633.10	79.1102
634.78	79.1783
635.90	60.7033
636.97	66.9122
645.85	62.0435
646.12	69.2900
656.30	67.5648
657.75	87.3761
657.90	0.0000
661.65	82.3343
661.65	82.3343
664.57	0.0000
666.33	74.1656
666.33	74.1656
675.00	74.4798
677.61	54.6168
685.20	71.6835
692.80	79.3488
695.00	61.4268
696.49	67.8281
696.49	67.8281
697.00	67.8457
697.49	63.6200
698.33	57.2811
698.50	57.2844
699.00	61.5418
702.63	77.5915
706.10	83.0392
706.58	0.0000
706.67	81.9958
709.31	68.2363
711.68	78.9863
713.82	70.5157
717.42	64.2133
720.50	60.0161
721.93	0.0000
722.20	46.3351
722.78	49.7800
722.78	49.7800
722.89	49.7829
722.95	49.7843
723.30	54.9422
724.18	58.3993
727.18	67.7238
733.00	77.6030
735.90	67.9930
739.58	69.1855
742.81	67.1219
744.21	70.4134
747.13	66.1659
751.79	86.9531
752.31	82.6263
753.82	52.2188
755.35	64.2288
756.15	66.4302
756.87	71.8975
763.93	71.6839
765.79	76.9914
766.42	82.2638
766.84	89.2799
776.49	75.8099
778.00	73.6616
778.57	72.5803
778.89	81.3892
783.80	54.0065
785.46	61.7644
792.07	61.9387

795.84	63.8103
796.30	62.0498
798.80	56.7906
801.93	71.0820
805.60	57.8430
810.29	76.9027
810.76	75.8027
815.85	58.0890
817.79	53.6631
818.51	54.7975
819.60	57.0606
826.30	57.2178
828.27	0.0000
831.60	79.8273
831.96	79.8403
834.83	75.6554
836.80	0.0000
846.75	84.1632
848.13	75.1559
856.28	0.0000
856.80	66.6320
860.37	55.5046
867.32	51.7028
867.82	54.7544
871.10	50.2560
873.19	46.6396
874.81	57.6490
875.33	0.0000
876.40	59.5172
879.36	53.1686
880.27	50.4359
880.51	50.4406
881.50	55.9648
883.24	56.9201
884.67	62.4634
889.25	61.6528
896.60	67.3646
898.02	68.3235
899.00	72.9670
903.28	58.2842
911.07	52.8892
911.07	52.8892
911.07	52.8892
919.63	54.8173
920.93	48.4275
925.00	55.9629
925.24	57.8344
926.50	51.3289
935.52	60.8629
937.48	54.6604
944.10	65.7515
946.00	62.9777
949.00	61.1644
962.29	69.3390
964.01	60.5516
966.15	60.5969
968.20	60.6422
969.11	60.6625
969.11	60.6625
969.11	60.6625
977.42	59.1521
980.50	52.3427
983.50	57.1626
989.30	46.7773
996.32	50.7214
1001.03	56.5556
1001.68	53.6922
1004.76	60.4683
1021.30	0.0000
1024.50	0.0000
1034.80	52.3652
1036.00	61.1174
1037.82	66.9785
1038.57	65.0535
1038.76	0.0000
1045.16	63.2544
1046.59	58.4150
1048.07	58.4443

1050.47	58.4912
1050.47	58.4912
1062.04	46.9734
1063.62	46.9969
1076.63	68.8311
1077.35	68.8481
1078.86	58.0580
1085.78	68.0499
1099.22	74.2896
1112.02	64.6477
1112.84	68.5357
1115.52	64.7207
1120.29	72.7968
1120.29	72.7968
1120.29	72.7968
1120.29	72.7968
1120.51	72.8004
1121.28	76.4757
1124.00	0.0000
1129.67	64.0094
1131.51	0.0000
1147.95	0.0000
1167.94	50.6030
1173.22	66.9023
1175.09	63.8982
1177.93	75.1201
1189.05	74.3545
1204.90	75.7308
1205.75	0.0000
1213.00	73.8598
1221.42	78.1561
1230.97	79.0625
1235.34	68.8379
1236.41	0.0000
1238.25	63.7292
1246.25	60.8556
1260.41	0.0000
1271.85	50.0859
1274.45	56.3889
1274.54	56.3889
1291.56	66.1039
1298.22	0.0000
1312.09	33.7687
1325.50	40.2488
1325.50	40.2488
1332.49	39.2637
1333.61	39.2764
1360.21	24.5902
1362.66	0.0000
1365.15	24.6228
1368.21	33.2145
1368.53	0.0000
1376.25	42.9492
1384.27	21.5195
1394.10	24.8115
1395.20	17.2656
1407.95	30.3146
1434.06	26.1598
1436.60	28.3575
1457.56	0.0000
1460.81	17.5586
1489.15	17.4986
1509.49	21.2892
1596.49	20.7906
1620.62	16.1554
1678.03	0.0000
1691.02	13.5169
1691.02	13.5169
1706.46	0.0000
1750.46	0.0000
1764.49	11.7725
1764.49	11.7725
1764.49	11.7725
1764.49	11.7725
1770.23	18.5226
1771.40	21.8958
1791.20	0.0000
1808.65	9.9023

1836.01

12.9460

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244231003

Total Uranium Activity	5.0553E+00	ug/g
Total Uranium Counting Unc.	4.0412E+00	ug/g
Total Uranium Tpu	2.0618E-06	ug/g
Total Uranium Mda	2.4542E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417               *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941242                          SAMPLE ID   : G244231003
*  ANALYST       : MXR1                             DETECTOR    : GAM11
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 21-JAN-2010 09:02:27.98          SAMPLE ALQT  : 131.220 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.101E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.534E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 3.186E+00
GROSS GAMMA DLC       (pCi/GRAM ) : 1.542E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:04:59.03

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                   *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231004.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:02:54
Sample ID      : G244231004      Sample quantity   : 1.51950E+02 GRAM
Detector name   : GAM12          Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.68 0.0%
Energy tolerance: 1.50000 keV    Analyst Initials  : MXR1
Abundance limit : 75.00000       Sensitivity    : 5.00000
Batch ID       : 941242          Detector SN#    :
Matrix Spike ID :                 LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	63.00*	92	384	1.28	125.49	122	7	1.27E-02	38.3	
2	3	74.72	397	476	1.04	148.94	145	14	5.51E-02	9.8	8.20E-01
3	3	77.04*	707	394	0.99	153.57	145	14	9.82E-02	6.0	
4	3	86.98	313	454	1.20	173.46	170	24	4.35E-02	12.1	1.45E+00
5	3	89.91	152	358	1.06	179.33	170	24	2.11E-02	21.2	
6	3	92.76*	243	432	1.28	185.04	170	24	3.38E-02	17.4	
7	0	129.20	69	329	0.84	257.94	255	7	9.61E-03	45.2	
8	0	185.77*	210	308	1.21	371.15	367	8	2.92E-02	16.7	
9	0	209.16	132	255	0.92	417.95	414	8	1.83E-02	22.8	
10	6	238.44*	1436	213	1.10	476.53	471	18	1.99E-01	3.2	1.73E+00
11	6	241.42	312	283	1.72	482.48	471	18	4.33E-02	14.6	
12	0	270.62	162	236	1.27	540.92	535	12	2.24E-02	20.6	
13	0	277.21*	70	223	1.25	554.11	550	10	9.72E-03	42.3	
14	0	295.07*	392	166	1.33	589.85	585	9	5.45E-02	7.9	
15	0	299.70	89	195	1.08	599.10	595	10	1.24E-02	31.3	
16	0	327.80	93	201	1.08	655.33	649	12	1.30E-02	32.0	
17	0	338.10*	250	195	1.20	675.93	671	10	3.47E-02	12.4	
18	0	351.63*	647	212	1.30	703.00	697	14	8.99E-02	6.2	
19	0	462.88	84	92	1.70	925.59	920	11	1.17E-02	24.7	
20	0	510.93*	64	154	1.42	1021.72	1018	12	8.85E-03	49.7	
21	0	582.90*	427	125	1.26	1165.70	1159	14	5.94E-02	7.4	
22	0	608.97*	450	162	1.31	1217.86	1211	15	6.25E-02	7.8	
23	0	727.19	99	96	1.68	1454.35	1446	16	1.37E-02	24.4	
24	0	771.05*	94	107	4.39	1542.09	1532	23	1.31E-02	31.3	
25	0	794.99	50	51	1.03	1589.98	1586	9	6.95E-03	30.1	
26	0	860.96	51	76	1.19	1721.93	1716	13	7.10E-03	38.1	
27	0	910.75*	260	55	1.32	1821.52	1816	10	3.61E-02	8.4	
28	1	963.80	73	83	2.00	1927.64	1922	25	1.01E-02	26.1	2.18E+00
29	1	968.66*	142	74	1.88	1937.36	1922	25	1.97E-02	14.6	
30	0	1119.86*	115	117	2.34	2239.78	2231	20	1.60E-02	24.8	
31	0	1377.33*	40	16	0.73	2754.69	2750	9	5.61E-03	24.2	
32	0	1406.90	52	3	2.56	2813.82	2807	16	7.18E-03	16.3	
33	0	1460.13*	1414	22	2.14	2920.27	2912	19	1.96E-01	2.8	
34	0	1729.10*	27	0	2.45	3458.09	3453	10	3.82E-03	22.0	
35	0	1763.93*	67	10	2.31	3527.73	3519	20	9.31E-03	17.6	

Flag: "\*" = Peak area was modified by background subtraction



## VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 11:05:04

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231004.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 6-JAN-2010 12:00:00 Acquisition date : 21-JAN-2010 09:02:54  
 Sample ID : G244231004 Sample quantity : 151.95 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA12 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.68 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.878E+01	2.609E+00	5.490E-01	3.915E-02	52.422
CD-109	+	88.03	*	3.775E+00	9.574E-01	1.133E+00	8.666E-02	3.333
SN-126	+	64.28		7.453E-01	5.806E-01	7.121E-01	1.000E-01	1.047
	+	86.94		1.543E+00	7.367E-01	4.682E-01	1.927E-01	3.295
	+	87.57	*	3.712E-01	9.414E-02	1.119E-01	8.526E-03	3.317
TL-208	+	277.35		5.645E-01	4.810E-01	4.936E-01	5.169E-02	1.144
	+	510.84		2.608E-01	2.604E-01	2.151E-01	2.221E-02	1.212
	+	583.14	*	5.005E-01	8.253E-02	4.712E-02	3.371E-03	10.623
	+	860.37		5.654E-01	4.341E-01	4.039E-01	3.530E-02	1.400
BI-211	+	72.87		3.919E+00	2.981E+00	4.719E+00	3.166E-01	0.831
	+	351.07	*	3.283E+00	4.590E-01	2.816E-01	1.770E-02	11.658
PB-212	+	74.81		1.997E+00	4.551E-01	4.674E-01	5.402E-02	4.273
	+	77.11		2.013E+00	2.790E-01	2.652E-01	1.836E-02	7.589
	+	87.30		1.717E+00	4.680E-01	5.189E-01	6.518E-02	3.308
	+	238.63	*	1.586E+00	1.508E-01	7.508E-02	5.331E-03	21.124
	+	300.09		1.517E+00	9.582E-01	9.274E-01	7.571E-02	1.636
PO-212	+	74.81		1.997E+00	4.551E-01	4.674E-01	5.402E-02	4.273
	+	77.11		2.013E+00	2.790E-01	2.652E-01	1.836E-02	7.589
	+	87.30		1.717E+00	4.680E-01	5.189E-01	6.518E-02	3.308
	+	115.19		-1.064E+00	3.065E+00	4.962E+00	3.147E-01	-0.214
	+	238.63	*	1.586E+00	1.508E-01	7.508E-02	5.331E-03	21.124
	+	300.09		1.517E+00	9.582E-01	9.274E-01	7.571E-02	1.636
BI-214	+	609.31	*	9.949E-01	1.760E-01	9.945E-02	8.188E-03	10.003
	+	1120.29		1.326E+00	6.678E-01	4.588E-01	4.167E-02	2.891
	+	1764.49		1.058E+00	3.781E-01	2.886E-01	1.710E-02	3.666
PB-214	+	74.81		3.441E+00	7.592E-01	8.053E-01	8.099E-02	4.273
	+	77.11		3.451E+00	5.457E-01	4.547E-01	4.681E-02	7.589
	+	87.30		2.941E+00	7.796E-01	8.889E-01	9.623E-02	3.308
	+	241.98		2.066E+00	6.255E-01	4.522E-01	3.558E-02	4.569
	+	295.21		1.173E+00	2.106E-01	1.774E-01	1.498E-02	6.611
	+	351.92	*	1.142E+00	1.704E-01	9.818E-02	8.020E-03	11.632
PO-214	+	74.81		3.441E+00	7.592E-01	8.053E-01	8.099E-02	4.273
	+	77.11		3.451E+00	5.457E-01	4.547E-01	4.681E-02	7.589
	+	87.30		2.941E+00	7.796E-01	8.889E-01	9.623E-02	3.308

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-216	+	241.98		2.066E+00	6.255E-01	4.522E-01	3.558E-02	4.569
	+	295.21		1.173E+00	2.106E-01	1.774E-01	1.498E-02	6.611
	+	351.92	*	1.142E+00	1.704E-01	9.818E-02	8.020E-03	11.632
	+	74.81		1.997E+00	4.551E-01	4.674E-01	5.402E-02	4.273
	+	77.11		2.013E+00	2.790E-01	2.652E-01	1.836E-02	7.589
PO-218	+	87.30		1.717E+00	4.680E-01	5.189E-01	6.518E-02	3.308
	+	238.63	*	1.586E+00	1.508E-01	7.508E-02	5.331E-03	21.124
	+	300.09		1.517E+00	9.582E-01	9.274E-01	7.571E-02	1.636
	+	74.81		3.441E+00	7.592E-01	8.053E-01	8.099E-02	4.273
	+	77.11		3.451E+00	5.457E-01	4.547E-01	4.681E-02	7.589
RA-224	+	87.30		2.941E+00	7.796E-01	8.889E-01	9.623E-02	3.308
	+	241.98		2.066E+00	6.255E-01	4.522E-01	3.558E-02	4.569
	+	295.21		1.173E+00	2.106E-01	1.774E-01	1.498E-02	6.611
	+	351.92	*	1.142E+00	1.704E-01	9.818E-02	8.020E-03	11.632
	+	240.98	*	3.917E+00	1.165E+00	8.545E-01	4.714E-02	4.584
RA-226	+	609.31	*	9.949E-01	1.760E-01	9.945E-02	8.188E-03	10.003
	+	1120.29		1.326E+00	6.678E-01	4.588E-01	4.167E-02	2.891
	+	1764.49		1.058E+00	3.781E-01	2.886E-01	1.710E-02	3.666
	+	338.32		1.396E+00	6.658E-01	3.217E-01	1.311E-01	4.339
	+	911.07	*	1.359E+00	2.720E-01	1.746E-01	1.917E-02	7.781
AC-228	+	969.11		1.302E+00	4.851E-01	3.769E-01	8.689E-02	3.456
	+	338.32		1.396E+00	6.658E-01	3.217E-01	1.311E-01	4.339
	+	911.07	*	1.359E+00	2.720E-01	1.746E-01	1.917E-02	7.781
	+	969.11		1.302E+00	4.851E-01	3.769E-01	8.689E-02	3.456
	+	74.81		2.027E+00	4.219E-01	4.744E-01	3.270E-02	4.273
TH-228	+	77.11		2.043E+00	2.831E-01	2.692E-01	1.863E-02	7.589
	+	87.30		1.742E+00	4.419E-01	5.267E-01	4.003E-02	3.308
	+	238.63	*	1.610E+00	1.531E-01	7.620E-02	5.411E-03	21.124
	+	300.09		1.540E+00	1.324E+00	9.413E-01	5.546E-01	1.636
	+	609.31	*	9.948E-01	1.760E-01	9.945E-02	8.188E-03	10.003
TH-230	+	1120.29		1.326E+00	6.678E-01	4.588E-01	4.167E-02	2.891
	+	1764.49		1.058E+00	3.781E-01	2.886E-01	1.710E-02	3.666
	+	338.32		1.396E+00	3.551E-01	3.217E-01	1.822E-02	4.339
	+	911.07	*	1.359E+00	2.720E-01	1.746E-01	1.917E-02	7.781
	+	969.11		1.302E+00	4.851E-01	3.769E-01	8.689E-02	3.456
TH-232	+	63.29	*	1.883E+00	1.478E+00	1.799E+00	3.063E-01	1.047
	+	92.38		1.858E+00	7.243E-01	7.328E-01	1.281E-01	2.536
	+	609.31	*	9.948E-01	1.760E-01	9.945E-02	8.188E-03	10.003
	+	1120.29		1.326E+00	6.678E-01	4.588E-01	4.167E-02	2.891
	+	1764.49		1.058E+00	3.781E-01	2.886E-01	1.710E-02	3.666
NP-237	+	86.50	*	1.090E+00	3.564E-01	3.323E-01	7.301E-02	3.280
	+	95.87		-8.120E-01	8.966E-01	1.237E+00	2.984E-01	-0.657
	+	63.29	*	1.883E+00	1.478E+00	1.799E+00	3.063E-01	1.047
	+	92.38		1.858E+00	6.613E-01	7.328E-01	5.335E-02	2.536
	+	74.67	*	3.238E-01	6.729E-02	7.600E-02	5.164E-03	4.260
AM-243	+	86.72		4.087E+01	1.037E+01	1.243E+01	9.393E-01	3.288
	+	117.66		-2.406E-01	3.217E+00	5.263E+00	3.315E-01	-0.046
	+	142.18		-1.247E+00	1.481E+01	2.396E+01	1.356E+00	-0.052
	+	511.00	*	5.633E-02	5.605E-02	4.647E-02	2.832E-03	1.212
	+	511.00	*	5.633E-02	5.605E-02	4.647E-02	2.832E-03	1.212

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-9.800E-02	2.667E-01	4.165E-01	2.866E-02	-0.235
NA-22		1274.54	*	-1.659E-02	4.151E-02	6.558E-02	4.223E-03	-0.253
NA-24		1368.53	*	-1.599E-01	4.151E-02	Half-Life too short		
AL-26		1129.67		4.900E-01	1.696E+00	2.690E+00	1.640E-01	0.182
		1808.65	*	1.019E-02	2.570E-02	4.514E-02	2.590E-03	0.226
TI-44		67.85		6.745E-03	3.778E-02	6.405E-02	4.169E-03	0.105
	+	78.38	*	3.714E-01	5.148E-02	6.417E-02	4.489E-03	5.788
SC-46		889.25	*	-2.172E-02	3.876E-02	5.955E-02	4.936E-03	-0.365
	+	1120.51		2.266E-01	1.131E-01	1.229E-01	7.638E-03	1.844
V-48		944.10		-1.650E-01	8.406E-01	1.329E+00	1.067E-01	-0.124
		983.50	*	3.055E-02	6.443E-02	1.082E-01	8.337E-03	0.282
		1312.09		-2.639E-02	8.223E-02	1.306E-01	8.861E-03	-0.202
CR-51		320.08	*	-4.116E-02	3.034E-01	4.990E-01	3.172E-02	-0.082
MN-52		744.21		-2.037E-01	2.047E-01	3.064E-01	2.188E-02	-0.665
		848.13		6.070E+00	5.903E+00	1.044E+01	8.317E-01	0.581
		935.52		1.739E-01	2.253E-01	3.885E-01	3.146E-02	0.448
		1246.25		3.726E+00	6.987E+00	1.199E+01	7.390E-01	0.311
		1333.61		2.151E+00	4.476E+00	7.718E+00	5.390E-01	0.279
		1434.06	*	8.589E-02	1.864E-01	3.235E-01	2.223E-02	0.265
MN-54		834.83	*	4.507E-03	3.662E-02	6.022E-02	4.734E-03	0.075
CO-56		846.75	*	2.345E-02	3.595E-02	6.174E-02	4.911E-03	0.380
		977.42		-2.806E-01	3.149E+00	4.522E+00	3.508E-01	-0.062
		1037.82		-3.183E-02	2.954E-01	4.897E-01	3.783E-02	-0.065
		1175.09		-7.330E-01	2.095E+00	3.364E+00	1.855E-01	-0.218
		1238.25		1.697E-01	9.059E-02	1.669E-01	1.074E-02	1.017
		1360.21		1.022E-01	8.140E-01	1.353E+00	9.418E-02	0.076
		1771.40		2.197E-01	1.866E-01	3.528E-01	2.081E-02	0.623
CO-57		122.06	*	4.304E-03	2.163E-02	3.571E-02	2.233E-03	0.121
		136.48		-8.000E-02	1.815E-01	2.897E-01	1.948E-02	-0.276
CO-58		810.76	*	-3.769E-03	3.563E-02	5.763E-02	4.435E-03	-0.065
FE-59		142.65		1.104E+00	2.318E+00	3.816E+00	2.156E-01	0.289
		192.34		3.376E-01	8.129E-01	1.320E+00	1.525E-01	0.256
		1099.22	*	1.377E-02	8.550E-02	1.443E-01	1.066E-02	0.095
		1291.56		6.100E-02	1.177E-01	2.027E-01	1.633E-02	0.301
CO-60		1173.22		8.792E-03	4.195E-02	7.068E-02	3.885E-03	0.124
		1332.49	*	2.163E-02	3.773E-02	6.547E-02	4.573E-03	0.330
ZN-65		1115.52	*	-5.082E-02	1.064E-01	1.437E-01	9.039E-03	-0.354
GE-68		1077.35	*	-2.399E-01	1.185E+00	1.942E+00	1.309E-01	-0.123
AS-73		53.44	*	-3.355E-01	6.607E-01	1.102E+00	7.112E-02	-0.305
AS-74		595.88	*	3.637E-02	7.992E-02	1.379E-01	8.777E-03	0.264
		634.78		4.333E-02	3.048E-01	5.131E-01	3.306E-02	0.084
SE-75		66.05		2.176E+00	4.261E+00	6.611E+00	5.771E-01	0.329
		96.73		-7.059E-01	7.347E-01	1.028E+00	1.302E-01	-0.687
		121.11		9.593E-03	1.147E-01	1.885E-01	1.796E-02	0.051
		136.00		9.864E-04	3.362E-02	5.479E-02	3.236E-03	0.018
		198.60		2.565E-01	1.617E+00	2.546E+00	1.711E-01	0.101
		264.65	*	-2.844E-02	4.133E-02	5.814E-02	3.296E-03	-0.489
		279.53		7.923E-02	1.013E-01	1.570E-01	9.620E-03	0.505
		303.91		-5.412E-01	1.847E+00	2.637E+00	2.497E-01	-0.205

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	400.65		-6.895E-02	2.288E-01	3.661E-01	3.272E-02	-0.188
		87.88		7.607E+02	1.929E+02	2.776E+02	2.122E+01	2.740
	+	200.40		1.082E+00	1.354E+02	2.153E+02	1.142E+01	0.005
		239.00		2.375E+02	1.992E+01	3.195E+01	1.760E+00	7.432
		249.79		-7.738E+00	5.054E+01	8.453E+01	4.694E+00	-0.092
		281.68		-3.773E+01	7.935E+01	1.128E+02	6.373E+00	-0.335
		297.23		1.795E+02	5.685E+01	8.267E+01	4.692E+00	2.171
		303.76		-3.940E+01	1.470E+02	2.105E+02	1.196E+01	-0.187
		439.47		-2.046E+01	1.135E+02	1.815E+02	1.045E+01	-0.113
		484.57		-3.094E+01	1.850E+02	2.935E+02	1.756E+01	-0.105
		520.65	*	4.856E-01	8.889E+00	1.427E+01	8.752E-01	0.034
		574.64		-2.806E+01	1.730E+02	2.795E+02	1.763E+01	-0.100
		578.91		-2.931E+01	7.990E+01	1.123E+02	7.101E+00	-0.261
		585.48		5.967E+02	1.773E+02	3.195E+02	2.026E+01	1.867
		755.35		6.887E+01	1.475E+02	2.508E+02	1.814E+01	0.275
		817.79		-3.100E+01	1.197E+02	1.909E+02	1.475E+01	-0.162
SR-82		698.33		-1.202E+01	3.185E+01	5.119E+01	3.469E+00	-0.235
		776.49	*	-1.271E-02	3.742E-01	5.283E-01	3.909E-02	-0.024
		1395.20		-7.014E+00	9.473E+00	1.379E+01	9.545E-01	-0.509
RB-83		520.41	*	-7.519E-03	6.358E-02	1.007E-01	6.176E-03	-0.075
		529.64		7.269E-02	9.758E-02	1.644E-01	1.014E-02	0.442
		552.65		1.385E-02	1.785E-01	3.019E-01	1.885E-02	0.046
RB-84		881.50	*	1.848E-02	6.332E-02	1.054E-01	8.674E-03	0.175
KR-85		513.99	*	6.625E+00	6.685E+00	1.027E+01	6.273E-01	0.645
SR-85		513.99	*	3.388E-02	3.419E-02	5.253E-02	3.208E-03	0.645
RB-86		1076.63	*	-1.875E-01	7.417E-01	1.210E+00	8.170E-02	-0.155
Y-88		898.02		-7.133E-03	3.872E-02	6.158E-02	5.173E-03	-0.116
		1836.01	*	-1.495E-03	2.820E-02	4.611E-02	2.596E-03	-0.032
ZR-88		392.90	*	-3.119E-03	2.642E-02	4.283E-02	2.349E-03	-0.073
Y-91		1204.90	*	5.812E+00	1.903E+01	3.216E+01	1.859E+00	0.181
NB-94		702.63	*	2.266E-02	3.041E-02	5.290E-02	3.603E-03	0.428
		871.10		-5.139E-03	3.202E-02	5.120E-02	4.171E-03	-0.100
NB-95		765.79	*	3.101E-02	4.245E-02	6.481E-02	4.741E-03	0.478
NB-95M		235.69	*	7.842E-02	1.124E-01	1.743E-01	1.272E-02	0.450
ZR-95		724.18		6.550E-02	9.410E-02	1.443E-01	1.138E-02	0.454
		756.15	*	4.241E-02	6.686E-02	1.150E-01	9.499E-03	0.369
NB-97		657.90	*	-5.745E-02	6.686E-02	Half-Life	too short	
		1024.50		1.832E+00	6.686E-02	Half-Life	too short	
ZR-97		254.15		1.144E+00	6.686E-02	Half-Life	too short	
		355.39		2.385E+00	6.686E-02	Half-Life	too short	
		507.63	*	1.010E+00	6.686E-02	Half-Life	too short	
		602.52		-1.307E-01	6.686E-02	Half-Life	too short	
		1021.30		8.216E-01	6.686E-02	Half-Life	too short	
		1147.95		-2.360E+00	6.686E-02	Half-Life	too short	
		1362.66		-3.618E+00	6.686E-02	Half-Life	too short	
		1750.46		8.608E-01	6.686E-02	Half-Life	too short	
MO-99		140.51		-1.094E+01	2.105E+01	3.309E+01	8.909E+00	-0.331
		181.06		3.884E-01	1.489E+01	2.122E+01	3.597E+00	0.018
		366.43		-3.435E+01	6.765E+01	1.074E+02	6.007E+00	-0.320

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	739.58	*		9.048E+00	1.012E+01	1.766E+01	2.540E+00	0.512
	778.00			-1.985E+01	3.259E+01	4.251E+01	3.151E+00	-0.467
TC-99M	140.51	*		-8.703E+09	3.259E+01	Half-Life too short		
RH-101	127.23			1.190E-02	3.080E-02	4.588E-02	2.785E-03	0.259
	198.01	*		1.492E-02	2.898E-02	4.640E-02	2.454E-03	0.322
	325.23			-5.711E-02	2.087E-01	2.970E-01	1.687E-02	-0.192
RH-102	418.52			-6.446E-02	2.580E-01	4.127E-01	2.328E-02	-0.156
	475.06	*		4.623E-05	2.382E-02	3.838E-02	2.279E-03	0.001
	631.29			-8.188E-03	4.609E-02	7.571E-02	4.875E-03	-0.108
	697.49			-2.625E-02	7.321E-02	1.179E-01	7.982E-03	-0.223
	766.84			1.263E-01	1.107E-01	1.750E-01	1.282E-02	0.722
	1046.59			-1.429E-02	1.056E-01	1.744E-01	1.236E-02	-0.082
	1112.84			1.360E-01	2.512E-01	3.821E-01	2.412E-02	0.356
RU-103	497.08	*		-1.647E-02	3.695E-02	5.717E-02	7.293E-03	-0.288
+	610.33			1.070E+01	2.368E+00	2.582E+00	4.042E-01	4.143
RH-106	511.85	+		2.812E-01	2.798E-01	3.731E-01	2.275E-02	0.754
	621.84	*		1.667E-01	2.817E-01	4.887E-01	5.892E-02	0.341
	1050.47			-4.438E-01	2.108E+00	3.458E+00	2.435E-01	-0.128
RU-106	511.85	+		2.812E-01	2.798E-01	3.731E-01	2.275E-02	0.754
	621.84	*		1.667E-01	2.812E-01	4.887E-01	3.138E-02	0.341
	1050.47			-4.438E-01	2.108E+00	3.458E+00	2.435E-01	-0.128
AG-108M	433.93	*		2.798E-02	2.840E-02	4.909E-02	3.059E-03	0.570
	614.37			2.937E-02	3.735E-02	5.847E-02	4.008E-03	0.502
	722.95			-1.287E-02	3.951E-02	5.417E-02	4.001E-03	-0.238
AG-110M	657.75	*		-3.186E-02	3.295E-02	5.074E-02	3.459E-03	-0.628
	677.61			-7.543E-02	2.723E-01	4.412E-01	3.055E-02	-0.171
	706.67			1.763E-02	1.890E-01	3.143E-01	2.244E-02	0.056
	763.93			-1.279E-01	1.675E-01	2.153E-01	1.633E-02	-0.594
	884.67			2.204E-02	4.515E-02	7.644E-02	6.529E-03	0.288
	937.48			-4.287E-02	1.031E-01	1.594E-01	1.341E-02	-0.269
	1384.27			-1.420E-01	1.522E-01	1.914E-01	1.385E-02	-0.742
IN-111	171.28			-7.516E-02	8.059E-01	1.288E+00	6.626E-02	-0.058
	245.39	*		-6.591E-02	8.930E-01	1.322E+00	7.320E-02	-0.050
IN-113M	391.69	*		1.600E-02	3.837E-02	6.434E-02	3.788E-03	0.249
SN-113	391.69	*		1.600E-02	3.837E-02	6.434E-02	3.788E-03	0.249
IN-114M	190.27	*		1.099E-03	1.673E-01	2.538E-01	1.331E-02	0.004
CD-115	260.90			2.632E+01	9.912E+01	1.687E+02	9.436E+00	0.156
	492.35			-1.501E+01	3.060E+01	4.727E+01	2.844E+00	-0.318
	527.90	*		-2.146E+00	9.321E+00	1.462E+01	9.003E-01	-0.147
SN-117M	156.02			-1.779E+00	1.880E+00	2.899E+00	1.548E-01	-0.613
	158.56	*		-1.234E-03	4.467E-02	7.196E-02	3.801E-03	-0.017
SB-122	563.90	*		1.097E+00	1.730E+00	3.025E+00	1.899E-01	0.363
	692.80			2.128E+01	3.902E+01	6.696E+01	4.508E+00	0.318
I-123	159.00	*		1.824E+00	3.902E+01	Half-Life too short		
	528.96			1.062E+02	3.902E+01	Half-Life too short		
TE-123M	159.00	*		1.220E-02	2.330E-02	3.848E-02	2.062E-03	0.317
I-124	602.71	*		-2.297E-03	6.403E-01	9.309E-01	5.940E-02	-0.002
	722.78			-1.582E+00	3.946E+00	5.354E+00	3.733E-01	-0.295
	1325.50			-1.280E+01	3.203E+01	5.013E+01	3.467E+00	-0.255

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	+	1376.25		6.128E+01	2.999E+01	5.753E+01	3.996E+00	1.065
		1509.49		1.654E+01	1.305E+01	2.471E+01	1.663E+00	0.670
		1691.02		1.000E-01	2.857E+00	5.130E+00	3.185E-01	0.020
		602.71		-1.386E-04	3.862E-02	5.614E-02	3.584E-03	-0.002
		645.85		-6.702E-02	4.398E-01	7.230E-01	5.160E-02	-0.093
		709.31		-2.467E-01	2.546E+00	4.172E+00	2.864E-01	-0.059
		713.82		6.303E-01	1.476E+00	2.513E+00	2.733E-01	0.251
		722.78		-1.383E-01	3.450E-01	4.681E-01	3.371E-02	-0.295
	+	968.20		1.337E+01	4.048E+00	6.478E+00	5.076E-01	2.064
		1045.16		-1.597E-01	2.330E+00	3.874E+00	2.751E-01	-0.041
SB-125		1325.50		-1.195E+00	2.991E+00	4.681E+00	3.237E-01	-0.255
		1368.21		-1.038E+00	1.617E+00	2.413E+00	3.011E-01	-0.430
		1436.60		-2.596E+00	3.105E+00	4.359E+00	2.992E-01	-0.596
		1691.02	*	2.063E-03	5.891E-02	1.058E-01	7.060E-03	0.020
		427.89	*	-5.335E-02	8.007E-02	1.238E-01	7.357E-03	-0.431
	+	463.38		6.714E-01	3.348E-01	4.551E-01	3.110E-02	1.475
		600.56		-3.738E-02	1.707E-01	2.739E-01	1.975E-02	-0.136
		635.90		1.670E-02	2.415E-01	4.043E-01	2.972E-02	0.041
	TE-125M	109.28	*	7.166E+00	7.795E+00	1.327E+01	1.144E+00	0.540
	I-126	388.63		-8.285E-02	1.824E-01	2.898E-01	1.592E-02	-0.286
SB-126		666.33	*	5.884E-02	1.514E-01	2.586E-01	1.686E-02	0.228
		753.82		1.170E+00	1.350E+00	2.362E+00	1.705E-01	0.496
		223.80		4.992E-01	3.270E+00	5.581E+00	3.032E-01	0.089
	+	278.60		3.682E+00	3.121E+00	3.815E+00	2.153E-01	0.965
	+	296.50		1.152E+01	1.939E+00	2.922E+00	1.658E-01	3.943
		414.70		2.382E-02	6.527E-02	1.087E-01	6.109E-03	0.219
		415.30		1.752E+00	5.499E+00	9.131E+00	5.134E-01	0.192
		555.20		-4.756E-01	3.613E+00	6.026E+00	3.768E-01	-0.079
		573.80		-7.069E-02	8.874E-01	1.481E+00	9.343E-02	-0.048
		593.00		-5.851E-01	7.690E-01	1.211E+00	7.701E-02	-0.483
SB-127		656.30		3.010E-01	3.146E+00	5.261E+00	3.407E-01	0.057
		666.33		2.457E-02	6.322E-02	1.080E-01	7.040E-03	0.228
		675.00		6.274E-01	1.757E+00	2.938E+00	1.936E-01	0.214
		695.00		5.986E-02	7.201E-02	1.258E-01	8.492E-03	0.476
		697.00		-1.414E-02	2.585E-01	4.257E-01	2.880E-02	-0.033
		720.50	*	-8.139E-02	1.420E-01	1.887E-01	1.312E-02	-0.431
		856.80		-9.206E-03	4.570E-01	6.397E-01	5.139E-02	-0.014
		989.30		-6.172E-01	1.165E+00	1.768E+00	1.353E-01	-0.349
		1034.80		-1.391E+00	8.174E+00	1.348E+01	9.719E-01	-0.103
		1213.00		5.478E+00	4.644E+00	8.309E+00	4.865E-01	0.659
SB-127		61.10		1.893E+01	4.563E+01	7.091E+01	6.672E+00	0.267
		252.40		-9.690E-01	3.404E+00	5.612E+00	2.329E+00	-0.173
		290.80		-7.319E+00	1.900E+01	2.708E+01	2.434E+00	-0.270
		411.60		-5.456E+00	1.080E+01	1.661E+01	2.365E+00	-0.329
		444.90		-2.748E+00	7.935E+00	1.250E+01	1.339E+00	-0.220
		473.00		-3.208E-01	1.374E+00	2.173E+00	2.428E-01	-0.148
		543.00		-3.497E+00	1.370E+01	2.267E+01	2.954E+00	-0.154
		603.60		-9.061E+00	1.153E+01	1.540E+01	1.696E+00	-0.588
		685.20	*	8.236E-01	1.148E+00	2.000E+00	1.982E-01	0.412

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127		698.50		-5.331E+00	1.368E+01	2.194E+01	3.256E+00	-0.243
		722.20		-1.930E+01	2.676E+01	3.460E+01	3.411E+00	-0.558
		783.80		4.226E+00	3.285E+00	5.841E+00	6.759E-01	0.723
		57.60		-1.247E+00	4.775E+00	8.021E+00	5.069E-01	-0.155
		145.22		2.621E-02	5.985E-01	9.673E-01	5.404E-02	0.027
		172.10		4.867E-02	1.010E-01	1.658E-01	8.534E-03	0.294
I-131		202.84	*	-1.759E-02	4.052E-02	6.295E-02	3.347E-03	-0.280
		374.96		-2.414E-02	1.665E-01	2.704E-01	1.503E-02	-0.089
		80.18		1.678E-01	3.833E+00	5.767E+00	4.133E-01	0.029
		284.30		8.837E-02	1.212E+00	2.032E+00	1.284E-01	0.043
		364.48	*	-1.043E-02	9.353E-02	1.525E-01	9.598E-03	-0.068
		636.97		-1.759E-01	1.361E+00	2.245E+00	1.589E-01	-0.078
TE-132		722.89		-2.296E+00	6.506E+00	8.887E+00	6.255E-01	-0.258
		49.72		-9.556E+00	1.439E+01	2.388E+01	2.200E+00	-0.400
		111.76		-6.735E+00	2.404E+01	3.910E+01	3.569E+00	-0.172
		116.30		-3.112E+00	2.250E+01	3.673E+01	3.329E+00	-0.085
		228.16	*	1.261E-01	5.431E-01	9.286E-01	1.317E-01	0.136
		53.15		1.912E-01	2.837E+00	4.841E+00	3.130E-01	0.039
BA-133		79.62		4.453E-01	1.080E+00	1.653E+00	2.380E-01	0.269
		81.00		-1.132E-01	8.988E-02	1.243E-01	1.882E-02	-0.910
	+	276.40		5.578E-01	4.772E-01	5.637E-01	7.267E-02	0.990
		302.84		-9.743E-03	1.256E-01	1.826E-01	2.118E-02	-0.053
		356.01	*	3.245E-02	3.895E-02	6.008E-02	6.893E-03	0.540
		383.85		1.042E-02	2.540E-01	4.169E-01	4.470E-02	0.025
I-133	+	510.53		4.730E-01	2.540E-01	Half-Life	too short	
		529.87	*	2.631E-03	2.540E-01	Half-Life	too short	
		706.58		2.240E-02	2.540E-01	Half-Life	too short	
		856.28		-2.718E-02	2.540E-01	Half-Life	too short	
		875.33		2.057E-02	2.540E-01	Half-Life	too short	
		1236.41		8.471E-01	2.540E-01	Half-Life	too short	
CS-134		1298.22		-9.189E-02	2.540E-01	Half-Life	too short	
		475.35		1.750E-01	1.541E+00	2.504E+00	1.488E-01	0.070
		563.23		1.672E-01	3.236E-01	5.616E-01	3.589E-02	0.298
		569.32		2.518E-02	1.678E-01	2.847E-01	1.838E-02	0.088
		604.70		-2.366E-02	3.385E-02	4.570E-02	2.932E-03	-0.518
	+	795.84	*	8.483E-02	5.153E-02	8.176E-02	6.234E-03	1.038
CS-135		801.93		7.838E-02	3.636E-01	5.898E-01	4.515E-02	0.133
		1038.57		1.120E+00	3.665E+00	6.285E+00	4.507E-01	0.178
		1167.94		7.700E-01	2.428E+00	4.124E+00	2.298E-01	0.187
		1365.15		-5.866E-01	1.026E+00	1.537E+00	1.143E-01	-0.382
		268.24	*	1.844E-01	1.453E-01	2.316E-01	1.742E-02	0.796
		288.45		5.263E+09	1.453E-01	Half-Life	too short	
I-135		417.63		1.448E+09	1.453E-01	Half-Life	too short	
		546.56		2.552E+09	1.453E-01	Half-Life	too short	
		836.80		3.753E+09	1.453E-01	Half-Life	too short	
		1038.76		2.984E+09	1.453E-01	Half-Life	too short	
		1124.00		2.401E+09	1.453E-01	Half-Life	too short	
		1131.51		-8.781E+08	1.453E-01	Half-Life	too short	
		1260.41	*	4.901E+08	1.453E-01	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1457.56		5.324E+11	1.453E-01	Half-Life	too short	
		1678.03		3.067E+09	1.453E-01	Half-Life	too short	
		1706.46		-5.572E+07	1.453E-01	Half-Life	too short	
		1791.20		-4.507E+08	1.453E-01	Half-Life	too short	
		66.91		4.229E-01	6.645E-01	1.092E+00	1.567E-01	0.387
	+	86.29		4.783E+00	1.296E+00	1.794E+00	2.179E-01	2.666
		153.22		5.345E-01	5.600E-01	9.401E-01	6.494E-02	0.569
		163.89		5.085E-01	9.364E-01	1.529E+00	1.033E-01	0.333
		176.55		1.541E-01	3.199E-01	5.236E-01	3.122E-02	0.294
		273.65		3.833E-01	4.937E-01	5.836E-01	3.775E-02	0.657
		340.57		1.234E-01	1.212E-01	1.883E-01	1.136E-02	0.656
		818.51		-3.857E-02	7.108E-02	1.105E-01	8.549E-03	-0.349
		1048.07	*	-1.514E-02	9.796E-02	1.616E-01	1.214E-02	-0.094
		1235.34		8.993E-01	5.969E-01	1.072E+00	1.087E-01	0.839
BA-137M		661.65	*	-9.383E-03	3.258E-02	5.079E-02	3.292E-03	-0.185
CS-137		661.65	*	-9.918E-03	3.444E-02	5.369E-02	3.492E-03	-0.185
CE-139		165.85	*	-2.087E-02	2.578E-02	3.988E-02	2.044E-03	-0.523
BA-140		162.64		1.568E-01	6.501E-01	1.049E+00	6.283E-02	0.149
		304.84		1.717E-01	1.110E+00	1.642E+00	4.477E-01	0.105
		423.70		5.840E-01	1.708E+00	2.820E+00	8.957E-01	0.207
LA-140		537.32	*	-1.376E-01	2.203E-01	3.474E-01	1.132E-01	-0.396
	+	328.77		6.363E-01	4.098E-01	4.598E-01	2.937E-02	1.384
		432.53		1.280E+00	1.798E+00	3.055E+00	1.935E-01	0.419
		487.03		1.445E-01	1.188E-01	2.075E-01	1.398E-02	0.696
		751.79		-4.817E-01	1.594E+00	2.555E+00	2.117E-01	-0.189
		815.85		6.646E-02	2.870E-01	4.779E-01	4.209E-02	0.139
		867.82		1.289E-02	1.458E+00	2.046E+00	1.760E-01	0.006
		919.63		4.073E-01	2.618E+00	4.289E+00	4.426E-01	0.095
		925.24		-5.994E-01	1.112E+00	1.705E+00	1.490E-01	-0.352
		1596.49	*	-7.989E-02	7.473E-02	1.049E-01	6.833E-03	-0.761
CE-141		145.44	*	2.203E-02	5.246E-02	8.657E-02	5.040E-03	0.255
CE-143		57.37		-1.130E-04	5.246E-02	Half-Life	too short	
		231.56		-9.511E-04	5.246E-02	Half-Life	too short	
		293.26	*	5.719E-04	5.246E-02	Half-Life	too short	
	+	350.59		2.306E-02	5.246E-02	Half-Life	too short	
		490.36		-1.872E-03	5.246E-02	Half-Life	too short	
		664.57		-7.843E-04	5.246E-02	Half-Life	too short	
		721.93		-9.024E-04	5.246E-02	Half-Life	too short	
CE-144		80.11		9.193E-02	1.801E+00	2.711E+00	1.924E-01	0.034
		133.54	*	-3.006E-02	1.861E-01	2.865E-01	4.079E-02	-0.105
PM-144		476.78		-2.873E-02	5.610E-02	8.652E-02	6.113E-03	-0.332
		618.01		-1.120E-02	2.822E-02	4.571E-02	3.077E-03	-0.245
		696.49	*	9.597E-03	3.348E-02	5.644E-02	3.818E-03	0.170
		778.57		-1.323E+00	2.338E+00	3.069E+00	2.277E-01	-0.431
PR-144		696.49	*	6.502E-01	2.269E+00	3.824E+00	2.586E-01	0.170
		1489.15		-1.120E+01	1.065E+01	1.418E+01	9.604E-01	-0.790
PM-146		453.90	*	-3.800E-04	3.924E-02	6.337E-02	5.479E-03	-0.006
		633.02		7.091E-02	1.172E+00	1.962E+00	7.244E-01	0.036
		735.90		-9.700E-03	1.427E-01	2.337E-01	6.584E-02	-0.042



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	+	747.13		-1.367E-02	7.907E-02	1.280E-01	1.689E-02	-0.107
		91.11		5.905E-01	2.546E-01	4.224E-01	3.464E-02	1.398
		319.41		-7.126E-01	2.732E+00	4.462E+00	2.537E-01	-0.160
		439.89		2.879E-01	4.841E+00	7.876E+00	4.540E-01	0.037
		531.02	*	2.627E-01	5.160E-01	8.537E-01	1.168E-01	0.308
PM-149		285.90	*	-3.397E+00	7.001E+01	1.166E+02	1.647E+01	-0.029
EU-152		121.78		1.904E-02	6.240E-02	1.035E-01	8.232E-03	0.184
		244.69		-8.520E-02	2.936E-01	4.285E-01	2.371E-02	-0.199
		344.27	*	-3.133E-02	8.550E-02	1.330E-01	8.523E-03	-0.236
		443.98		-2.140E-01	8.102E-01	1.286E+00	7.435E-02	-0.166
		778.89		6.446E-03	2.545E-01	3.619E-01	2.685E-02	0.018
	+	867.32		7.547E-02	8.714E-01	1.220E+00	9.902E-02	0.062
		964.01		7.708E-01	4.062E-01	5.198E-01	4.092E-02	1.483
		1085.78		-2.113E-01	3.851E-01	6.115E-01	4.062E-02	-0.346
		1112.02		3.687E-01	3.529E-01	5.645E-01	3.569E-02	0.653
		1407.95		5.274E-01	1.758E-01	3.350E-01	2.314E-02	1.574
GD-153		69.67		-7.071E-01	1.466E+00	2.315E+00	1.522E-01	-0.305
		83.37		1.677E+01	1.362E+01	2.126E+01	1.555E+00	0.789
		97.43	*	-1.823E-03	7.464E-02	1.107E-01	7.695E-03	-0.016
EU-154		103.18		-7.423E-02	8.690E-02	1.382E-01	9.235E-03	-0.537
		123.07		-5.705E-03	4.393E-02	7.150E-02	6.909E-03	-0.080
		247.94		1.218E-01	3.036E-01	5.051E-01	4.742E-02	0.241
		591.81		-4.376E-01	5.259E-01	8.219E-01	8.313E-02	-0.532
		723.30		-4.010E-02	1.681E-01	2.332E-01	1.882E-02	-0.172
		756.87		1.624E-01	7.188E-01	1.201E+00	1.324E-01	0.135
		873.19		9.202E-02	2.692E-01	4.504E-01	5.371E-02	0.204
		996.32		-2.154E-02	3.416E-01	5.705E-01	9.863E-02	-0.038
		1004.76		-7.887E-04	1.924E-01	3.227E-01	3.499E-02	-0.002
		1274.45	*	-5.031E-02	1.157E-01	1.819E-01	1.772E-02	-0.277
EU-155		48.70		-1.842E+00	1.914E+00	3.139E+00	2.051E-01	-0.587
		60.01		2.103E+00	4.143E+00	6.478E+00	4.070E-01	0.325
		86.54		4.470E-01	1.135E-01	1.681E-01	1.284E-02	2.659
TB-160	+	105.31	*	1.208E-01	8.986E-02	1.557E-01	1.049E-02	0.776
		86.79		1.191E+00	3.022E-01	4.503E-01	3.405E-02	2.645
		197.04		1.569E-01	4.921E-01	7.809E-01	4.127E-02	0.201
		215.65		6.208E-01	6.698E-01	1.106E+00	5.959E-02	0.561
		298.57		2.203E-01	1.385E-01	1.719E-01	9.760E-03	1.282
	+	879.36	*	-3.116E-02	1.247E-01	1.972E-01	1.619E-02	-0.158
		962.29		4.531E-01	6.390E-01	9.512E-01	7.501E-02	0.476
		966.15		8.798E-01	2.540E-01	4.761E-01	3.739E-02	1.848
		1177.93		1.058E-02	3.639E-01	5.755E-01	3.188E-02	0.018
		1271.85		-5.273E-01	6.568E-01	9.904E-01	6.341E-02	-0.532
HO-166M	+	80.57		-3.338E-03	2.300E-01	3.450E-01	2.459E-02	-0.010
		184.41		1.229E-01	4.163E-02	5.842E-02	3.045E-03	2.104
		280.46		9.789E-03	7.904E-02	1.174E-01	6.633E-03	0.083
		410.95		1.720E-01	2.168E-01	3.701E-01	2.071E-02	0.465
		711.68	*	-2.839E-02	5.507E-02	8.715E-02	5.999E-03	-0.326
		752.31		1.105E-02	2.574E-01	4.243E-01	3.058E-02	0.026
		810.29		4.319E-03	5.170E-02	8.507E-02	6.523E-03	0.051

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TM-171		51.35		1.429E+01	2.396E+01	4.176E+01	2.722E+00	0.342
		52.39		8.163E+00	1.250E+01	2.181E+01	1.415E+00	0.374
		59.40		1.743E+00	2.284E+01	3.498E+01	2.194E+00	0.050
LU-176	+	66.72	*	6.507E+00	2.612E+01	4.004E+01	2.592E+00	0.162
		88.36		8.803E-01	2.233E-01	3.038E-01	2.315E-02	2.898
		201.83		-1.696E-03	2.472E-02	3.913E-02	2.079E-03	-0.043
		306.84	*	-1.777E-03	2.035E-02	3.367E-02	1.913E-03	-0.053
LU-177	+	401.10		-1.430E+00	6.034E+00	9.696E+00	5.368E-01	-0.147
		112.95		1.894E-01	1.367E+00	2.260E+00	1.444E-01	0.084
LU-177M	+	208.36	*	2.530E+00	1.161E+00	1.696E+00	9.074E-02	1.492
		52.97		1.489E-01	1.286E+00	2.198E+00	1.423E-01	0.068
HF-181		54.07		-5.803E-01	6.803E-01	1.117E+00	7.187E-02	-0.520
		61.30		7.663E-01	1.239E+00	1.943E+00	1.228E-01	0.394
		121.62		8.893E-02	3.193E-01	5.291E-01	3.304E-02	0.168
		147.16		-2.879E-02	5.454E-01	8.817E-01	4.886E-02	-0.033
		171.86		2.054E-01	4.090E-01	6.716E-01	3.457E-02	0.306
		218.09		2.444E-01	7.644E-01	1.227E+00	6.630E-02	0.199
		268.79		1.025E+00	7.673E-01	1.225E+00	6.883E-02	0.837
		319.02		-5.904E-02	2.151E-01	3.511E-01	1.996E-02	-0.168
		367.43		3.384E-01	7.576E-01	1.279E+00	7.143E-02	0.265
		413.65	*	-7.038E-02	1.611E-01	2.491E-01	1.398E-02	-0.283
		56.28		5.497E-01	7.540E-01	1.314E+00	8.359E-02	0.418
		57.53		-9.200E-02	4.027E-01	6.773E-01	4.282E-02	-0.136
		65.20		-5.495E-01	8.547E-01	1.258E+00	8.082E-02	-0.437
		133.02		1.639E-02	6.301E-02	9.301E-02	5.486E-03	0.176
W-181		136.25		-8.575E-02	3.935E-01	6.345E-01	3.687E-02	-0.135
		345.85		1.160E-01	1.759E-01	2.686E-01	1.517E-02	0.432
		482.03	*	-1.214E-02	3.527E-02	5.514E-02	3.292E-03	-0.220
		56.28		2.159E-01	2.959E-01	5.158E-01	3.280E-02	0.419
TA-182		57.53		-3.598E-02	1.582E-01	2.660E-01	1.682E-02	-0.135
		65.20	*	-2.141E-01	3.330E-01	4.901E-01	3.149E-02	-0.437
		67.75		2.014E-02	9.023E-02	1.532E-01	9.966E-03	0.131
		100.10		1.417E-01	1.487E-01	2.548E-01	1.737E-02	0.556
RE-183		152.43		1.583E-01	2.914E-01	4.819E-01	2.612E-02	0.328
		222.10		-1.081E-01	2.859E-01	4.773E-01	2.589E-02	-0.226
		1001.68		2.047E-01	1.901E+00	3.218E+00	2.426E-01	0.064
		1121.28	+	6.262E-01	3.125E-01	3.391E-01	2.104E-02	1.847
		1189.05		-6.443E-02	2.960E-01	4.807E-01	2.711E-02	-0.134
		1221.42	*	-5.121E-02	1.910E-01	3.084E-01	1.829E-02	-0.166
		1230.97		-3.615E-01	4.949E-01	7.714E-01	4.644E-02	-0.469
RE-184		57.98		-7.790E-02	1.570E-01	2.611E-01	1.647E-02	-0.298
		59.32		-2.337E-02	9.538E-02	1.437E-01	9.014E-03	-0.163
		67.20		5.265E-02	1.735E-01	2.827E-01	1.834E-02	0.186
		162.32	*	-1.523E-02	9.785E-02	1.552E-01	8.069E-03	-0.098
RE-184	+	208.81		2.326E+00	1.067E+00	1.552E+00	8.304E-02	1.499
		291.72		-3.507E-01	8.707E-01	1.240E+00	7.031E-02	-0.283
		57.98		-2.874E-01	5.792E-01	9.635E-01	6.078E-02	-0.298
		59.32		-8.618E-02	3.517E-01	5.297E-01	3.324E-02	-0.163
		67.20		1.942E-01	6.401E-01	1.043E+00	6.766E-02	0.186

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		161.27		-2.471E-01	3.095E-01	4.804E-01	2.509E-02	-0.514
		216.55		9.902E-02	2.426E-01	3.911E-01	2.110E-02	0.253
		252.85	*	-4.667E-02	1.906E-01	3.171E-01	1.765E-02	-0.147
		318.01		-6.483E-02	3.765E-01	6.184E-01	3.515E-02	-0.105
		792.07		2.986E-03	1.142E+00	1.642E+00	1.235E-01	0.002
		903.28		1.781E-01	9.807E-01	1.522E+00	1.267E-01	0.117
		920.93		3.504E-01	4.275E-01	7.402E-01	6.072E-02	0.473
		59.72		4.697E-02	2.487E-01	3.828E-01	2.403E-02	0.123
		61.14		5.569E-02	1.352E-01	2.101E-01	1.327E-02	0.265
		69.30		-2.306E-01	2.537E-01	4.138E-01	2.715E-02	-0.557
		592.07		-2.037E+00	2.167E+00	3.366E+00	2.139E-01	-0.605
		646.12	*	-3.855E-03	3.805E-02	6.281E-02	4.059E-03	-0.061
		717.42		2.450E-02	8.029E-01	1.328E+00	9.199E-02	0.018
		874.81		2.545E-01	5.206E-01	8.829E-01	7.218E-02	0.288
		880.27		-2.330E-01	7.091E-01	1.113E+00	9.147E-02	-0.209
RE-188		155.03	*	9.389E-02	1.433E-01	2.380E-01	1.276E-02	0.394
		477.96		-2.049E-01	2.518E+00	4.026E+00	2.396E-01	-0.051
		633.10		1.430E-01	2.363E+00	3.956E+00	2.548E-01	0.036
W-188	+	63.58		7.550E+01	5.805E+01	7.729E+01	4.930E+00	0.977
		227.08		5.230E+00	1.086E+01	1.856E+01	1.011E+00	0.282
IR-192	+	290.67	*	-2.143E+00	6.812E+00	9.769E+00	5.537E-01	-0.219
		295.96		8.923E-01	1.505E-01	2.418E-01	1.395E-02	3.691
		308.46		5.920E-02	7.865E-02	1.360E-01	7.821E-03	0.435
		316.51	*	1.219E-02	2.895E-02	4.913E-02	2.808E-03	0.248
		468.07		2.763E-02	6.396E-02	9.406E-02	6.375E-03	0.294
AU-195		604.41		-3.442E-01	4.636E-01	6.215E-01	7.247E-02	-0.554
		612.46		4.709E-01	7.005E-01	1.081E+00	8.697E-02	0.435
		65.12		-6.729E-02	1.532E-01	2.277E-01	1.462E-02	-0.296
		66.83		2.532E-02	8.640E-02	1.327E-01	8.592E-03	0.191
	+	75.70		1.047E+00	2.176E-01	3.981E-01	2.726E-02	2.630
		98.88	*	2.976E-01	2.114E-01	3.348E-01	2.302E-02	0.889
TL-200	+	129.76		3.364E+00	3.047E+00	4.281E+00	2.565E-01	0.786
		367.94	*	1.272E-04	3.047E+00	Half-Life	too short	
		579.30		-1.932E-04	3.047E+00	Half-Life	too short	
		828.27		-2.694E-03	3.047E+00	Half-Life	too short	
		1205.75		2.350E-04	3.047E+00	Half-Life	too short	
TL-201		68.90		-2.269E+00	3.836E+00	6.330E+00	4.144E-01	-0.359
		70.82		1.646E+00	2.391E+00	3.717E+00	2.461E-01	0.443
		80.30		1.262E-01	4.035E+00	6.066E+00	4.313E-01	0.021
		135.34		1.107E+01	2.047E+01	3.408E+01	1.989E+00	0.325
TL-202		167.43	*	-1.895E+00	5.634E+00	8.914E+00	4.569E-01	-0.213
		68.90		-2.126E-01	3.594E-01	5.931E-01	3.883E-02	-0.359
		70.82		1.538E-01	2.234E-01	3.473E-01	2.300E-02	0.443
		80.30		1.180E-02	3.771E-01	5.670E-01	4.032E-02	0.021
HG-203		439.56	*	-9.763E-03	5.820E-02	9.314E-02	5.364E-03	-0.105
		70.83		6.772E-01	9.806E-01	1.521E+00	1.891E-01	0.445
		72.87		7.767E-01	5.960E-01	9.352E-01	1.126E-01	0.831
		82.60		2.029E-01	1.009E+00	1.512E+00	1.956E-01	0.134
	*	279.20		3.390E-02	3.936E-02	6.072E-02	3.652E-03	0.558

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BI-207		72.80		1.968E-01	1.730E-01	2.723E-01	1.826E-02	0.723
	+	74.97		5.812E-01	1.208E-01	1.981E-01	1.349E-02	2.933
		84.90		1.772E-01	1.791E-01	2.766E-01	2.052E-02	0.641
		569.67		3.866E-03	2.617E-02	4.439E-02	2.795E-03	0.087
		1063.62	*	1.733E-02	5.123E-02	8.784E-02	6.060E-03	0.197
TL-207		1770.23		1.061E-01	4.316E-01	6.532E-01	3.855E-02	0.162
		81.07		-2.430E-01	1.957E-01	2.752E-01	1.970E-02	-0.883
		83.78		6.193E-02	1.198E-01	1.819E-01	1.336E-02	0.340
		94.90		-2.725E-01	2.008E-01	3.155E-01	2.241E-02	-0.864
		122.32		2.812E-01	1.496E+00	2.468E+00	1.747E-01	0.114
		144.24		1.437E-01	5.926E-01	9.660E-01	6.841E-02	0.149
		154.21		2.876E-01	3.393E-01	5.674E-01	3.785E-02	0.507
	+	269.46		6.399E-01	2.665E-01	2.999E-01	1.767E-02	2.134
		323.87	*	2.775E-02	6.011E-01	8.781E-01	1.447E-01	0.032
	+	338.28		5.828E+00	1.569E+00	2.220E+00	2.322E-01	2.625
PO-209		445.03		-6.714E-01	1.950E+00	3.074E+00	3.155E-01	-0.218
		260.50		3.028E+00	7.873E+00	1.347E+01	7.535E-01	0.225
		262.80		4.475E+00	2.188E+01	3.711E+01	2.079E+00	0.121
		896.60	*	-2.599E+00	7.034E+00	1.099E+01	9.170E-01	-0.237
BI-210		46.50	*	2.560E+00	2.829E+00	4.882E+00	3.677E-01	0.524
PB-210		46.50	*	2.560E+00	2.829E+00	4.882E+00	3.677E-01	0.524
PO-210		46.50	*	2.560E+00	2.828E+00	4.882E+00	3.131E-01	0.524
PB-211		404.84	*	-3.370E-03	8.643E-01	1.409E+00	8.778E-01	-0.002
BI-212		427.08		1.672E-01	1.775E+00	2.897E+00	1.790E+00	0.058
		831.96		-6.875E-01	1.214E+00	1.754E+00	1.097E+00	-0.392
	+	727.18	*	9.938E-01	4.926E-01	5.952E-01	5.153E-02	1.670
		785.46		1.190E+00	1.686E+00	2.904E+00	2.170E-01	0.410
		1620.62		3.036E-01	1.103E+00	1.916E+00	1.234E-01	0.159
PO-215		81.07		-2.430E-01	1.957E-01	2.752E-01	1.970E-02	-0.883
		83.78		6.193E-02	1.198E-01	1.819E-01	1.336E-02	0.340
		94.90		-2.725E-01	2.008E-01	3.155E-01	2.241E-02	-0.864
		122.32		2.812E-01	1.496E+00	2.468E+00	1.747E-01	0.114
		144.24		1.437E-01	5.926E-01	9.660E-01	6.841E-02	0.149
		154.21		2.876E-01	3.393E-01	5.674E-01	3.785E-02	0.507
	+	269.46		6.399E-01	2.665E-01	2.999E-01	1.767E-02	2.134
		323.87	*	2.775E-02	6.011E-01	8.781E-01	1.447E-01	0.032
	+	338.28		5.828E+00	1.569E+00	2.220E+00	2.322E-01	2.625
		445.03		-6.714E-01	1.950E+00	3.074E+00	3.155E-01	-0.218
RN-219	+	271.23		8.210E-01	3.447E-01	4.000E-01	3.192E-02	2.053
RN-220		401.81	*	6.232E-02	3.712E-01	6.116E-01	8.255E-02	0.102
		549.76	*	-1.208E+01	2.365E+01	3.845E+01	2.397E+00	-0.314
RA-223		81.07		-2.430E-01	1.957E-01	2.752E-01	1.970E-02	-0.883
		83.78		6.193E-02	1.198E-01	1.819E-01	1.336E-02	0.340
		94.90		-2.725E-01	2.008E-01	3.155E-01	2.241E-02	-0.864
		122.32		2.812E-01	1.496E+00	2.468E+00	1.747E-01	0.114
		144.24		1.437E-01	5.926E-01	9.660E-01	6.841E-02	0.149
		154.21		2.876E-01	3.393E-01	5.674E-01	3.785E-02	0.507
	+	269.46		6.399E-01	2.665E-01	2.999E-01	1.767E-02	2.134
		323.87	*	2.775E-02	6.011E-01	8.781E-01	1.447E-01	0.032

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227	+	338.28		5.828E+00	1.569E+00	2.220E+00	2.322E-01	2.625
		445.03		-6.714E-01	1.950E+00	3.074E+00	3.155E-01	-0.218
		79.80		5.911E-01	1.374E+00	2.099E+00	4.393E-01	0.282
		236.00		4.962E-01	2.331E-01	3.769E-01	3.877E-02	1.317
		256.20	*	8.268E-02	3.120E-01	5.311E-01	7.366E-02	0.156
TH-227		286.10		6.757E-02	1.262E+00	2.113E+00	2.428E-01	0.032
	+	299.80		2.812E+00	1.819E+00	2.211E+00	3.591E-01	1.272
		304.40		-9.278E-01	1.704E+00	2.373E+00	4.095E-01	-0.391
		334.20		-5.885E-01	2.396E+00	3.164E+00	5.787E-01	-0.186
		79.80		5.911E-01	1.374E+00	2.099E+00	4.453E-01	0.282
TH-229	+	94.00		7.181E+00	2.931E+00	3.189E+00	6.776E-01	2.251
		236.00		4.962E-01	2.316E-01	3.769E-01	3.341E-02	1.317
		256.20	*	8.268E-02	3.121E-01	5.311E-01	8.935E-02	0.156
		286.10		6.757E-02	1.263E+00	2.113E+00	2.116E+00	0.032
	+	299.80		2.812E+00	1.819E+00	2.211E+00	3.591E-01	1.272
TH-229		304.40		-9.278E-01	1.704E+00	2.373E+00	4.095E-01	-0.391
		334.20		-5.885E-01	2.396E+00	3.164E+00	5.787E-01	-0.186
		85.43		1.437E-01	1.879E-01	2.874E-01	2.144E-02	0.500
	+	88.47		2.379E-01	1.022E-01	1.729E-01	1.316E-02	1.376
		100.00		1.309E-01	1.564E-01	2.668E-01	1.820E-02	0.491
PA-231		193.63	*	-2.669E-01	4.389E-01	6.779E-01	3.569E-02	-0.394
		210.97		5.979E-01	7.400E-01	1.093E+00	5.865E-02	0.547
		283.67	*	3.563E-01	1.298E+00	2.130E+00	2.922E-01	0.167
TH-231		301.29		8.751E-01	5.241E-01	8.461E-01	8.788E-02	1.034
		81.07		-2.430E-01	1.957E-01	2.752E-01	1.970E-02	-0.883
		83.78		6.193E-02	1.198E-01	1.819E-01	1.336E-02	0.340
		94.90		-2.725E-01	2.008E-01	3.155E-01	2.241E-02	-0.864
		122.32		2.812E-01	1.496E+00	2.468E+00	1.747E-01	0.114
		144.24		1.437E-01	5.926E-01	9.660E-01	6.841E-02	0.149
		154.21		2.876E-01	3.393E-01	5.674E-01	3.785E-02	0.507
	+	269.46		6.399E-01	2.665E-01	2.999E-01	1.767E-02	2.134
U-231		323.87	*	2.775E-02	6.011E-01	8.781E-01	1.447E-01	0.032
	+	338.28		5.828E+00	1.569E+00	2.220E+00	2.322E-01	2.625
		445.03		-6.714E-01	1.950E+00	3.074E+00	3.155E-01	-0.218
		84.21		3.027E+00	4.910E+00	7.482E+00	5.515E-01	0.405
	+	92.29		6.816E+00	2.426E+00	3.388E+00	2.469E-01	2.012
PA-233		95.87	*	-8.844E-01	9.550E-01	1.347E+00	9.488E-02	-0.657
		108.00		-9.613E-01	1.692E+00	2.724E+00	1.775E-01	-0.353
	+	75.28		1.696E+01	4.130E+00	6.013E+00	8.668E-01	2.821
	+	86.59		7.266E+00	2.608E+00	2.737E+00	7.251E-01	2.655
	+	300.12		7.840E-01	5.020E-01	6.145E-01	8.225E-02	1.276
PA-234		311.98	*	1.030E-02	5.460E-02	9.159E-02	5.542E-03	0.112
		340.50		7.316E-01	6.229E-01	9.452E-01	2.168E-01	0.774
		398.62		-4.913E-01	1.802E+00	2.880E+00	7.430E-01	-0.171
		415.76		8.202E-02	1.476E+00	2.411E+00	4.951E-01	0.034
	+	63.00		2.195E+00	1.711E+00	2.298E+00	3.303E-01	0.955
		94.67		-8.034E-02	1.472E-01	2.392E-01	2.729E-02	-0.336
		98.44		1.026E-01	1.034E-01	1.358E-01	7.541E-02	0.755
		99.86		4.289E-01	4.108E-01	6.772E-01	4.624E-02	0.633

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		111.00		-8.010E-02	1.591E-01	2.562E-01	2.726E-02	-0.313
		131.20		4.995E-02	9.983E-02	1.494E-01	8.890E-03	0.334
		152.70		2.567E-01	2.834E-01	4.712E-01	7.384E-02	0.545
	+	186.00		4.425E+00	2.002E+00	2.267E+00	6.904E-01	1.952
		226.40		-4.628E-02	3.474E-01	5.796E-01	6.600E-02	-0.080
		227.20		2.242E-01	3.619E-01	6.286E-01	3.426E-02	0.357
		248.90		4.730E-01	6.659E-01	1.147E+00	2.457E-01	0.412
	+	293.70		5.630E+00	1.269E+00	1.460E+00	2.341E-01	3.857
		369.80		1.229E-01	7.345E-01	1.217E+00	2.527E-01	0.101
		568.70		-8.311E-02	8.726E-01	1.456E+00	9.164E-02	-0.057
		569.50		3.167E-02	2.320E-01	3.933E-01	2.476E-02	0.081
		574.00		-6.398E-02	1.295E+00	2.165E+00	1.366E-01	-0.030
		699.00		-3.235E-01	6.667E-01	1.058E+00	1.939E-01	-0.306
		706.10		-1.248E-01	9.458E-01	1.544E+00	6.836E-01	-0.081
		733.00		-1.488E-01	4.149E-01	5.665E-01	1.226E-01	-0.263
		742.81		-4.378E-01	1.266E+00	1.966E+00	1.318E+00	-0.223
	+	796.30		1.649E+00	1.087E+00	1.604E+00	4.287E-01	1.028
		805.60		-2.678E-01	8.960E-01	1.419E+00	4.311E-01	-0.189
		819.60		-9.848E-01	1.283E+00	1.867E+00	7.062E-01	-0.528
		826.30		-4.331E-01	8.240E-01	1.245E+00	5.554E-01	-0.348
		831.60		-3.529E-01	6.013E-01	9.155E-01	2.712E-01	-0.385
		876.40		-3.250E-01	8.323E-01	1.186E+00	1.219E+00	-0.274
		880.51		-2.904E-02	2.550E-01	4.090E-01	3.362E-02	-0.071
		883.24		1.802E-01	2.882E-01	4.508E-01	3.028E-01	0.400
		899.00		-4.767E-01	8.254E-01	1.221E+00	5.330E-01	-0.391
		925.00		-4.645E-01	1.166E+00	1.812E+00	1.481E-01	-0.256
		926.50		-5.864E-02	1.708E-01	2.658E-01	6.679E-02	-0.221
		946.00	*	-1.913E-03	2.922E-01	4.705E-01	8.703E-02	-0.004
		949.00		3.318E-01	4.393E-01	7.534E-01	6.022E-02	0.440
		980.50		-3.773E-01	7.052E-01	1.072E+00	8.287E-02	-0.352
		1394.10		-6.255E-01	1.070E+00	1.463E+00	9.492E-01	-0.428
PA-234M		766.42		9.547E+00	1.266E+01	1.800E+01	9.093E+00	0.531
		1001.03	*	1.799E+00	4.602E+00	7.482E+00	6.772E-01	0.240
U-235	+	89.95		2.388E+00	1.246E+00	1.603E+00	4.899E-01	1.489
	+	93.35		2.234E+00	9.935E-01	1.094E+00	3.022E-01	2.042
		105.00		1.382E+00	9.635E-01	1.534E+00	4.499E-01	0.901
		143.76	*	7.304E-02	1.816E-01	2.975E-01	4.832E-02	0.245
		163.35		1.482E-01	4.198E-01	6.792E-01	1.208E-01	0.218
	+	185.71		1.639E-01	5.551E-02	8.418E-02	4.394E-03	1.947
		205.31		-2.615E-02	4.872E-01	6.843E-01	1.221E-01	-0.038
NP-236		94.67		-5.906E-02	1.116E-01	1.816E-01	1.293E-02	-0.325
		98.44		7.750E-02	6.543E-02	1.026E-01	7.080E-03	0.755
		111.00		-6.059E-02	1.203E-01	1.938E-01	1.247E-02	-0.313
		160.31	*	2.173E-03	6.786E-02	1.096E-01	5.744E-03	0.020
NP-239		99.55		1.448E-01	1.372E-01	2.263E-01	1.548E-02	0.640
		117.00	*	-1.665E-02	1.604E-01	2.620E-01	1.654E-02	-0.064
	+	209.75		1.840E+00	8.439E-01	1.219E+00	6.531E-02	1.509
		228.18		7.552E-02	1.856E-01	3.197E-01	1.744E-02	0.236
	+	277.60		2.722E-01	2.307E-01	2.851E-01	1.609E-02	0.955

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		334.30		-3.833E-01	1.354E+00	1.783E+00	1.011E-01	-0.215
AM-241		59.54	*	7.246E-03	1.325E-01	2.027E-01	1.440E-02	0.036
CM-243		99.55		1.490E-01	1.411E-01	2.328E-01	1.593E-02	0.640
		103.76	*	-6.527E-04	7.974E-02	1.317E-01	8.769E-03	-0.005
		117.00		-1.713E-02	1.650E-01	2.696E-01	1.701E-02	-0.064
	+	209.75		1.814E+00	8.319E-01	1.202E+00	6.438E-02	1.509
		228.18		7.631E-02	1.875E-01	3.230E-01	1.762E-02	0.236
	+	277.60		2.745E-01	2.326E-01	2.874E-01	1.622E-02	0.955
AM-246		798.80		-2.358E-02	1.448E-01	2.005E-01	1.519E-02	-0.118
		1036.00		-1.119E-01	2.783E-01	4.493E-01	3.234E-02	-0.249
		1062.04		9.632E-02	2.148E-01	3.719E-01	2.572E-02	0.259
		1078.86	*	6.527E-02	1.288E-01	2.242E-01	1.507E-02	0.291
CM-247	+	278.00		1.129E+00	9.569E-01	1.176E+00	6.634E-02	0.960
		287.40		-2.104E-01	1.022E+00	1.688E+00	9.556E-02	-0.125
		402.60	*	2.136E-02	3.337E-02	5.652E-02	3.134E-03	0.378
CF-249		252.85		-1.753E-01	7.159E-01	1.191E+00	6.628E-02	-0.147
		333.44		-3.232E-02	1.966E-01	2.364E-01	1.341E-02	-0.137
		387.95	*	9.529E-03	3.577E-02	5.944E-02	3.267E-03	0.160
CF-251		176.60	*	5.472E-02	1.117E-01	1.830E-01	9.461E-03	0.299
		227.00		1.560E-01	3.265E-01	5.581E-01	3.041E-02	0.280
		285.00		1.275E-01	1.448E+00	2.429E+00	1.374E-01	0.052

## VAX/VMS Nuclide Identification Report Generated

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231004
* Acquisition date   : 21-JAN-2010 09:02:54 Detector SN#      :
* Detector ID        : GAM12 Sensitivity      : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 02:00:01.68 Half life ratio : 8.000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244231004 Analyst initials: MXR1
* Batch Number       : 941242 Sample Quantity : 1.5195E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                               QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24 MS Isotope      :
* MSD DPM             : 0.000 MSD Isotope                   :
* LCS DPM             : 0.000 LCS Isotope                    :
* LCSD DPM            : 0.000 LCSD Isotope                   :
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.878E+01	2.557E+00	5.531E-01	0.000E+00
CD-109	3.775E+00	9.383E-01	1.224E+00	0.000E+00
SN-126	3.712E-01	9.226E-02	1.209E-01	0.000E+00
TL-208	5.005E-01	8.088E-02	4.862E-02	0.000E+00
BI-211	3.283E+00	4.498E-01	2.943E-01	0.000E+00
PB-212	1.586E+00	1.478E-01	7.922E-02	0.000E+00
PO-212	1.586E+00	1.478E-01	7.922E-02	0.000E+00
BI-214	9.949E-01	1.725E-01	1.025E-01	0.000E+00
PB-214	1.142E+00	1.670E-01	1.026E-01	0.000E+00
PO-214	1.142E+00	1.670E-01	1.026E-01	0.000E+00
PO-216	1.586E+00	1.478E-01	7.922E-02	0.000E+00
PO-218	1.142E+00	1.670E-01	1.026E-01	0.000E+00
RA-224	3.917E+00	1.142E+00	9.014E-01	0.000E+00
RA-226	9.949E-01	1.725E-01	1.025E-01	0.000E+00
AC-228	1.359E+00	2.665E-01	1.781E-01	0.000E+00
RA-228	1.359E+00	2.665E-01	1.781E-01	0.000E+00
TH-228	1.610E+00	1.500E-01	8.040E-02	0.000E+00
TH-230	9.948E-01	1.725E-01	1.025E-01	0.000E+00
TH-232	1.359E+00	2.665E-01	1.781E-01	0.000E+00
TH-234	1.883E+00	1.448E+00	1.959E+00	0.000E+00
U-234	9.948E-01	1.725E-01	1.025E-01	0.000E+00
NP-237	1.090E+00	3.492E-01	3.592E-01	0.000E+00
U-238	1.883E+00	1.448E+00	1.959E+00	0.000E+00
AM-243	3.238E-01	6.594E-02	8.243E-02	0.000E+00
ANH-511	5.633E-02	5.493E-02	4.812E-02	0.000E+00

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	-9.800E-02	2.614E-01	4.319E-01	0.000E+00 NOT IDENT.
NA-22	-1.659E-02	4.068E-02	6.631E-02	0.000E+00 NOT IDENT.



NA-24	0.000E+00	5.018E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	1.019E-02	2.519E-02	4.522E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.045E-02	6.952E-02	0.000E+00	FAIL ABUN
SC-46	-2.172E-02	3.798E-02	6.079E-02	0.000E+00	FAIL ABUN
V-48	3.055E-02	6.314E-02	1.102E-01	0.000E+00	NOT IDENT.
CR-51	-4.116E-02	2.973E-01	5.227E-01	0.000E+00	NOT IDENT.
MN-52	8.589E-02	1.826E-01	3.261E-01	0.000E+00	NOT IDENT.
MN-54	4.507E-03	3.589E-02	6.157E-02	0.000E+00	NOT IDENT.
CO-56	2.345E-02	3.523E-02	6.310E-02	0.000E+00	NOT IDENT.
CO-57	4.304E-03	2.119E-02	3.829E-02	0.000E+00	NOT IDENT.
CO-58	-3.769E-03	3.492E-02	5.897E-02	0.000E+00	NOT IDENT.
FE-59	1.377E-02	8.379E-02	1.465E-01	0.000E+00	NOT IDENT.
CO-60	2.163E-02	3.697E-02	6.612E-02	0.000E+00	NOT IDENT.
ZN-65	-5.082E-02	1.043E-01	1.458E-01	0.000E+00	NOT IDENT.
GE-68	-2.399E-01	1.161E+00	1.973E+00	0.000E+00	NOT IDENT.
AS-73	-3.355E-01	6.475E-01	1.204E+00	0.000E+00	NOT IDENT.
AS-74	3.637E-02	7.832E-02	1.422E-01	0.000E+00	NOT IDENT.
SE-75	-2.844E-02	4.050E-02	6.119E-02	0.000E+00	NOT IDENT.
BR-77	4.856E-01	8.711E+00	1.477E+01	0.000E+00	FAIL ABUN
SR-82	-1.271E-02	3.667E-01	5.412E-01	0.000E+00	NOT IDENT.
RB-83	-7.519E-03	6.231E-02	1.042E-01	0.000E+00	NOT IDENT.
RB-84	1.848E-02	6.205E-02	1.076E-01	0.000E+00	NOT IDENT.
KR-85	6.625E+00	6.551E+00	1.063E+01	0.000E+00	NOT IDENT.
SR-85	3.388E-02	3.351E-02	5.438E-02	0.000E+00	NOT IDENT.
RB-86	-1.875E-01	7.269E-01	1.229E+00	0.000E+00	NOT IDENT.
Y-88	-1.495E-03	2.764E-02	4.617E-02	0.000E+00	NOT IDENT.
ZR-88	-3.119E-03	2.589E-02	4.464E-02	0.000E+00	NOT IDENT.
Y-91	5.812E+00	1.865E+01	3.256E+01	0.000E+00	NOT IDENT.
NB-94	2.266E-02	2.980E-02	5.433E-02	0.000E+00	NOT IDENT.
NB-95	3.101E-02	4.160E-02	6.641E-02	0.000E+00	NOT IDENT.
NB-95M	7.842E-02	1.102E-01	1.840E-01	0.000E+00	NOT IDENT.
ZR-95	4.241E-02	6.553E-02	1.179E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	6.983E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.530E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	9.048E+00	9.913E+00	1.811E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.642E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.492E-02	2.840E-02	4.918E-02	0.000E+00	NOT IDENT.
RH-102	4.623E-05	2.335E-02	3.981E-02	0.000E+00	NOT IDENT.
RU-103	-1.647E-02	3.621E-02	5.923E-02	0.000E+00	FAIL ABUN
RH-106	1.667E-01	2.761E-01	5.035E-01	0.000E+00	FAIL ABUN
RU-106	1.667E-01	2.756E-01	5.035E-01	0.000E+00	FAIL ABUN
AG-108M	2.798E-02	2.784E-02	5.103E-02	0.000E+00	NOT IDENT.
AG-110M	-3.186E-02	3.229E-02	5.220E-02	0.000E+00	NOT IDENT.
IN-111	-6.591E-02	8.751E-01	1.394E+00	0.000E+00	NOT IDENT.
IN-113M	1.600E-02	3.760E-02	6.706E-02	0.000E+00	NOT IDENT.
SN-113	1.600E-02	3.760E-02	6.706E-02	0.000E+00	NOT IDENT.
IN-114M	1.099E-03	1.639E-01	2.692E-01	0.000E+00	NOT IDENT.
CD-115	-2.146E+00	9.135E+00	1.512E+01	0.000E+00	NOT IDENT.
SN-117M	-1.234E-03	4.378E-02	7.668E-02	0.000E+00	NOT IDENT.
SB-122	1.097E+00	1.695E+00	3.124E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.415E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.220E-02	2.284E-02	4.100E-02	0.000E+00	NOT IDENT.
I-124	-2.297E-03	6.275E-01	9.598E-01	0.000E+00	FAIL ABUN
SB-124	2.063E-03	5.773E-02	1.062E-01	0.000E+00	FAIL ABUN
SB-125	-5.335E-02	7.847E-02	1.287E-01	0.000E+00	FAIL ABUN
TE-125M	7.166E+00	7.639E+00	1.427E+01	0.000E+00	NOT IDENT.
I-126	5.884E-02	1.483E-01	2.659E-01	0.000E+00	NOT IDENT.
SB-126	-8.139E-02	1.392E-01	1.937E-01	0.000E+00	FAIL ABUN
SB-127	8.236E-01	1.125E+00	2.056E+00	0.000E+00	NOT IDENT.
XE-127	-1.759E-02	3.971E-02	6.668E-02	0.000E+00	NOT IDENT.
I-131	-1.043E-02	9.166E-02	1.593E-01	0.000E+00	NOT IDENT.
TE-132	1.261E-01	5.322E-01	9.808E-01	0.000E+00	NOT IDENT.
BA-133	3.245E-02	3.817E-02	6.277E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	4.480E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	0.000E+00	5.050E-02	8.369E-02	0.000E+00	FAIL ABUN
CS-135	1.844E-01	1.424E-01	2.437E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.703E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.514E-02	9.600E-02	1.642E-01	0.000E+00	FAIL ABUN
BA-137M	-9.383E-03	3.193E-02	5.224E-02	0.000E+00	NOT IDENT.
CS-137	-9.918E-03	3.375E-02	5.522E-02	0.000E+00	NOT IDENT.
CE-139	-2.087E-02	2.526E-02	4.245E-02	0.000E+00	NOT IDENT.
BA-140	-1.376E-01	2.159E-01	3.593E-01	0.000E+00	NOT IDENT.
LA-140	-7.989E-02	7.323E-02	1.054E-01	0.000E+00	FAIL ABUN
CE-141	2.203E-02	5.141E-02	9.244E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.727E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-3.006E-02	1.824E-01	3.066E-01	0.000E+00	NOT IDENT.
PM-144	9.597E-03	3.281E-02	5.797E-02	0.000E+00	NOT IDENT.
PR-144	6.502E-01	2.223E+00	3.928E+00	0.000E+00	NOT IDENT.

PM-146	-3.800E-04	3.845E-02	6.581E-02	0.000E+00	NOT IDENT.
ND-147	2.627E-01	5.057E-01	8.830E-01	0.000E+00	FAIL ABUN
PM-149	-3.397E+00	6.861E+01	1.225E+02	0.000E+00	NOT IDENT.
EU-152	-3.133E-02	8.379E-02	1.391E-01	0.000E+00	FAIL ABUN
GD-153	-1.823E-03	7.315E-02	1.193E-01	0.000E+00	NOT IDENT.
EU-154	-5.031E-02	1.133E-01	1.839E-01	0.000E+00	NOT IDENT.
EU-155	1.208E-01	8.806E-02	1.675E-01	0.000E+00	FAIL ABUN
TB-160	-3.116E-02	1.222E-01	2.014E-01	0.000E+00	FAIL ABUN
HO-166M	-2.839E-02	5.397E-02	8.947E-02	0.000E+00	FAIL ABUN
TM-171	6.507E+00	2.560E+01	4.354E+01	0.000E+00	NOT IDENT.
LU-176	-1.777E-03	1.994E-02	3.530E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.137E+00	1.796E+00	0.000E+00	FAIL ABUN
LU-177M	-7.038E-02	1.579E-01	2.592E-01	0.000E+00	NOT IDENT.
HF-181	-1.214E-02	3.457E-02	5.718E-02	0.000E+00	NOT IDENT.
W-181	-2.141E-01	3.264E-01	5.332E-01	0.000E+00	NOT IDENT.
TA-182	-5.121E-02	1.872E-01	3.122E-01	0.000E+00	FAIL ABUN
RE-183	-1.523E-02	9.590E-02	1.653E-01	0.000E+00	FAIL ABUN
RE-184	-4.667E-02	1.868E-01	3.341E-01	0.000E+00	NOT IDENT.
OS-185	-3.855E-03	3.729E-02	6.464E-02	0.000E+00	NOT IDENT.
RE-188	9.389E-02	1.404E-01	2.538E-01	0.000E+00	NOT IDENT.
W-188	-2.143E+00	6.676E+00	1.026E+01	0.000E+00	FAIL ABUN
IR-192	1.219E-02	2.837E-02	5.148E-02	0.000E+00	FAIL ABUN
AU-195	2.976E-01	2.072E-01	3.607E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.229E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.895E+00	5.521E+00	9.486E+00	0.000E+00	NOT IDENT.
TL-202	-9.763E-03	5.704E-02	9.680E-02	0.000E+00	NOT IDENT.
HG-203	3.390E-02	3.858E-02	6.382E-02	0.000E+00	NOT IDENT.
BI-207	1.733E-02	5.021E-02	8.924E-02	0.000E+00	FAIL ABUN
TL-207	2.775E-02	5.891E-01	9.196E-01	0.000E+00	FAIL ABUN
PO-209	-2.599E+00	6.893E+00	1.121E+01	0.000E+00	NOT IDENT.
BI-210	2.560E+00	2.773E+00	5.352E+00	0.000E+00	NOT IDENT.
PB-210	2.560E+00	2.773E+00	5.352E+00	0.000E+00	NOT IDENT.
PO-210	2.560E+00	2.771E+00	5.352E+00	0.000E+00	NOT IDENT.
PB-211	-3.370E-03	8.470E-01	1.467E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.827E-01	6.107E-01	0.000E+00	FAIL ABUN
PO-215	2.775E-02	5.891E-01	9.196E-01	0.000E+00	FAIL ABUN
RN-219	6.232E-02	3.638E-01	6.371E-01	0.000E+00	FAIL ABUN
RN-220	-1.208E+01	2.318E+01	3.973E+01	0.000E+00	NOT IDENT.
RA-223	2.775E-02	5.891E-01	9.196E-01	0.000E+00	FAIL ABUN
AC-227	8.268E-02	3.057E-01	5.594E-01	0.000E+00	FAIL ABUN
TH-227	8.268E-02	3.058E-01	5.594E-01	0.000E+00	FAIL ABUN
TH-229	-2.669E-01	4.302E-01	7.189E-01	0.000E+00	FAIL ABUN
PA-231	3.563E-01	1.272E+00	2.238E+00	0.000E+00	NOT IDENT.
TH-231	2.775E-02	5.891E-01	9.196E-01	0.000E+00	FAIL ABUN
U-231	-8.844E-01	9.359E-01	1.452E+00	0.000E+00	FAIL ABUN
PA-233	1.030E-02	5.351E-02	9.601E-02	0.000E+00	FAIL ABUN
PA-234	-1.913E-03	2.864E-01	4.795E-01	0.000E+00	FAIL ABUN
PA-234M	1.799E+00	4.510E+00	7.614E+00	0.000E+00	NOT IDENT.
U-235	7.304E-02	1.780E-01	3.178E-01	0.000E+00	FAIL ABUN
NP-236	2.173E-03	6.650E-02	1.167E-01	0.000E+00	NOT IDENT.
NP-239	-1.665E-02	1.571E-01	2.812E-01	0.000E+00	FAIL ABUN
AM-241	7.246E-03	1.299E-01	2.210E-01	0.000E+00	NOT IDENT.
CM-243	-6.527E-04	7.815E-02	1.417E-01	0.000E+00	FAIL ABUN
AM-246	6.527E-02	1.263E-01	2.277E-01	0.000E+00	NOT IDENT.
CM-247	2.136E-02	3.270E-02	5.887E-02	0.000E+00	FAIL ABUN
CF-249	9.529E-03	3.505E-02	6.197E-02	0.000E+00	NOT IDENT.
CF-251	5.472E-02	1.095E-01	1.945E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration   : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231004.CNF;1
Sample date     : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:02:54
Sample ID      : G244231004           Sample quantity  : 1.51950E+02 GRAM
Detector name   : GAM12              Detector geometry: CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:01.68  0.0%
Energy tolerance: 1.50000 keV         Analyst Initials : MXR1
Abundance limit : 75.00000           Sensitivity     : 5.00000
Batch ID       : 941242              Detector SN#    :
Matrix Spike ID :                     LCS ID         : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1414	10.67*	1.138E+00	2.878E+01	2.878E+01	9.07
CD-109	88.03	313	3.72*	5.635E+00	3.692E+00	3.775E+00	25.36
SN-126	64.28	92	9.60	3.168E+00	7.453E-01	7.453E-01	77.89
	86.94	313	8.90	5.635E+00	1.543E+00	1.543E+00	47.74
	87.57	313	37.00*	5.635E+00	3.712E-01	3.712E-01	25.36
TL-208	277.35	70	6.80	4.506E+00	5.645E-01	5.645E-01	85.22
	510.84	64	21.60	2.793E+00	2.608E-01	2.608E-01	99.86
	583.14	427	84.20*	2.505E+00	5.005E-01	5.005E-01	16.49
	860.37	51	12.46	1.794E+00	5.654E-01	5.654E-01	76.77
BI-211	72.87	-----	1.27	4.387E+00	-----	Line Not Found	-----
	351.07	647	12.94*	3.763E+00	3.283E+00	3.283E+00	13.98
PB-212	74.81	397	10.70	4.586E+00	1.997E+00	1.997E+00	22.79
	77.11	707	18.00	4.820E+00	2.013E+00	2.013E+00	13.86
	87.30	313	8.00	5.635E+00	1.717E+00	1.717E+00	27.26
	238.63	1436	44.60*	5.017E+00	1.586E+00	1.586E+00	9.51
	300.09	89	3.41	4.253E+00	1.517E+00	1.517E+00	63.15
PO-212	74.81	397	10.70	4.586E+00	1.997E+00	1.997E+00	22.79
	77.11	707	18.00	4.820E+00	2.013E+00	2.013E+00	13.86
	87.30	313	8.00	5.635E+00	1.717E+00	1.717E+00	27.26
	115.19	-----	0.60	6.604E+00	-----	Line Not Found	-----
	238.63	1436	44.60*	5.017E+00	1.586E+00	1.586E+00	9.51
	300.09	89	3.41	4.253E+00	1.517E+00	1.517E+00	63.15
BI-214	609.31	450	46.30*	2.415E+00	9.948E-01	9.949E-01	17.69
	1120.29	115	15.10	1.423E+00	1.326E+00	1.326E+00	50.35
	1764.49	67	15.80	9.903E-01	1.058E+00	1.058E+00	35.73
PB-214	74.81	397	6.21	4.586E+00	3.441E+00	3.441E+00	22.06
	77.11	707	10.50	4.820E+00	3.451E+00	3.451E+00	15.82
	87.30	313	4.67	5.635E+00	2.941E+00	2.941E+00	26.51
	241.98	312	7.49	4.974E+00	2.066E+00	2.066E+00	30.28
	295.21	392	19.20	4.302E+00	1.173E+00	1.173E+00	17.95
	351.92	647	37.20*	3.763E+00	1.142E+00	1.142E+00	14.92
PO-214	74.81	397	6.21	4.586E+00	3.441E+00	3.441E+00	22.06

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-216	77.11	707	10.50	4.820E+00	3.451E+00	3.451E+00	15.82
	87.30	313	4.67	5.635E+00	2.941E+00	2.941E+00	26.51
	241.98	312	7.49	4.974E+00	2.066E+00	2.066E+00	30.28
	295.21	392	19.20	4.302E+00	1.173E+00	1.173E+00	17.95
	351.92	647	37.20*	3.763E+00	1.142E+00	1.142E+00	14.92
	74.81	397	10.70	4.586E+00	1.997E+00	1.997E+00	22.79
	77.11	707	18.00	4.820E+00	2.013E+00	2.013E+00	13.86
	87.30	313	8.00	5.635E+00	1.717E+00	1.717E+00	27.26
	238.63	1436	44.60*	5.017E+00	1.586E+00	1.586E+00	9.51
	300.09	89	3.41	4.253E+00	1.517E+00	1.517E+00	63.15
PO-218	74.81	397	6.21	4.586E+00	3.441E+00	3.441E+00	22.06
	77.11	707	10.50	4.820E+00	3.451E+00	3.451E+00	15.82
	87.30	313	4.67	5.635E+00	2.941E+00	2.941E+00	26.51
	241.98	312	7.49	4.974E+00	2.066E+00	2.066E+00	30.28
	295.21	392	19.20	4.302E+00	1.173E+00	1.173E+00	17.95
	351.92	647	37.20*	3.763E+00	1.142E+00	1.142E+00	14.92
RA-224	240.98	312	3.95*	4.974E+00	3.917E+00	3.917E+00	29.75
RA-226	609.31	450	46.30*	2.415E+00	9.948E-01	9.949E-01	17.69
	1120.29	115	15.10	1.423E+00	1.326E+00	1.326E+00	50.35
	1764.49	67	15.80	9.903E-01	1.058E+00	1.058E+00	35.73
AC-228	338.32	250	11.40	3.879E+00	1.396E+00	1.396E+00	47.70
	911.07	260	27.70*	1.707E+00	1.359E+00	1.359E+00	20.02
	969.11	142	16.60	1.617E+00	1.302E+00	1.302E+00	37.24
RA-228	338.32	250	11.40	3.879E+00	1.396E+00	1.396E+00	47.70
	911.07	260	27.70*	1.707E+00	1.359E+00	1.359E+00	20.02
	969.11	142	16.60	1.617E+00	1.302E+00	1.302E+00	37.24
TH-228	74.81	397	10.70	4.586E+00	1.997E+00	2.027E+00	20.81
	77.11	707	18.00	4.820E+00	2.013E+00	2.043E+00	13.86
	87.30	313	8.00	5.635E+00	1.717E+00	1.742E+00	25.36
	238.63	1436	44.60*	5.017E+00	1.586E+00	1.610E+00	9.51
	300.09	89	3.41	4.253E+00	1.517E+00	1.540E+00	85.98
TH-230	609.31	450	46.30*	2.415E+00	9.948E-01	9.948E-01	17.69
	1120.29	115	15.10	1.423E+00	1.326E+00	1.326E+00	50.35
	1764.49	67	15.80	9.903E-01	1.058E+00	1.058E+00	35.73
	338.32	250	11.40	3.879E+00	1.396E+00	1.396E+00	25.45
TH-232	911.07	260	27.70*	1.707E+00	1.359E+00	1.359E+00	20.02
	969.11	142	16.60	1.617E+00	1.302E+00	1.302E+00	37.24
	63.29	92	3.80*	3.168E+00	1.883E+00	1.883E+00	78.49
TH-234	92.38	243	5.41	5.977E+00	1.858E+00	1.858E+00	38.98
	609.31	450	46.30*	2.415E+00	9.948E-01	9.948E-01	17.69
	1120.29	115	15.10	1.423E+00	1.326E+00	1.326E+00	50.35
NP-237	1764.49	67	15.80	9.903E-01	1.058E+00	1.058E+00	35.73
	86.50	313	12.60*	5.635E+00	1.090E+00	1.090E+00	32.70
	95.87	-----	2.60	6.124E+00	-----	Line Not Found	-----
U-238	63.29	92	3.80*	3.168E+00	1.883E+00	1.883E+00	78.49
	92.38	243	5.41	5.977E+00	1.858E+00	1.858E+00	35.59
AM-243	74.67	397	66.00*	4.586E+00	3.238E-01	3.238E-01	20.78
	86.72	313	0.34	5.635E+00	4.087E+01	4.087E+01	25.36
	117.66	-----	0.55	6.624E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	142.18	-----	0.13	6.534E+00	-----	Line Not Found	-----
ANH-511	511.00	64	100.00*	2.793E+00	5.633E-02	5.633E-02	99.51

Flag: "\*" = Keyline

Total number of lines in spectrum 35  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 33 94.29%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.878E+01	2.878E+01	0.261E+01	9.07	
CD-109	464.00D	1.02	3.692E+00	3.775E+00	0.957E+00	25.36	
SN-126	1.00E+05Y	1.00	3.712E-01	3.712E-01	0.941E-01	25.36	
TL-208	1.41E+10Y	1.00	5.005E-01	5.005E-01	0.825E-01	16.49	
BI-211	7.04E+08Y	1.00	3.283E+00	3.283E+00	0.459E+00	13.98	
PB-212	1.41E+10Y	1.00	1.586E+00	1.586E+00	0.151E+00	9.51	
PO-212	1.41E+10Y	1.00	1.586E+00	1.586E+00	0.151E+00	9.51	
BI-214	1600.00Y	1.00	9.948E-01	9.949E-01	1.760E-01	17.69	
PB-214	1600.00Y	1.00	1.142E+00	1.142E+00	0.170E+00	14.92	
PO-214	1600.00Y	1.00	1.142E+00	1.142E+00	0.170E+00	14.92	
PO-216	1.41E+10Y	1.00	1.586E+00	1.586E+00	0.151E+00	9.51	
PO-218	1600.00Y	1.00	1.142E+00	1.142E+00	0.170E+00	14.92	
RA-224	1.41E+10Y	1.00	3.917E+00	3.917E+00	1.165E+00	29.75	
RA-226	1600.00Y	1.00	9.948E-01	9.949E-01	1.760E-01	17.69	
AC-228	1.41E+10Y	1.00	1.359E+00	1.359E+00	0.272E+00	20.02	
RA-228	1.41E+10Y	1.00	1.359E+00	1.359E+00	0.272E+00	20.02	
TH-228	1.91Y	1.01	1.586E+00	1.610E+00	0.153E+00	9.51	
TH-230	4.47E+09Y	1.00	9.948E-01	9.948E-01	1.760E-01	17.69	
TH-232	1.41E+10Y	1.00	1.359E+00	1.359E+00	0.272E+00	20.02	
TH-234	4.47E+09Y	1.00	1.883E+00	1.883E+00	1.478E+00	78.49	
U-234	4.47E+09Y	1.00	9.948E-01	9.948E-01	1.760E-01	17.69	
NP-237	2.14E+06Y	1.00	1.090E+00	1.090E+00	0.356E+00	32.70	
U-238	4.47E+09Y	1.00	1.883E+00	1.883E+00	1.478E+00	78.49	
AM-243	7380.00Y	1.00	3.238E-01	3.238E-01	0.673E-01	20.78	
ANH-511	1.00E+09Y	1.00	5.633E-02	5.633E-02	5.605E-02	99.51	

Total Activity : 6.361E+01 6.371E+01

Grand Total Activity : 6.361E+01 6.371E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
3	89.91	152	358	1.06	179.33	170	24	2.11E-02	42.3	5.82E+00	T
0	129.20	69	329	0.84	257.94	255	7	9.61E-03	90.4	6.63E+00	T
0	185.77	210	308	1.21	371.15	367	8	2.92E-02	33.5	5.86E+00	T
0	209.16	132	255	0.92	417.95	414	8	1.83E-02	45.6	5.47E+00	T
0	270.62	162	236	1.27	540.92	535	12	2.24E-02	41.2	4.59E+00	T
0	327.80	93	201	1.08	655.33	649	12	1.30E-02	64.1	3.97E+00	T
0	462.88	84	92	1.70	925.59	920	11	1.17E-02	49.4	3.03E+00	T
0	727.19	99	96	1.68	1454.35	1446	16	1.37E-02	48.8	2.08E+00	T
0	771.05	94	107	4.39	1542.09	1532	23	1.31E-02	62.7	1.97E+00	
0	794.99	50	51	1.03	1589.98	1586	9	6.95E-03	60.3	1.92E+00	T
1	963.80	73	83	2.00	1927.64	1922	25	1.01E-02	52.1	1.62E+00	T
0	1377.33	40	16	0.73	2754.69	2750	9	5.61E-03	48.5	1.19E+00	T
0	1406.90	52	3	2.56	2813.82	2807	16	7.18E-03	32.6	1.17E+00	T
0	1729.10	27	0	2.45	3458.09	3453	10	3.82E-03	44.0	1.00E+00	

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
*                               DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231004.CNF;1
* Acquisition date   : 21-JAN-2010 09:02:54  Detector SN#      :
* Detector ID        : GAM12                      Sensitivity    : 5.00000
* Geometry           : CAN                      Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000
* Elapsed real time  : 0 02:00:01.68             Half life ratio : 8.00000
*****
*                               SAMPLE DATA                             *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244231004             Analyst initials: MXR1
* Batch Number       : 941242                 Sample Quantity : 1.51950E+02 GRAM
*****
*                               QC DATA                                *
*
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24.5MS Isotope       :
* MSD ID              :                      MSD Isotope       :
* LCS ID              : 1032-A                 LCS Isotope     :
*****

```

## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.878E+01	2.609E+00	5.490E-01	3.915E-02	52.422
CD-109	3.775E+00	9.574E-01	1.133E+00	8.666E-02	3.333
SN-126	3.712E-01	9.414E-02	1.119E-01	8.526E-03	3.317
TL-208	5.005E-01	8.253E-02	4.712E-02	3.371E-03	10.623
BI-211	3.283E+00	4.590E-01	2.816E-01	1.770E-02	11.658
PB-212	1.586E+00	1.508E-01	7.508E-02	5.331E-03	21.124
PO-212	1.586E+00	1.508E-01	7.508E-02	5.331E-03	21.124
BI-214	9.949E-01	1.760E-01	9.945E-02	8.188E-03	10.003
PB-214	1.142E+00	1.704E-01	9.818E-02	8.020E-03	11.632
PO-214	1.142E+00	1.704E-01	9.818E-02	8.020E-03	11.632
PO-216	1.586E+00	1.508E-01	7.508E-02	5.331E-03	21.124
PO-218	1.142E+00	1.704E-01	9.818E-02	8.020E-03	11.632
RA-224	3.917E+00	1.165E+00	8.545E-01	4.714E-02	4.584
RA-226	9.949E-01	1.760E-01	9.945E-02	8.188E-03	10.003
AC-228	1.359E+00	2.720E-01	1.746E-01	1.917E-02	7.781
RA-228	1.359E+00	2.720E-01	1.746E-01	1.917E-02	7.781
TH-228	1.610E+00	1.531E-01	7.620E-02	5.411E-03	21.124
TH-230	9.948E-01	1.760E-01	9.945E-02	8.188E-03	10.003



---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-232	1.359E+00	2.720E-01	1.746E-01	1.917E-02	7.781
TH-234	1.883E+00	1.478E+00	1.799E+00	3.063E-01	1.047
U-234	9.948E-01	1.760E-01	9.945E-02	8.188E-03	10.003
NP-237	1.090E+00	3.564E-01	3.323E-01	7.301E-02	3.280
U-238	1.883E+00	1.478E+00	1.799E+00	3.063E-01	1.047
AM-243	3.238E-01	6.729E-02	7.600E-02	5.164E-03	4.260
ANH-511	5.633E-02	5.605E-02	4.647E-02	2.832E-03	1.212

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-9.800E-02		2.667E-01	4.165E-01	2.866E-02	-0.235
NA-22	-1.659E-02		4.151E-02	6.558E-02	4.223E-03	-0.253
NA-24	-1.599E-01		2.560E-01	Half-Life too short		
AL-26	1.019E-02		2.570E-02	4.514E-02	2.590E-03	0.226
TI-44	3.714E-01	+	5.148E-02	6.417E-02	4.489E-03	5.788
SC-46	-2.172E-02		3.876E-02	5.955E-02	4.936E-03	-0.365
V-48	3.055E-02		6.443E-02	1.082E-01	8.337E-03	0.282
CR-51	-4.116E-02		3.034E-01	4.990E-01	3.172E-02	-0.082
MN-52	8.589E-02		1.864E-01	3.235E-01	2.223E-02	0.265
MN-54	4.507E-03		3.662E-02	6.022E-02	4.734E-03	0.075
CO-56	2.345E-02		3.595E-02	6.174E-02	4.911E-03	0.380
CO-57	4.304E-03		2.163E-02	3.571E-02	2.233E-03	0.121
CO-58	-3.769E-03		3.563E-02	5.763E-02	4.435E-03	-0.065
FE-59	1.377E-02		8.550E-02	1.443E-01	1.066E-02	0.095
CO-60	2.163E-02		3.773E-02	6.547E-02	4.573E-03	0.330
ZN-65	-5.082E-02		1.064E-01	1.437E-01	9.039E-03	-0.354
GE-68	-2.399E-01		1.185E+00	1.942E+00	1.309E-01	-0.123
AS-73	-3.355E-01		6.607E-01	1.102E+00	7.112E-02	-0.305
AS-74	3.637E-02		7.992E-02	1.379E-01	8.777E-03	0.264
SE-75	-2.844E-02		4.133E-02	5.814E-02	3.296E-03	-0.489
BR-77	4.856E-01		8.889E+00	1.427E+01	8.752E-01	0.034
SR-82	-1.271E-02		3.742E-01	5.283E-01	3.909E-02	-0.024
RB-83	-7.519E-03		6.358E-02	1.007E-01	6.176E-03	-0.075
RB-84	1.848E-02		6.332E-02	1.054E-01	8.674E-03	0.175
KR-85	6.625E+00		6.685E+00	1.027E+01	6.273E-01	0.645
SR-85	3.388E-02		3.419E-02	5.253E-02	3.208E-03	0.645
RB-86	-1.875E-01		7.417E-01	1.210E+00	8.170E-02	-0.155
Y-88	-1.495E-03		2.820E-02	4.611E-02	2.596E-03	-0.032
ZR-88	-3.119E-03		2.642E-02	4.283E-02	2.349E-03	-0.073
Y-91	5.812E+00		1.903E+01	3.216E+01	1.859E+00	0.181
NB-94	2.266E-02		3.041E-02	5.290E-02	3.603E-03	0.428
NB-95	3.101E-02		4.245E-02	6.481E-02	4.741E-03	0.478
NB-95M	7.842E-02		1.124E-01	1.743E-01	1.272E-02	0.450
ZR-95	4.241E-02		6.686E-02	1.150E-01	9.499E-03	0.369
NB-97	-5.745E-02		3.563E-02	Half-Life too short		
ZR-97	1.010E+00		7.808E-01	Half-Life too short		

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MO-99	9.048E+00		1.012E+01	1.766E+01	2.540E+00	0.512
TC-99M	-8.703E+09		8.380E+09	Half-Life too short		
RH-101	1.492E-02		2.898E-02	4.640E-02	2.454E-03	0.322
RH-102	4.623E-05		2.382E-02	3.838E-02	2.279E-03	0.001
RU-103	-1.647E-02		3.695E-02	5.717E-02	7.293E-03	-0.288
RH-106	1.667E-01		2.817E-01	4.887E-01	5.892E-02	0.341
RU-106	1.667E-01		2.812E-01	4.887E-01	3.138E-02	0.341
AG-108M	2.798E-02		2.840E-02	4.909E-02	3.059E-03	0.570
AG-110M	-3.186E-02		3.295E-02	5.074E-02	3.459E-03	-0.628
IN-111	-6.591E-02		8.930E-01	1.322E+00	7.320E-02	-0.050
IN-113M	1.600E-02		3.837E-02	6.434E-02	3.788E-03	0.249
SN-113	1.600E-02		3.837E-02	6.434E-02	3.788E-03	0.249
IN-114M	1.099E-03		1.673E-01	2.538E-01	1.331E-02	0.004
CD-115	-2.146E+00		9.321E+00	1.462E+01	9.003E-01	-0.147
SN-117M	-1.234E-03		4.467E-02	7.196E-02	3.801E-03	-0.017
SB-122	1.097E+00		1.730E+00	3.025E+00	1.899E-01	0.363
I-123	1.824E+00		1.743E+00	Half-Life too short		
TE-123M	1.220E-02		2.330E-02	3.848E-02	2.062E-03	0.317
I-124	-2.297E-03		6.403E-01	9.309E-01	5.940E-02	-0.002
SB-124	2.063E-03		5.891E-02	1.058E-01	7.060E-03	0.020
SB-125	-5.335E-02		8.007E-02	1.238E-01	7.357E-03	-0.431
TE-125M	7.166E+00		7.795E+00	1.327E+01	1.144E+00	0.540
I-126	5.884E-02		1.514E-01	2.586E-01	1.686E-02	0.228
SB-126	-8.139E-02		1.420E-01	1.887E-01	1.312E-02	-0.431
SB-127	8.236E-01		1.148E+00	2.000E+00	1.982E-01	0.412
XE-127	-1.759E-02		4.052E-02	6.295E-02	3.347E-03	-0.280
I-131	-1.043E-02		9.353E-02	1.525E-01	9.598E-03	-0.068
TE-132	1.261E-01		5.431E-01	9.286E-01	1.317E-01	0.136
BA-133	3.245E-02		3.895E-02	6.008E-02	6.893E-03	0.540
I-133	2.631E-03		2.286E-03	Half-Life too short		
CS-134	8.483E-02	+	5.153E-02	8.176E-02	6.234E-03	1.038
CS-135	1.844E-01		1.453E-01	2.316E-01	1.742E-02	0.796
I-135	4.901E+08		1.379E+09	Half-Life too short		
CS-136	-1.514E-02		9.796E-02	1.616E-01	1.214E-02	-0.094
BA-137M	-9.383E-03		3.258E-02	5.079E-02	3.292E-03	-0.185
CS-137	-9.918E-03		3.444E-02	5.369E-02	3.492E-03	-0.185
CE-139	-2.087E-02		2.578E-02	3.988E-02	2.044E-03	-0.523
BA-140	-1.376E-01		2.203E-01	3.474E-01	1.132E-01	-0.396
LA-140	-7.989E-02		7.473E-02	1.049E-01	6.833E-03	-0.761
CE-141	2.203E-02		5.246E-02	8.657E-02	5.040E-03	0.255
CE-143	5.719E-04		8.810E-05	Half-Life too short		
CE-144	-3.006E-02		1.861E-01	2.865E-01	4.079E-02	-0.105
PM-144	9.597E-03		3.348E-02	5.644E-02	3.818E-03	0.170
PR-144	6.502E-01		2.269E+00	3.824E+00	2.586E-01	0.170
PM-146	-3.800E-04		3.924E-02	6.337E-02	5.479E-03	-0.006
ND-147	2.627E-01		5.160E-01	8.537E-01	1.168E-01	0.308
PM-149	-3.397E+00		7.001E+01	1.166E+02	1.647E+01	-0.029
EU-152	-3.133E-02		8.550E-02	1.330E-01	8.523E-03	-0.236

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GD-153	-1.823E-03		7.464E-02	1.107E-01	7.695E-03	-0.016
EU-154	-5.031E-02		1.157E-01	1.819E-01	1.772E-02	-0.277
EU-155	1.208E-01		8.986E-02	1.557E-01	1.049E-02	0.776
TB-160	-3.116E-02		1.247E-01	1.972E-01	1.619E-02	-0.158
HO-166M	-2.839E-02		5.507E-02	8.715E-02	5.999E-03	-0.326
TM-171	6.507E+00		2.612E+01	4.004E+01	2.592E+00	0.162
LU-176	-1.777E-03		2.035E-02	3.367E-02	1.913E-03	-0.053
LU-177	2.530E+00	+	1.161E+00	1.696E+00	9.074E-02	1.492
LU-177M	-7.038E-02		1.611E-01	2.491E-01	1.398E-02	-0.283
HF-181	-1.214E-02		3.527E-02	5.514E-02	3.292E-03	-0.220
W-181	-2.141E-01		3.330E-01	4.901E-01	3.149E-02	-0.437
TA-182	-5.121E-02		1.910E-01	3.084E-01	1.829E-02	-0.166
RE-183	-1.523E-02		9.785E-02	1.552E-01	8.069E-03	-0.098
RE-184	-4.667E-02		1.906E-01	3.171E-01	1.765E-02	-0.147
OS-185	-3.855E-03		3.805E-02	6.281E-02	4.059E-03	-0.061
RE-188	9.389E-02		1.433E-01	2.380E-01	1.276E-02	0.394
W-188	-2.143E+00		6.812E+00	9.769E+00	5.537E-01	-0.219
IR-192	1.219E-02		2.895E-02	4.913E-02	2.808E-03	0.248
AU-195	2.976E-01		2.114E-01	3.348E-01	2.302E-02	0.889
TL-200	1.272E-04		1.647E-04	Half-Life too short		
TL-201	-1.895E+00		5.634E+00	8.914E+00	4.569E-01	-0.213
TL-202	-9.763E-03		5.820E-02	9.314E-02	5.364E-03	-0.105
HG-203	3.390E-02		3.936E-02	6.072E-02	3.652E-03	0.558
BI-207	1.733E-02		5.123E-02	8.784E-02	6.060E-03	0.197
TL-207	2.775E-02		6.011E-01	8.781E-01	1.447E-01	0.032
PO-209	-2.599E+00		7.034E+00	1.099E+01	9.170E-01	-0.237
BI-210	2.560E+00		2.829E+00	4.882E+00	3.677E-01	0.524
PB-210	2.560E+00		2.829E+00	4.882E+00	3.677E-01	0.524
PO-210	2.560E+00		2.828E+00	4.882E+00	3.131E-01	0.524
PB-211	-3.370E-03		8.643E-01	1.409E+00	8.778E-01	-0.002
BI-212	9.938E-01	+	4.926E-01	5.952E-01	5.153E-02	1.670
PO-215	2.775E-02		6.011E-01	8.781E-01	1.447E-01	0.032
RN-219	6.232E-02		3.712E-01	6.116E-01	8.255E-02	0.102
RN-220	-1.208E+01		2.365E+01	3.845E+01	2.397E+00	-0.314
RA-223	2.775E-02		6.011E-01	8.781E-01	1.447E-01	0.032
AC-227	8.268E-02		3.120E-01	5.311E-01	7.366E-02	0.156
TH-227	8.268E-02		3.121E-01	5.311E-01	8.935E-02	0.156
TH-229	-2.669E-01		4.389E-01	6.779E-01	3.569E-02	-0.394
PA-231	3.563E-01		1.298E+00	2.130E+00	2.922E-01	0.167
TH-231	2.775E-02		6.011E-01	8.781E-01	1.447E-01	0.032
U-231	-8.844E-01		9.550E-01	1.347E+00	9.488E-02	-0.657
PA-233	1.030E-02		5.460E-02	9.159E-02	5.542E-03	0.112
PA-234	-1.913E-03		2.922E-01	4.705E-01	8.703E-02	-0.004
PA-234M	1.799E+00		4.602E+00	7.482E+00	6.772E-01	0.240
U-235	7.304E-02		1.816E-01	2.975E-01	4.832E-02	0.245
NP-236	2.173E-03		6.786E-02	1.096E-01	5.744E-03	0.020
NP-239	-1.665E-02		1.604E-01	2.620E-01	1.654E-02	-0.064
AM-241	7.246E-03		1.325E-01	2.027E-01	1.440E-02	0.036

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-6.527E-04		7.974E-02	1.317E-01	8.769E-03	-0.005
AM-246	6.527E-02		1.288E-01	2.242E-01	1.507E-02	0.291
CM-247	2.136E-02		3.337E-02	5.652E-02	3.134E-03	0.378
CF-249	9.529E-03		3.577E-02	5.944E-02	3.267E-03	0.160
CF-251	5.472E-02		1.117E-01	1.830E-01	9.461E-03	0.299

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244231004          *
* Acquisition date   : 21-JAN-2010 09:02:54 Detector SN#      :              *
* Detector ID        : GAM12                                           Sensitivity      : 5.000          *
* Geometry           : CAN                                           Energy tolerance : 1.500          *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000          *
* Elapsed real time  : 0 02:00:01.68                               Half life ratio  : 8.000          *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244231004                               Analyst initials: MXR1           *
* Batch Number       : 941242                                   Sample Quantity : 1.5195E+02 GRAM  *
* Recovery           : 1.00000                                Carrier Weight  : 0.00000          *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 10-FEB-2009 09:20:24 MS Isotope           :              *
* MSD DPM             : 0.000                                       MSD Isotope      :              *
* LCS DPM             : 0.000                                       LCS Isotope      :              *
* LCSD DPM            : 0.000                                       LCSD Isotope     :              *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.878E+01	2.557E+00	2.767E-01	1.305E+00
CD-109	3.775E+00	9.383E-01	6.122E-01	4.787E-01
SN-126	3.712E-01	9.226E-02	6.048E-02	4.707E-02
TL-208	5.005E-01	8.088E-02	2.432E-02	4.127E-02
BI-211	3.283E+00	4.498E-01	1.473E-01	2.295E-01
PB-212	1.586E+00	1.478E-01	3.963E-02	7.542E-02
PO-212	1.586E+00	1.478E-01	3.963E-02	7.542E-02
BI-214	9.949E-01	1.725E-01	5.129E-02	8.800E-02
PB-214	1.142E+00	1.670E-01	5.133E-02	8.522E-02
PO-214	1.142E+00	1.670E-01	5.133E-02	8.522E-02
PO-216	1.586E+00	1.478E-01	3.963E-02	7.542E-02
PO-218	1.142E+00	1.670E-01	5.133E-02	8.522E-02
RA-224	3.917E+00	1.142E+00	4.510E-01	5.827E-01
RA-226	9.949E-01	1.725E-01	5.129E-02	8.800E-02
AC-228	1.359E+00	2.665E-01	8.912E-02	1.360E-01
RA-228	1.359E+00	2.665E-01	8.912E-02	1.360E-01
TH-228	1.610E+00	1.500E-01	4.022E-02	7.654E-02
TH-230	9.948E-01	1.725E-01	5.129E-02	8.800E-02
TH-232	1.359E+00	2.665E-01	8.912E-02	1.360E-01
TH-234	1.883E+00	1.448E+00	9.798E-01	7.390E-01
U-234	9.948E-01	1.725E-01	5.129E-02	8.800E-02
NP-237	1.090E+00	3.492E-01	1.797E-01	1.782E-01
U-238	1.883E+00	1.448E+00	9.798E-01	7.390E-01
AM-243	3.238E-01	6.594E-02	4.124E-02	3.364E-02
ANH-511	5.633E-02	5.493E-02	2.407E-02	2.802E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-9.800E-02	2.614E-01	2.161E-01	1.333E-01 NOT IDENT.
NA-22	-1.659E-02	4.068E-02	3.317E-02	2.076E-02 NOT IDENT.

NA-24	-1.599E+05	5.018E+05	0.000E+00	2.560E+05	SHORT HLIF
AL-26	1.019E-02	2.519E-02	2.262E-02	1.285E-02	NOT IDENT.
TI-44	3.714E-01	5.045E-02	3.478E-02	2.574E-02	FAIL ABUN
SC-46	-2.172E-02	3.798E-02	3.041E-02	1.938E-02	FAIL ABUN
V-48	3.055E-02	6.314E-02	5.512E-02	3.222E-02	NOT IDENT.
CR-51	-4.116E-02	2.973E-01	2.615E-01	1.517E-01	NOT IDENT.
MN-52	8.589E-02	1.826E-01	1.632E-01	9.319E-02	NOT IDENT.
MN-54	4.507E-03	3.589E-02	3.080E-02	1.831E-02	NOT IDENT.
CO-56	2.345E-02	3.523E-02	3.157E-02	1.797E-02	NOT IDENT.
CO-57	4.304E-03	2.119E-02	1.916E-02	1.081E-02	NOT IDENT.
CO-58	-3.769E-03	3.492E-02	2.950E-02	1.781E-02	NOT IDENT.
FE-59	1.377E-02	8.379E-02	7.327E-02	4.275E-02	NOT IDENT.
CO-60	2.163E-02	3.697E-02	3.308E-02	1.886E-02	NOT IDENT.
ZN-65	-5.082E-02	1.043E-01	7.295E-02	5.322E-02	NOT IDENT.
GE-68	-2.399E-01	1.161E+00	9.869E-01	5.925E-01	NOT IDENT.
AS-73	-3.355E-01	6.475E-01	6.024E-01	3.304E-01	NOT IDENT.
AS-74	3.637E-02	7.832E-02	7.115E-02	3.996E-02	NOT IDENT.
SE-75	-2.844E-02	4.050E-02	3.061E-02	2.067E-02	NOT IDENT.
BR-77	4.856E-01	8.711E+00	7.389E+00	4.444E+00	FAIL ABUN
SR-82	-1.271E-02	3.667E-01	2.707E-01	1.871E-01	NOT IDENT.
RB-83	-7.519E-03	6.231E-02	5.215E-02	3.179E-02	NOT IDENT.
RB-84	1.848E-02	6.205E-02	5.385E-02	3.166E-02	NOT IDENT.
KR-85	6.625E+00	6.551E+00	5.320E+00	3.343E+00	NOT IDENT.
SR-85	3.388E-02	3.351E-02	2.721E-02	1.710E-02	NOT IDENT.
RB-86	-1.875E-01	7.269E-01	6.150E-01	3.709E-01	NOT IDENT.
Y-88	-1.495E-03	2.764E-02	2.310E-02	1.410E-02	NOT IDENT.
ZR-88	-3.119E-03	2.589E-02	2.233E-02	1.321E-02	NOT IDENT.
Y-91	5.812E+00	1.865E+01	1.629E+01	9.517E+00	NOT IDENT.
NB-94	2.266E-02	2.980E-02	2.718E-02	1.521E-02	NOT IDENT.
NB-95	3.101E-02	4.160E-02	3.322E-02	2.122E-02	NOT IDENT.
NB-95M	7.842E-02	1.102E-01	9.206E-02	5.622E-02	NOT IDENT.
ZR-95	4.241E-02	6.553E-02	5.898E-02	3.343E-02	NOT IDENT.
NB-97	-5.745E+04	6.983E+04	0.000E+00	3.563E+04	SHORT HLIF
ZR-97	1.010E+06	1.530E+06	0.000E+00	7.808E+05	SHORT HLIF
MO-99	9.048E+00	9.913E+00	9.063E+00	5.058E+00	NOT IDENT.
TC-99M	-8.703E+15	1.642E+16	0.000E+00	8.380E+15	SHORT HLIF
RH-101	1.492E-02	2.840E-02	2.460E-02	1.449E-02	NOT IDENT.
RH-102	4.623E-05	2.335E-02	1.992E-02	1.191E-02	NOT IDENT.
RU-103	-1.647E-02	3.621E-02	2.963E-02	1.847E-02	FAIL ABUN
RH-106	1.667E-01	2.761E-01	2.519E-01	1.409E-01	FAIL ABUN
RU-106	1.667E-01	2.756E-01	2.519E-01	1.406E-01	FAIL ABUN
AG-108M	2.798E-02	2.784E-02	2.553E-02	1.420E-02	NOT IDENT.
AG-110M	-3.186E-02	3.229E-02	2.612E-02	1.647E-02	NOT IDENT.
IN-111	-6.591E-02	8.751E-01	6.976E-01	4.465E-01	NOT IDENT.
IN-113M	1.600E-02	3.760E-02	3.355E-02	1.918E-02	NOT IDENT.
SN-113	1.600E-02	3.760E-02	3.355E-02	1.918E-02	NOT IDENT.
IN-114M	1.099E-03	1.639E-01	1.347E-01	8.364E-02	NOT IDENT.
CD-115	-2.146E+00	9.135E+00	7.564E+00	4.661E+00	NOT IDENT.
SN-117M	-1.234E-03	4.378E-02	3.836E-02	2.233E-02	NOT IDENT.
SB-122	1.097E+00	1.695E+00	1.563E+00	8.650E-01	NOT IDENT.
I-123	1.824E+06	3.415E+06	0.000E+00	1.743E+06	SHORT HLIF
TE-123M	1.220E-02	2.284E-02	2.051E-02	1.165E-02	NOT IDENT.
I-124	-2.297E-03	6.275E-01	4.802E-01	3.201E-01	FAIL ABUN
SB-124	2.063E-03	5.773E-02	5.312E-02	2.945E-02	FAIL ABUN
SB-125	-5.335E-02	7.847E-02	6.439E-02	4.004E-02	FAIL ABUN
TE-125M	7.166E+00	7.639E+00	7.138E+00	3.897E+00	NOT IDENT.
I-126	5.884E-02	1.483E-01	1.330E-01	7.568E-02	NOT IDENT.
SB-126	-8.139E-02	1.392E-01	9.689E-02	7.102E-02	FAIL ABUN
SB-127	8.236E-01	1.125E+00	1.028E+00	5.740E-01	NOT IDENT.
XE-127	-1.759E-02	3.971E-02	3.336E-02	2.026E-02	NOT IDENT.
I-131	-1.043E-02	9.166E-02	7.968E-02	4.676E-02	NOT IDENT.
TE-132	1.261E-01	5.322E-01	4.907E-01	2.715E-01	NOT IDENT.
BA-133	3.245E-02	3.817E-02	3.141E-02	1.947E-02	FAIL ABUN
I-133	2.631E+03	4.480E+03	0.000E+00	2.286E+03	SHORT HLIF
CS-134	8.483E-02	5.050E-02	4.187E-02	2.577E-02	FAIL ABUN
CS-135	1.844E-01	1.424E-01	1.219E-01	7.265E-02	NOT IDENT.
I-135	4.901E+14	2.703E+15	0.000E+00	1.379E+15	SHORT HLIF
CS-136	-1.514E-02	9.600E-02	8.215E-02	4.898E-02	FAIL ABUN
BA-137M	-9.383E-03	3.193E-02	2.613E-02	1.629E-02	NOT IDENT.
CS-137	-9.918E-03	3.375E-02	2.763E-02	1.722E-02	NOT IDENT.
CE-139	-2.087E-02	2.526E-02	2.124E-02	1.289E-02	NOT IDENT.
BA-140	-1.376E-01	2.159E-01	1.797E-01	1.102E-01	NOT IDENT.
LA-140	-7.989E-02	7.323E-02	5.275E-02	3.736E-02	FAIL ABUN
CE-141	2.203E-02	5.141E-02	4.625E-02	2.623E-02	NOT IDENT.
CE-143	5.719E+02	1.727E+02	0.000E+00	8.810E+01	SHORT HLIF
CE-144	-3.006E-02	1.824E-01	1.534E-01	9.304E-02	NOT IDENT.
PM-144	9.597E-03	3.281E-02	2.900E-02	1.674E-02	NOT IDENT.
PR-144	6.502E-01	2.223E+00	1.965E+00	1.134E+00	NOT IDENT.

PM-146	-3.800E-04	3.845E-02	3.292E-02	1.962E-02	NOT IDENT.
ND-147	2.627E-01	5.057E-01	4.418E-01	2.580E-01	FAIL ABUN
PM-149	-3.397E+00	6.861E+01	6.130E+01	3.501E+01	NOT IDENT.
EU-152	-3.133E-02	8.379E-02	6.957E-02	4.275E-02	FAIL ABUN
GD-153	-1.823E-03	7.315E-02	5.968E-02	3.732E-02	NOT IDENT.
EU-154	-5.031E-02	1.133E-01	9.202E-02	5.783E-02	NOT IDENT.
EU-155	1.208E-01	8.806E-02	8.379E-02	4.493E-02	FAIL ABUN
TB-160	-3.116E-02	1.222E-01	1.007E-01	6.234E-02	FAIL ABUN
HO-166M	-2.839E-02	5.397E-02	4.476E-02	2.754E-02	FAIL ABUN
TM-171	6.507E+00	2.560E+01	2.178E+01	1.306E+01	NOT IDENT.
LU-176	-1.777E-03	1.994E-02	1.766E-02	1.017E-02	FAIL ABUN
LU-177	2.530E+00	1.137E+00	8.984E-01	5.803E-01	FAIL ABUN
LU-177M	-7.038E-02	1.579E-01	1.297E-01	8.056E-02	NOT IDENT.
HF-181	-1.214E-02	3.457E-02	2.860E-02	1.764E-02	NOT IDENT.
W-181	-2.141E-01	3.264E-01	2.668E-01	1.665E-01	NOT IDENT.
TA-182	-5.121E-02	1.872E-01	1.562E-01	9.549E-02	FAIL ABUN
RE-183	-1.523E-02	9.590E-02	8.270E-02	4.893E-02	FAIL ABUN
RE-184	-4.667E-02	1.868E-01	1.671E-01	9.530E-02	NOT IDENT.
OS-185	-3.855E-03	3.729E-02	3.234E-02	1.903E-02	NOT IDENT.
RE-188	9.389E-02	1.404E-01	1.270E-01	7.165E-02	NOT IDENT.
W-188	-2.143E+00	6.676E+00	5.132E+00	3.406E+00	FAIL ABUN
IR-192	1.219E-02	2.837E-02	2.576E-02	1.448E-02	FAIL ABUN
AU-195	2.976E-01	2.072E-01	1.805E-01	1.057E-01	FAIL ABUN
TL-200	1.272E+02	3.229E+02	0.000E+00	1.647E+02	SHORT HLIF
TL-201	-1.895E+00	5.521E+00	4.746E+00	2.817E+00	NOT IDENT.
TL-202	-9.763E-03	5.704E-02	4.843E-02	2.910E-02	NOT IDENT.
HG-203	3.390E-02	3.858E-02	3.193E-02	1.968E-02	NOT IDENT.
BI-207	1.733E-02	5.021E-02	4.465E-02	2.562E-02	FAIL ABUN
TL-207	2.775E-02	5.891E-01	4.601E-01	3.006E-01	FAIL ABUN
PO-209	-2.599E+00	6.893E+00	5.610E+00	3.517E+00	NOT IDENT.
BI-210	2.560E+00	2.773E+00	2.678E+00	1.415E+00	NOT IDENT.
PB-210	2.560E+00	2.773E+00	2.678E+00	1.415E+00	NOT IDENT.
PO-210	2.560E+00	2.771E+00	2.678E+00	1.414E+00	NOT IDENT.
PB-211	-3.370E-03	8.470E-01	7.339E-01	4.321E-01	NOT IDENT.
BI-212	9.938E-01	4.827E-01	3.055E-01	2.463E-01	FAIL ABUN
PO-215	2.775E-02	5.891E-01	4.601E-01	3.006E-01	FAIL ABUN
RN-219	6.232E-02	3.638E-01	3.187E-01	1.856E-01	FAIL ABUN
RN-220	-1.208E+01	2.318E+01	1.988E+01	1.183E+01	NOT IDENT.
RA-223	2.775E-02	5.891E-01	4.601E-01	3.006E-01	FAIL ABUN
AC-227	8.268E-02	3.057E-01	2.798E-01	1.560E-01	FAIL ABUN
TH-227	8.268E-02	3.058E-01	2.798E-01	1.560E-01	FAIL ABUN
TH-229	-2.669E-01	4.302E-01	3.597E-01	2.195E-01	FAIL ABUN
PA-231	3.563E-01	1.272E+00	1.120E+00	6.492E-01	NOT IDENT.
TH-231	2.775E-02	5.891E-01	4.601E-01	3.006E-01	FAIL ABUN
U-231	-8.844E-01	9.359E-01	7.266E-01	4.775E-01	FAIL ABUN
PA-233	1.030E-02	5.351E-02	4.803E-02	2.730E-02	FAIL ABUN
PA-234	-1.913E-03	2.864E-01	2.399E-01	1.461E-01	FAIL ABUN
PA-234M	1.799E+00	4.510E+00	3.809E+00	2.301E+00	NOT IDENT.
U-235	7.304E-02	1.780E-01	1.590E-01	9.081E-02	FAIL ABUN
NP-236	2.173E-03	6.650E-02	5.839E-02	3.393E-02	NOT IDENT.
NP-239	-1.665E-02	1.571E-01	1.407E-01	8.018E-02	FAIL ABUN
AM-241	7.246E-03	1.299E-01	1.106E-01	6.627E-02	NOT IDENT.
CM-243	-6.527E-04	7.815E-02	7.090E-02	3.987E-02	FAIL ABUN
AM-246	6.527E-02	1.263E-01	1.139E-01	6.442E-02	NOT IDENT.
CM-247	2.136E-02	3.270E-02	2.945E-02	1.669E-02	FAIL ABUN
CF-249	9.529E-03	3.505E-02	3.100E-02	1.788E-02	NOT IDENT.
CF-251	5.472E-02	1.095E-01	9.729E-02	5.587E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	251.4752
46.50	251.4752
46.50	251.4752
48.70	288.3447
49.72	275.6313
51.35	244.4048
52.39	250.4054
52.97	264.7096
53.15	264.8606
53.44	283.2967
54.07	292.5396
56.28	265.6985
56.28	265.7008
57.37	0.0000
57.53	291.2726
57.53	291.2742
57.60	291.3342
57.98	299.5726
57.98	299.5726
59.32	305.6161
59.32	305.6161
59.40	288.4843
59.54	288.6032
59.72	280.8080
60.01	269.1153
61.10	280.6066
61.14	280.6393
61.30	280.7680
63.00	312.8865
63.29	363.9939
63.29	363.9939
63.58	364.2912
64.28	394.5281
65.12	376.6174
65.20	387.4636
65.20	387.4636
66.05	339.8228
66.72	378.2687
66.83	378.3841
66.91	361.1660
67.20	380.9287
67.20	380.9287
67.75	368.4862
67.85	368.5879
68.90	426.6976
68.90	426.6976
69.30	446.1953
69.67	425.9356
70.82	394.7137
70.82	394.7137
70.83	394.7247
72.80	435.1761
72.87	435.2559
72.87	435.2559
74.67	400.0045
74.81	400.1461
74.81	400.1461
74.81	400.1461
74.81	400.1461
74.81	400.1461
74.81	400.1461
74.81	400.1461
74.97	400.3065
75.28	400.6174
75.70	401.0378
77.11	402.4405
77.11	402.4405



77.11	402.4405
77.11	402.4405
77.11	402.4405
77.11	402.4405
77.11	402.4405
78.38	332.6985
79.62	319.7355
79.80	319.8735
79.80	319.8735
80.11	342.4789
80.18	342.5349
80.30	342.6340
80.30	342.6340
80.57	342.8546
81.00	418.8514
81.07	418.9221
81.07	418.9221
81.07	418.9221
81.07	418.9221
82.60	364.1911
83.37	343.7151
83.78	394.8074
83.78	394.8074
83.78	394.8074
83.78	394.8074
84.21	388.1433
84.90	380.2802
85.43	448.6835
86.29	499.2002
86.50	417.1453
86.54	417.1834
86.59	417.2305
86.72	417.3539
86.79	417.4189
86.94	417.5625
87.30	417.9012
87.30	417.9012
87.30	417.9012
87.30	417.9012
87.30	417.9012
87.30	417.9012
87.57	418.1569
87.88	418.4485
88.03	418.5898
88.36	418.8993
88.47	419.0025
89.95	420.3820
91.11	421.4586
92.29	422.5443
92.38	422.6273
92.38	422.6273
93.35	423.5132
94.00	424.1054
94.67	424.7088
94.67	424.7133
94.90	424.9219
94.90	424.9219
94.90	424.9219
94.90	424.9219
95.87	346.1408
95.87	346.1408
96.73	352.5754
97.43	321.1238
98.44	283.9396
98.44	283.9411
98.88	273.9979
99.55	275.5441
99.55	275.5441
99.86	275.7198
100.00	286.3168
100.10	276.6374
103.18	307.7745
103.76	284.5808
105.00	249.8698
105.31	257.8983
108.00	324.5717
109.28	273.7932

111.00	322.4707
111.00	322.4707
111.76	312.9699
112.95	307.6804
115.19	311.9807
116.30	301.5656
117.00	285.8489
117.00	285.8489
117.66	286.1956
121.11	274.8043
121.62	273.0252
121.78	273.1032
122.06	279.3346
122.32	279.4633
122.32	279.4633
122.32	279.4633
122.32	279.4633
123.07	284.9233
127.23	298.2799
129.76	307.2998
131.20	281.7368
133.02	291.9169
133.54	303.3588
135.34	275.3785
136.00	290.2419
136.25	299.7305
136.48	309.2119
140.51	304.9574
140.51	0.0000
142.18	294.2159
142.65	272.3526
143.76	275.9950
144.24	284.6365
144.24	284.6365
144.24	284.6365
144.24	284.6365
145.22	285.0760
145.44	276.7253
147.16	283.8258
152.43	282.9292
152.70	273.4323
153.22	269.3701
154.21	267.6315
154.21	267.6315
154.21	267.6315
154.21	267.6315
155.03	259.3873
156.02	295.1947
158.56	256.4412
159.00	0.0000
159.00	241.5114
160.31	272.2233
161.27	303.9764
162.32	282.7712
162.64	262.3070
163.35	266.9154
163.89	260.6079
165.85	296.1857
167.43	272.8424
171.28	260.0553
171.86	244.8908
172.10	244.9724
176.55	264.1584
176.60	264.1766
181.06	250.2022
184.41	246.2905
185.71	276.3599
186.00	282.0619
190.27	271.4751
192.34	246.0151
193.63	269.0259
197.04	240.6717
198.01	236.4164
198.60	257.0640
200.40	269.0410
201.83	254.6702
202.84	265.2787
205.31	242.5675

208.36	255.5516
208.81	254.5376
209.75	230.0346
209.75	230.0346
210.97	242.4942
215.65	232.2286
216.55	251.0706
218.09	241.0410
222.10	246.5482
223.80	229.4443
226.40	247.7573
227.00	225.8672
227.08	225.8887
227.20	225.9180
228.16	227.0456
228.18	219.9837
228.18	219.9837
231.56	0.0000
235.69	232.3347
236.00	246.6728
236.00	246.6728
238.63	213.5997
238.63	213.5997
238.63	213.5997
238.63	213.5997
239.00	213.6836
240.98	214.1431
241.98	214.3728
241.98	214.3728
241.98	214.3728
244.69	201.5012
245.39	193.0094
247.94	183.6277
248.90	171.6801
249.79	194.4517
252.40	192.2609
252.85	195.0734
252.85	195.0734
254.15	0.0000
256.20	183.0027
256.20	183.0027
260.50	176.4936
260.90	178.3939
262.80	177.8225
264.65	196.8877
268.24	166.6281
268.79	184.4238
269.46	175.0550
269.46	175.0550
269.46	175.0550
269.46	175.0550
271.23	175.3618
273.65	137.1285
276.40	165.9842
277.35	173.2245
277.60	173.2643
277.60	173.2643
278.00	173.3325
278.60	165.3456
279.20	166.9336
279.53	166.9855
280.46	174.5974
281.68	186.7523
283.67	162.5152
284.30	168.4973
285.00	167.6732
285.90	168.7527
286.10	165.9726
286.10	165.9726
287.40	173.6859
288.45	0.0000
290.67	174.7845
290.80	177.8210
291.72	180.9902
293.26	0.0000
293.70	157.1451
295.21	162.6620
295.21	162.6620

295.21	162.6620
295.96	105.9929
296.50	106.0442
297.23	106.1160
298.57	106.2458
299.80	136.7556
299.80	136.7556
300.09	136.7930
300.09	136.7930
300.09	136.7930
300.09	136.7930
300.12	136.7952
301.29	136.9424
302.84	144.7521
303.76	147.9226
303.91	147.9416
304.40	158.6889
304.40	158.6889
304.84	138.9083
306.84	152.9199
308.46	135.9136
311.98	154.5807
316.51	143.6299
318.01	153.4708
319.02	152.6406
319.41	153.6576
320.08	146.0117
323.87	139.6978
323.87	139.6978
323.87	139.6978
323.87	139.6978
325.23	156.9569
328.77	168.3413
333.44	164.3112
334.20	164.4163
334.20	164.4163
334.30	164.4291
338.28	153.1912
338.28	153.1912
338.28	153.1912
338.28	153.1912
338.32	153.1983
338.32	153.1983
338.32	153.1983
340.50	152.6874
340.57	152.6945
344.27	150.0031
345.85	120.1564
350.59	0.0000
351.07	142.8948
351.92	142.9937
351.92	142.9937
351.92	142.9937
355.39	0.0000
356.01	106.7992
364.48	122.3611
366.43	134.6011
367.43	115.6054
367.94	0.0000
369.80	126.8959
374.96	126.3905
383.85	121.1372
387.95	132.7434
388.63	147.1135
391.69	118.7772
391.69	118.7772
392.90	126.0574
398.62	126.5866
400.65	138.1118
401.10	139.1879
401.81	132.0391
402.60	124.8883
404.84	143.7001
410.95	118.3714
411.60	140.2425
413.65	133.1641
414.70	116.6040
415.30	119.7782

415.76	123.9862
417.63	0.0000
418.52	128.4015
423.70	118.3900
427.08	109.2162
427.89	121.8871
432.53	102.2484
433.93	93.9039
439.47	105.9082
439.56	105.9143
439.89	100.6418
443.98	104.1056
444.90	105.2328
445.03	107.3680
445.03	107.3680
445.03	107.3680
445.03	107.3680
453.90	112.2787
463.38	80.9121
468.07	91.5169
473.00	98.5176
475.06	86.7224
475.35	83.4856
476.78	96.5846
477.59	94.4620
477.96	87.9684
482.03	92.5485
484.57	97.0586
487.03	78.6396
490.36	0.0000
492.35	108.4867
497.08	107.7034
507.63	0.0000
510.53	0.0000
510.84	127.6646
511.00	127.6769
511.85	114.2138
511.85	114.2138
513.99	83.4933
513.99	83.4933
520.41	100.3052
520.65	95.8629
527.90	100.7474
528.96	0.0000
529.64	87.4025
529.87	0.0000
531.02	90.8383
537.32	98.1479
543.00	95.7571
546.56	0.0000
549.76	107.9135
552.65	98.0965
555.20	104.6034
563.23	94.1082
563.90	90.4874
568.70	97.1417
569.32	88.9246
569.50	88.9340
569.67	88.9411
573.80	92.8184
574.00	92.8283
574.64	93.9840
578.91	99.8328
579.30	0.0000
583.14	74.8162
585.48	75.5257
591.81	93.7209
592.07	97.4480
593.00	90.9945
595.88	85.5537
600.56	111.8672
602.52	0.0000
602.71	96.4386
602.71	96.4386
603.60	115.1583
604.41	112.0928
604.70	108.9962
609.31	93.6499

609.31	93.6499
609.31	93.6499
609.31	93.6499
610.33	93.6987
612.46	89.1135
614.37	76.6821
618.01	93.1315
621.84	77.2894
621.84	77.2894
631.29	77.6618
633.02	74.8841
633.10	74.8880
634.78	76.8492
635.90	82.5884
636.97	86.4300
645.85	82.0443
646.12	83.9631
656.30	94.9322
657.75	108.4342
657.90	0.0000
661.65	81.7191
661.65	81.7191
664.57	0.0000
666.33	73.2316
666.33	73.2316
675.00	71.6026
677.61	82.3479
685.20	68.0603
692.80	87.8181
695.00	82.0477
696.49	96.7667
696.49	96.7667
697.00	102.6544
697.49	102.6775
698.33	100.7620
698.50	100.7695
699.00	99.8161
702.63	77.4377
706.10	87.3791
706.58	0.0000
706.67	84.4568
709.31	87.5072
711.68	88.5872
713.82	74.8793
717.42	77.9643
720.50	80.7076
721.93	0.0000
722.20	75.8244
722.78	74.1962
722.78	74.1962
722.89	74.1998
722.95	74.2017
723.30	75.8618
724.18	74.2419
727.18	70.3777
733.00	91.1005
735.90	85.5780
739.58	65.7841
742.81	78.8534
744.21	82.8967
747.13	70.0034
751.79	85.1764
752.31	80.1855
753.82	68.2025
755.35	77.2801
756.15	73.2905
756.87	76.3266
763.93	85.6267
765.79	67.2119
766.42	72.2720
766.84	67.2428
776.49	65.8315
778.00	74.3198
778.57	74.3377
778.89	60.8306
783.80	65.0203
785.46	75.2321
792.07	84.9569

795.84	64.6677
796.30	59.5738
798.80	73.2676
801.93	65.9690
805.60	70.7402
810.29	61.6318
810.76	68.8353
815.85	61.7725
817.79	76.2457
818.51	80.3899
819.60	87.6438
826.30	81.6790
828.27	0.0000
831.60	82.8887
831.96	81.8641
834.83	84.0335
836.80	0.0000
846.75	58.3734
848.13	51.1043
856.28	0.0000
856.80	59.3022
860.37	61.8304
867.32	56.0430
867.82	63.0601
871.10	66.2977
873.19	55.8195
874.81	52.6929
875.33	0.0000
876.40	65.3785
879.36	61.2299
880.27	64.4193
880.51	61.2568
881.50	57.0546
883.24	52.8625
884.67	55.0075
889.25	77.3575
896.60	69.0704
898.02	65.9189
899.00	73.3883
903.28	62.5868
911.07	51.6397
911.07	51.6397
911.07	51.6397
919.63	62.1645
920.93	53.6157
925.00	73.0270
925.24	75.1816
926.50	69.8433
935.52	52.8245
937.48	66.8876
944.10	64.8853
946.00	66.0114
949.00	59.5829
962.29	87.0781
964.01	77.3286
966.15	77.3876
968.20	77.4430
969.11	77.4690
969.11	77.4690
969.11	77.4690
977.42	64.0954
980.50	67.9200
983.50	51.5416
989.30	63.7334
996.32	66.0908
1001.03	57.9230
1001.68	68.0516
1004.76	61.6797
1021.30	0.0000
1024.50	0.0000
1034.80	64.1709
1036.00	66.0569
1037.82	66.0974
1038.57	60.5249
1038.76	0.0000
1045.16	65.3259
1046.59	62.5535
1048.07	62.5862

1050.47	62.6353
1050.47	62.6353
1062.04	58.1805
1063.62	64.7830
1076.63	66.9438
1077.35	66.9583
1078.86	52.8372
1085.78	72.8141
1099.22	62.6807
1112.02	58.8491
1112.84	65.4046
1115.52	88.3677
1120.29	73.6131
1120.29	73.6131
1120.29	73.6131
1120.29	73.6131
1120.51	73.6193
1121.28	73.6381
1124.00	0.0000
1129.67	61.3646
1131.51	0.0000
1147.95	0.0000
1167.94	68.8766
1173.22	65.0998
1175.09	71.9434
1177.93	67.1385
1189.05	76.1465
1204.90	80.4285
1205.75	0.0000
1213.00	68.8208
1221.42	83.7722
1230.97	105.7461
1235.34	77.1843
1236.41	0.0000
1238.25	71.3057
1246.25	67.4992
1260.41	0.0000
1271.85	60.9901
1274.45	60.0342
1274.54	60.0366
1291.56	47.2505
1298.22	0.0000
1312.09	58.6396
1325.50	47.6923
1325.50	47.6923
1332.49	37.6158
1333.61	34.5755
1360.21	26.6284
1362.66	0.0000
1365.15	31.7909
1368.21	39.0020
1368.53	0.0000
1376.25	33.9413
1384.27	37.1045
1394.10	30.9998
1395.20	34.1091
1407.95	31.1108
1434.06	19.8350
1436.60	29.2487
1457.56	0.0000
1460.81	33.6302
1489.15	30.6921
1509.49	15.9540
1596.49	31.6390
1620.62	19.6501
1678.03	0.0000
1691.02	8.5549
1691.02	8.5549
1706.46	0.0000
1750.46	0.0000
1764.49	15.4509
1764.49	15.4509
1764.49	15.4509
1764.49	15.4509
1770.23	11.8437
1771.40	5.0771
1791.20	0.0000
1808.65	9.7461



1836.01

12.7416

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244231004

Total Uranium Activity	5.6356E+00	ug/g
Total Uranium Counting Unc.	4.3096E+00	ug/g
Total Uranium Tpu	2.1988E-06	ug/g
Total Uranium Mda	2.9160E+00	ug/g

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*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941242          SAMPLE ID : G244231004
*  ANALYST       : MXR1           DETECTOR   : GAM12
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE : 21-JAN-2010 09:02:54.84  SAMPLE ALQT: 151.950 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 8.809E+00
GROSS GAMMA ERROR (pCi/GRAM ) : 1.288E+00
GROSS GAMMA MDA (pCi/GRAM ) : 3.010E+00
GROSS GAMMA DLC (pCi/GRAM ) : 1.457E+00

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VAX/VMS Nuclide Identification Report Generated 22-JAN-2010 08:54:53.80

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231005.CNF;2
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:03:24
Sample ID          : G244231005      Sample quantity   : 1.20540E+02 GRAM
Detector name      : GAM13           Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00   Elapsed real time: 0 03:00:02.63 0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials : MXR1
Abundance limit    : 75.00000        Sensitivity      : 5.00000
Batch ID           : 941242          Detector SN#     :
Matrix Spike ID    :                  LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.32*	223	917	0.92	92.41	88	9	2.06E-02	26.7	
2	0	53.30*	40	719	1.30	106.37	103	7	3.68E-03	119.8	
3	0	63.10*	296	1185	1.27	125.97	122	9	2.74E-02	23.7	
4	2	74.71	936	915	1.11	149.20	143	15	8.66E-02	6.4	2.52E+00
5	2	76.98*	1393	903	1.12	153.73	143	15	1.29E-01	4.8	
6	5	84.12*	203	752	1.52	168.02	164	29	1.88E-02	25.7	2.55E+00
7	5	87.05	528	811	1.30	173.88	164	29	4.89E-02	10.2	
8	5	89.81	387	671	1.09	179.39	164	29	3.58E-02	12.3	
9	5	92.53*	520	792	1.44	184.85	164	29	4.82E-02	12.8	
10	0	128.81	119	608	1.19	257.42	254	8	1.10E-02	37.1	
11	0	185.62*	382	628	1.39	371.07	366	12	3.53E-02	15.6	
12	0	209.48	345	502	1.31	418.79	414	12	3.19E-02	14.1	
13	0	238.38*	1549	768	1.28	476.61	471	10	1.43E-01	4.3	
14	0	241.55	220	373	1.29	482.96	481	6	2.04E-02	15.9	
15	0	269.61	180	461	1.55	539.10	533	14	1.66E-02	26.5	
16	0	295.12*	484	353	1.39	590.13	585	10	4.48E-02	8.9	
17	0	299.48	100	276	0.94	598.86	596	8	9.24E-03	30.4	
18	0	328.21	111	360	2.51	656.32	651	11	1.03E-02	34.4	
19	0	338.08*	295	319	1.11	676.07	672	10	2.73E-02	13.1	
20	0	351.62*	881	381	1.29	703.15	696	14	8.16E-02	5.9	
21	0	462.62	76	210	0.91	925.21	920	10	7.07E-03	37.3	
22	0	511.22*	144	393	2.10	1022.45	1012	20	1.33E-02	38.5	
23	0	582.78*	522	202	1.62	1165.61	1161	12	4.83E-02	7.4	
24	0	609.12*	638	238	1.64	1218.30	1212	15	5.91E-02	6.8	
25	0	661.16	188	156	1.92	1322.43	1318	10	1.74E-02	14.4	
26	0	726.95	89	144	0.76	1454.04	1450	9	8.24E-03	26.5	
27	0	859.69	82	147	1.46	1719.64	1712	14	7.59E-03	33.3	
28	0	910.80*	367	114	1.67	1821.89	1815	14	3.40E-02	8.6	
29	0	969.55*	128	260	1.16	1939.44	1930	14	1.18E-02	29.1	
30	0	1119.54*	120	150	1.45	2239.54	2233	13	1.11E-02	23.5	
31	0	1460.04*	1953	91	2.28	2920.86	2910	23	1.81E-01	2.6	
32	0	1631.49	22	24	4.99	3263.93	3257	14	2.04E-03	52.2	
33	0	1763.46	121	14	2.12	3528.03	3518	17	1.12E-02	11.4	

Flag: "\*" = Peak area was modified by background subtraction

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231005.CNF;2
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 6-JAN-2010 12:00:00   Acquisition date : 21-JAN-2010 09:03:24
Sample ID        : G244231005             Sample quantity  : 120.54 GRAM
Sample type      : SOLID                   Sample geometry   :
Detector name    : GAMMA13                 Detector geometry: CAN
Elapsed live time: 0 03:00:00.00           Elapsed real time: 0 03:00:02.63   0.0%
Peak Width (FWHM): 3.00                    Confidence level  : 5.00 %
Energy tolerance : 1.50 keV                 Half life ratio   : 8.00
Errors propagated: Yes                       Systematic Error  : 0.00 %
Efficiency type  : Empirical                 Efficiencies at   : Peak Energy
Abundance limit  : 75.00                     WTM error limit   : 3.00

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## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.650E+01	2.937E+00	5.918E-01	3.618E-02	61.669
AS-73	+	53.44	*	1.240E-01	2.974E-01	3.402E-01	2.874E-02	0.365
CD-109	+	88.03	*	4.159E+00	9.128E-01	9.190E-01	7.252E-02	4.526
SN-126	+	64.28		8.655E-01	4.312E-01	3.838E-01	5.976E-02	2.255
	+	86.94		1.700E+00	7.824E-01	3.744E-01	1.544E-01	4.540
	+	87.57	*	4.089E-01	8.975E-02	9.024E-02	7.138E-03	4.532
CS-135	+	268.24	*	5.401E-01	2.900E-01	2.371E-01	2.190E-02	2.278
BA-137M	+	661.65	*	2.151E-01	6.430E-02	6.845E-02	5.583E-03	3.142
CS-137	+	661.65	*	2.274E-01	6.799E-02	7.236E-02	5.914E-03	3.142
TL-208		277.35		4.287E-01	4.001E-01	6.397E-01	7.492E-02	0.670
	+	510.84		5.441E-01	4.229E-01	2.437E-01	2.648E-02	2.233
	+	583.14	*	5.696E-01	9.629E-02	6.878E-02	5.694E-03	8.281
	+	860.37		8.502E-01	5.701E-01	5.606E-01	4.727E-02	1.517
BI-210	+	46.50	*	1.566E+00	8.475E-01	7.351E-01	5.992E-02	2.130
PB-210	+	46.50	*	1.566E+00	8.475E-01	7.351E-01	5.992E-02	2.130
PO-210	+	46.50	*	1.566E+00	8.452E-01	7.351E-01	5.241E-02	2.130
BI-211		72.87		4.669E+00	1.846E+00	3.199E+00	2.798E-01	1.459
	+	351.07	*	4.042E+00	5.612E-01	3.546E-01	2.585E-02	11.398
PB-212	+	74.81		2.467E+00	4.455E-01	3.371E-01	4.288E-02	7.319
	+	77.11		2.188E+00	2.793E-01	2.015E-01	1.712E-02	10.856
	+	87.30		1.891E+00	4.561E-01	4.170E-01	5.321E-02	4.535
	+	238.63	*	1.529E+00	1.920E-01	1.230E-01	1.118E-02	12.424
	+	300.09		1.526E+00	9.407E-01	1.190E+00	1.132E-01	1.283
PO-212	+	74.81		2.467E+00	4.455E-01	3.371E-01	4.288E-02	7.319
	+	77.11		2.188E+00	2.793E-01	2.015E-01	1.712E-02	10.856
	+	87.30		1.891E+00	4.561E-01	4.170E-01	5.321E-02	4.535
		115.19		-4.445E-01	3.347E+00	5.455E+00	6.326E-01	-0.081
	+	238.63	*	1.529E+00	1.920E-01	1.230E-01	1.118E-02	12.424
	+	300.09		1.526E+00	9.407E-01	1.190E+00	1.132E-01	1.283
BI-214	+	609.31	*	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
	+	1120.29		1.278E+00	6.121E-01	5.358E-01	4.793E-02	2.386
	+	1764.49		1.765E+00	4.143E-01	2.652E-01	1.506E-02	6.657
PB-214	+	74.81		4.251E+00	7.284E-01	5.809E-01	6.606E-02	7.319
	+	77.11		3.750E+00	5.576E-01	3.455E-01	3.942E-02	10.856

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	87.30		3.240E+00	7.537E-01	7.144E-01	7.898E-02	4.535
	+	241.98		1.307E+00	4.341E-01	5.939E-01	5.749E-02	2.200
	+	295.21		1.298E+00	2.638E-01	2.214E-01	2.169E-02	5.862
	+	351.92	*	1.406E+00	2.085E-01	1.236E-01	1.107E-02	11.371
	+	74.81		4.251E+00	7.284E-01	5.809E-01	6.606E-02	7.319
	+	77.11		3.750E+00	5.576E-01	3.455E-01	3.942E-02	10.856
	+	87.30		3.240E+00	7.537E-01	7.144E-01	7.898E-02	4.535
	+	241.98		1.307E+00	4.341E-01	5.939E-01	5.749E-02	2.200
PO-216	+	295.21		1.298E+00	2.638E-01	2.214E-01	2.169E-02	5.862
	+	351.92	*	1.406E+00	2.085E-01	1.236E-01	1.107E-02	11.371
	+	74.81		2.467E+00	4.455E-01	3.371E-01	4.288E-02	7.319
	+	77.11		2.188E+00	2.793E-01	2.015E-01	1.712E-02	10.856
	+	87.30		1.891E+00	4.561E-01	4.170E-01	5.321E-02	4.535
	+	238.63	*	1.529E+00	1.920E-01	1.230E-01	1.118E-02	12.424
	+	300.09		1.526E+00	9.407E-01	1.190E+00	1.132E-01	1.283
	+	74.81		4.251E+00	7.284E-01	5.809E-01	6.606E-02	7.319
PO-218	+	77.11		3.750E+00	5.576E-01	3.455E-01	3.942E-02	10.856
	+	87.30		3.240E+00	7.537E-01	7.144E-01	7.898E-02	4.535
	+	241.98		1.307E+00	4.341E-01	5.939E-01	5.749E-02	2.200
	+	295.21		1.298E+00	2.638E-01	2.214E-01	2.169E-02	5.862
	+	351.92	*	1.406E+00	2.085E-01	1.236E-01	1.107E-02	11.371
	+	240.98	*	2.478E+00	8.113E-01	1.096E+00	8.655E-02	2.260
	+	609.31	*	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
	+	1120.29		1.278E+00	6.121E-01	5.358E-01	4.793E-02	2.386
RA-224	+	1764.49		1.765E+00	4.143E-01	2.652E-01	1.506E-02	6.657
	+	338.32		1.488E+00	7.233E-01	3.746E-01	1.534E-01	3.971
	+	911.07	*	1.799E+00	3.630E-01	2.613E-01	2.713E-02	6.887
	+	969.11		1.102E+00	6.895E-01	4.429E-01	1.011E-01	2.489
	+	338.32		1.488E+00	7.233E-01	3.746E-01	1.534E-01	3.971
	+	911.07	*	1.799E+00	3.630E-01	2.613E-01	2.713E-02	6.887
	+	969.11		1.102E+00	6.895E-01	4.429E-01	1.011E-01	2.489
	+	74.81		2.504E+00	3.879E-01	3.422E-01	2.978E-02	7.319
TH-228	+	77.11		2.220E+00	2.835E-01	2.045E-01	1.738E-02	10.856
	+	87.30		1.920E+00	4.213E-01	4.233E-01	3.354E-02	4.535
	+	238.63	*	1.552E+00	1.949E-01	1.249E-01	1.135E-02	12.424
	+	300.09		1.549E+00	1.315E+00	1.208E+00	7.140E-01	1.283
	+	609.31	*	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
	+	1120.29		1.278E+00	6.121E-01	5.358E-01	4.793E-02	2.386
	+	1764.49		1.765E+00	4.143E-01	2.652E-01	1.506E-02	6.657
	+	338.32		1.488E+00	4.035E-01	3.746E-01	2.608E-02	3.971
TH-232	+	911.07	*	1.799E+00	3.630E-01	2.613E-01	2.713E-02	6.887
	+	969.11		1.102E+00	6.895E-01	4.429E-01	1.011E-01	2.489
	+	63.29	*	2.187E+00	1.109E+00	9.258E-01	1.699E-01	2.362
	+	92.38		2.779E+00	8.677E-01	6.263E-01	1.127E-01	4.437
	+	609.31	*	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
	+	1120.29		1.278E+00	6.121E-01	5.358E-01	4.793E-02	2.386
	+	1764.49		1.765E+00	4.143E-01	2.652E-01	1.506E-02	6.657
	+	86.50	*	1.201E+00	3.617E-01	2.642E-01	5.843E-02	4.546
NP-237	+	95.87		-2.449E-01	7.891E-01	1.152E+00	2.848E-01	-0.213

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
U-238	+	63.29	*	2.187E+00	1.109E+00	9.258E-01	1.699E-01	2.362
	+	92.38		2.779E+00	7.468E-01	6.263E-01	5.287E-02	4.437
AM-243	+	74.67	*	4.000E-01	6.180E-02	5.464E-02	4.720E-03	7.321
	+	86.72		4.503E+01	9.883E+00	9.912E+00	7.887E-01	4.543
		117.66		-1.777E+00	3.551E+00	5.700E+00	6.821E-01	-0.312
		142.18		-2.082E+01	1.902E+01	2.814E+01	2.982E+00	-0.740
ANH-511	+	511.00	*	1.175E-01	9.081E-02	5.265E-02	3.674E-03	2.232

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-1.615E-01	3.545E-01	5.794E-01	4.356E-02	-0.279
NA-22		1274.54	*	-4.541E-02	5.420E-02	8.505E-02	4.801E-03	-0.534
NA-24		1368.53	*	-1.099E-01	5.420E-02	Half-Life too short		
AL-26		1129.67		8.025E-01	2.132E+00	3.533E+00	2.094E-01	0.227
		1808.65	*	-3.340E-03	3.255E-02	5.327E-02	3.006E-03	-0.063
TI-44		67.85		9.653E-04	2.472E-02	3.994E-02	3.616E-03	0.024
	+	78.38	*	4.037E-01	5.155E-02	5.083E-02	4.281E-03	7.942
SC-46		889.25	*	-7.183E-03	4.816E-02	7.900E-02	5.982E-03	-0.091
	+	1120.51		2.184E-01	1.036E-01	1.422E-01	8.549E-03	1.536
V-48		944.10		9.564E-02	1.109E+00	1.835E+00	1.340E-01	0.052
		983.50	*	-6.463E-02	8.743E-02	1.362E-01	9.638E-03	-0.474
		1312.09		3.242E-02	1.093E-01	1.847E-01	1.047E-02	0.176
CR-51		320.08	*	1.634E-02	3.785E-01	6.198E-01	4.824E-02	0.026
MN-52		744.21		2.020E-03	2.818E-01	4.531E-01	3.679E-02	0.004
		848.13		2.904E+00	7.998E+00	1.357E+01	1.057E+00	0.214
		935.52		1.764E-01	3.208E-01	5.448E-01	4.002E-02	0.324
		1246.25		-1.342E+00	8.125E+00	1.340E+01	7.499E-01	-0.100
		1333.61		-5.311E-01	6.392E+00	9.926E+00	5.647E-01	-0.054
		1434.06	*	-5.802E-02	2.716E-01	4.375E-01	2.514E-02	-0.133
MN-54		834.83	*	-3.442E-03	4.464E-02	7.402E-02	5.808E-03	-0.046
CO-56		846.75	*	-1.332E-02	4.790E-02	7.834E-02	6.106E-03	-0.170
		977.42		-2.171E-01	3.587E+00	5.731E+00	4.076E-01	-0.038
		1037.82		1.322E-01	3.968E-01	6.610E-01	4.815E-02	0.200
		1175.09		2.947E+00	2.767E+00	4.754E+00	2.614E-01	0.620
		1238.25		1.196E-01	1.123E-01	1.967E-01	1.173E-02	0.608
		1360.21		-8.031E-01	1.232E+00	1.926E+00	1.099E-01	-0.417
		1771.40		-1.043E+00	3.468E-01	3.687E-01	2.092E-02	-2.828
CO-57		122.06	*	1.465E-02	2.404E-02	3.986E-02	5.041E-03	0.368
		136.48		1.093E-01	1.984E-01	3.264E-01	3.820E-02	0.335
CO-58		810.76	*	9.068E-03	4.801E-02	8.099E-02	6.450E-03	0.112
FE-59		142.65		9.329E-02	2.878E+00	4.452E+00	4.695E-01	0.021
		192.34		3.790E-01	9.103E-01	1.515E+00	1.966E-01	0.250
		1099.22	*	-3.635E-02	1.124E-01	1.784E-01	1.274E-02	-0.204
		1291.56		-1.283E-02	1.539E-01	2.541E-01	1.856E-02	-0.050
CO-60		1173.22		5.573E-02	5.576E-02	9.545E-02	5.246E-03	0.584
		1332.49	*	2.442E-02	5.136E-02	8.328E-02	4.737E-03	0.293
ZN-65		1115.52	*	5.603E-02	1.348E-01	1.935E-01	1.175E-02	0.290

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GE-68	1077.35	*		2.968E-01	1.575E+00	2.592E+00	1.657E-01	0.115
AS-74	595.88	*		7.884E-02	1.087E-01	1.847E-01	1.418E-02	0.427
	634.78			1.896E-02	4.047E-01	6.619E-01	5.274E-02	0.029
SE-75	66.05			-7.204E-02	2.565E+00	3.898E+00	4.246E-01	-0.018
	96.73			-9.296E-01	7.151E-01	9.518E-01	1.321E-01	-0.977
	121.11			1.775E-03	1.297E-01	2.117E-01	3.052E-02	0.008
	136.00			8.406E-03	3.720E-02	6.067E-02	6.853E-03	0.139
	198.60			9.585E-01	1.823E+00	2.987E+00	2.669E-01	0.321
	264.65	*		-7.840E-03	4.795E-02	6.927E-02	5.426E-03	-0.113
	279.53			-2.093E-02	1.093E-01	1.792E-01	1.442E-02	-0.117
	303.91			-3.339E-01	2.352E+00	3.354E+00	3.564E-01	-0.100
	400.65			-9.636E-02	3.066E-01	4.635E-01	4.260E-02	-0.208
BR-77	87.88	+		8.433E+02	1.851E+02	2.454E+02	1.937E+01	3.437
	200.40			1.943E+02	1.499E+02	2.620E+02	2.076E+01	0.742
	239.00	+		2.303E+02	2.703E+01	3.304E+01	2.610E+00	6.970
	249.79			-3.564E+01	6.069E+01	9.876E+01	7.766E+00	-0.361
	281.68			-3.531E+01	8.539E+01	1.386E+02	1.063E+01	-0.255
	297.23			2.226E+02	7.637E+01	9.872E+01	7.426E+00	2.255
	303.76			-4.744E+01	1.896E+02	2.687E+02	2.002E+01	-0.177
	439.47			-6.066E+01	1.480E+02	2.445E+02	1.545E+01	-0.248
	484.57			-1.724E+02	2.390E+02	3.845E+02	2.592E+01	-0.449
	520.65	*		1.104E+01	1.090E+01	1.896E+01	1.340E+00	0.582
	574.64			-8.920E-01	2.253E+02	3.707E+02	2.785E+01	-0.002
	578.91			2.949E+01	1.039E+02	1.512E+02	1.141E+01	0.195
	585.48			9.541E+02	2.555E+02	4.251E+02	3.230E+01	2.245
	755.35			8.705E+01	1.941E+02	3.197E+02	2.589E+01	0.272
	817.79			-4.850E+01	1.478E+02	2.417E+02	1.913E+01	-0.201
SR-82	698.33			7.345E+00	4.104E+01	6.703E+01	5.472E+00	0.110
	776.49	*		-1.368E-01	4.411E-01	7.261E-01	5.844E-02	-0.188
	1395.20			-9.176E+00	1.209E+01	1.844E+01	1.056E+00	-0.498
RB-83	520.41	*		9.869E-02	7.798E-02	1.342E-01	9.476E-03	0.735
	529.64			-1.919E-02	1.187E-01	1.950E-01	1.393E-02	-0.098
	552.65			-4.216E-02	2.146E-01	3.505E-01	2.571E-02	-0.120
RB-84	881.50	*		1.613E-02	8.483E-02	1.422E-01	1.083E-02	0.113
KR-85	513.99	*		1.098E+01	8.927E+00	1.387E+01	9.716E-01	0.791
SR-85	513.99	*		5.614E-02	4.567E-02	7.095E-02	4.970E-03	0.791
RB-86	1076.63	*		2.250E-01	9.726E-01	1.605E+00	1.027E-01	0.140
Y-88	898.02			-1.054E-02	5.265E-02	8.604E-02	6.513E-03	-0.123
	1836.01	*		-1.227E-02	3.753E-02	5.939E-02	3.344E-03	-0.207
ZR-88	392.90	*		-2.908E-02	3.338E-02	5.119E-02	2.998E-03	-0.568
Y-91	1204.90	*		7.493E+00	2.184E+01	3.721E+01	2.063E+00	0.201
NB-94	702.63	*		2.571E-02	4.161E-02	6.944E-02	5.668E-03	0.370
	871.10			-3.350E-02	4.086E-02	6.412E-02	4.920E-03	-0.523
NB-95	765.79	*		9.813E-02	5.190E-02	9.385E-02	7.579E-03	1.046
NB-95M	235.69	*		4.008E-01	1.423E-01	2.251E-01	2.082E-02	1.780
ZR-95	724.18			9.384E-02	1.397E-01	2.035E-01	1.818E-02	0.461
	756.15	*		7.060E-02	8.585E-02	1.444E-01	1.302E-02	0.489
NB-97	657.90	*		1.248E-01	8.585E-02	Half-Life	too short	
	1024.50			1.179E+00	8.585E-02	Half-Life	too short	



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-97	254.15			-2.748E+00	8.585E-02	Half-Life	too short	
	355.39			-1.194E+00	8.585E-02	Half-Life	too short	
	507.63	*		2.823E+00	8.585E-02	Half-Life	too short	
	602.52			-1.153E+01	8.585E-02	Half-Life	too short	
	1021.30			4.629E+00	8.585E-02	Half-Life	too short	
	1147.95			-5.347E+00	8.585E-02	Half-Life	too short	
	1362.66			-2.208E+00	8.585E-02	Half-Life	too short	
	1750.46			-3.300E+00	8.585E-02	Half-Life	too short	
MO-99	140.51			-1.452E+01	2.458E+01	3.836E+01	1.091E+01	-0.379
	181.06			-1.169E+01	1.857E+01	2.519E+01	4.521E+00	-0.464
	366.43			4.707E+01	8.441E+01	1.400E+02	9.006E+00	0.336
	739.58	*		5.081E+00	1.377E+01	2.260E+01	3.369E+00	0.225
TC-99M	778.00			-2.276E+01	3.754E+01	6.065E+01	4.880E+00	-0.375
	140.51	*		-1.215E+10	3.754E+01	Half-Life	too short	
RH-101	127.23			2.666E-02	3.382E-02	5.051E-02	6.134E-03	0.528
	198.01	*		-1.015E-02	3.397E-02	5.439E-02	4.307E-03	-0.187
	325.23			1.644E-01	2.599E-01	3.851E-01	2.760E-02	0.427
RH-102	418.52			-1.110E-02	3.208E-01	5.117E-01	3.128E-02	-0.022
	475.06	*		-1.010E-02	3.260E-02	5.097E-02	3.392E-03	-0.198
	631.29			3.699E-02	6.308E-02	1.063E-01	8.443E-03	0.348
	697.49			-2.638E-02	9.416E-02	1.498E-01	1.223E-02	-0.176
	766.84			1.508E-01	1.360E-01	2.389E-01	1.928E-02	0.631
	1046.59			-6.828E-02	1.450E-01	2.290E-01	1.520E-02	-0.298
RU-103	1112.84			2.365E-01	3.095E-01	4.602E-01	2.799E-02	0.514
	497.08	*		2.630E-03	4.501E-02	7.520E-02	9.898E-03	0.035
RH-106	610.33	+		1.417E+01	3.012E+00	2.897E+00	4.713E-01	4.892
	511.85	+		5.868E-01	4.534E-01	4.463E-01	3.118E-02	1.315
RU-106	621.84	*		1.699E-01	3.911E-01	6.529E-01	8.416E-02	0.260
	1050.47			2.746E+00	2.913E+00	5.020E+00	3.317E-01	0.547
	511.85	+		5.868E-01	4.534E-01	4.463E-01	3.118E-02	1.315
	621.84	*		1.699E-01	3.908E-01	6.529E-01	5.141E-02	0.260
AG-108M	1050.47			2.746E+00	2.913E+00	5.020E+00	3.317E-01	0.547
	433.93	*		-1.412E-02	3.589E-02	5.938E-02	3.995E-03	-0.238
	614.37			1.208E-02	4.838E-02	6.984E-02	5.721E-03	0.173
AG-110M	722.95			-1.218E-02	6.036E-02	8.245E-02	7.011E-03	-0.148
	657.75	*		4.561E-02	4.712E-02	7.112E-02	5.974E-03	0.641
	677.61			6.390E-02	3.587E-01	5.878E-01	4.949E-02	0.109
	706.67			1.661E-01	2.548E-01	4.261E-01	3.584E-02	0.390
	763.93			4.785E-02	1.983E-01	3.368E-01	2.809E-02	0.142
	884.67			-3.052E-02	6.035E-02	9.674E-02	7.654E-03	-0.315
	937.48			-2.017E-01	1.470E-01	2.140E-01	1.648E-02	-0.943
	1384.27			-2.116E-01	1.754E-01	2.542E-01	1.546E-02	-0.833
IN-111	171.28			-5.179E-01	9.404E-01	1.465E+00	1.150E-01	-0.354
	245.39	*		4.289E-01	1.069E+00	1.601E+00	1.262E-01	0.268
IN-113M	391.69	*		-4.994E-02	4.800E-02	7.286E-02	4.540E-03	-0.685
SN-113	391.69	*		-4.994E-02	4.800E-02	7.286E-02	4.540E-03	-0.685
IN-114M	190.27	*		8.736E-02	1.999E-01	2.864E-01	2.263E-02	0.305
CD-115	260.90			-1.688E+01	1.187E+02	1.961E+02	1.532E+01	-0.086
	492.35			6.658E+00	3.673E+01	6.179E+01	4.209E+00	0.108

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M	527.90	*		-1.442E+00	1.112E+01	1.830E+01	1.304E+00	-0.079
	156.02			-7.187E-01	2.234E+00	3.540E+00	3.198E-01	-0.203
	158.56	*		1.605E-02	5.256E-02	8.506E-02	7.428E-03	0.189
SB-122	563.90	*		9.261E-01	2.344E+00	3.936E+00	2.923E-01	0.235
	692.80			6.703E+00	4.890E+01	7.975E+01	6.512E+00	0.084
I-123	159.00	*		8.049E-01	4.890E+01	Half-Life	too short	
	528.96			-1.656E+02	4.890E+01	Half-Life	too short	
TE-123M	159.00	*		5.242E-03	2.747E-02	4.428E-02	3.867E-03	0.118
I-124	602.71	*		-1.199E+00	9.091E-01	1.155E+00	8.927E-02	-1.039
	722.78			-1.054E+00	6.025E+00	8.248E+00	6.720E-01	-0.128
	1325.50			-2.887E+01	4.202E+01	6.599E+01	3.749E+00	-0.438
SB-124	1376.25			4.997E+01	3.245E+01	5.996E+01	3.428E+00	0.833
	1509.49			2.707E+01	1.753E+01	3.261E+01	1.880E+00	0.830
	1691.02			-3.801E+00	4.259E+00	6.009E+00	3.441E-01	-0.633
	602.71			-7.210E-02	5.465E-02	6.941E-02	5.368E-03	-1.039
	645.85			1.413E-01	5.794E-01	9.568E-01	8.228E-02	0.148
	709.31			-4.041E-01	3.431E+00	5.503E+00	4.490E-01	-0.073
	713.82			-5.192E-01	1.988E+00	3.157E+00	3.697E-01	-0.164
	722.78			-9.181E-02	5.251E-01	7.188E-01	5.998E-02	-0.128
	968.20	+		1.132E+01	6.641E+00	7.820E+00	5.604E-01	1.448
	1045.16			-1.986E+00	3.457E+00	4.849E+00	3.224E-01	-0.410
	1325.50			-2.687E+00	3.911E+00	6.142E+00	3.489E-01	-0.438
	1368.21			2.036E-01	2.080E+00	3.464E+00	4.097E-01	0.059
SB-125	1436.60			1.305E+00	4.542E+00	7.655E+00	4.400E-01	0.170
	1691.02	*		-7.813E-02	8.757E-02	1.235E-01	7.692E-03	-0.633
	427.89	*		-5.818E-04	1.020E-01	1.720E-01	1.107E-02	-0.003
	463.38	+		5.590E-01	4.191E-01	5.675E-01	4.206E-02	0.985
	600.56			5.006E-02	2.139E-01	3.548E-01	2.987E-02	0.141
TE-125M	635.90			-1.140E-01	3.279E-01	5.241E-01	4.572E-02	-0.217
	109.28	*		4.816E+00	8.368E+00	1.395E+01	1.695E+00	0.345
	388.63			1.395E-01	2.139E-01	3.548E-01	2.101E-02	0.393
I-126	666.33	*		1.140E-02	2.509E-01	3.531E-01	2.881E-02	0.032
	753.82			1.158E+00	1.792E+00	2.985E+00	2.418E-01	0.388
SB-126	223.80			2.978E-01	3.833E+00	6.453E+00	5.116E-01	0.046
	278.60			2.551E+00	2.422E+00	4.147E+00	3.190E-01	0.615
	296.50	+		1.277E+01	2.469E+00	3.239E+00	2.439E-01	3.941
	414.70			3.859E-02	8.210E-02	1.344E-01	8.163E-03	0.287
	415.30			1.534E+00	6.906E+00	1.117E+01	6.790E-01	0.137
	555.20			-1.187E+00	4.288E+00	6.967E+00	5.124E-01	-0.170
	573.80			2.991E-01	1.190E+00	1.983E+00	1.489E-01	0.151
	593.00			-1.266E+00	1.097E+00	1.679E+00	1.286E-01	-0.754
	656.30			2.448E+00	4.251E+00	6.259E+00	5.082E-01	0.391
	666.33			4.763E-03	1.048E-01	1.475E-01	1.203E-02	0.032
	675.00			-1.549E+00	2.356E+00	3.666E+00	2.993E-01	-0.423
	695.00			1.732E-02	9.280E-02	1.517E-01	1.239E-02	0.114
	697.00			-5.219E-02	3.278E-01	5.254E-01	4.290E-02	-0.099
	720.50	*		7.070E-03	1.922E-01	2.811E-01	2.291E-02	0.025
	856.80			6.538E-01	6.348E-01	9.834E-01	7.617E-02	0.665
	989.30			5.690E-01	1.547E+00	2.594E+00	1.826E-01	0.219

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	1034.80			-2.798E+00	1.112E+01	1.786E+01	1.201E+00	-0.157
	1213.00			-2.577E+00	5.321E+00	8.629E+00	4.793E-01	-0.299
	61.10			-1.477E+00	2.321E+01	3.539E+01	4.173E+00	-0.042
	252.40			5.285E+00	4.666E+00	7.158E+00	2.997E+00	0.738
	290.80			-4.419E+00	2.374E+01	3.394E+01	3.501E+00	-0.130
	411.60			-8.853E+00	1.367E+01	2.109E+01	3.042E+00	-0.420
	444.90			7.386E-01	1.046E+01	1.764E+01	1.947E+00	0.042
	473.00			-7.209E-01	1.766E+00	2.894E+00	3.347E-01	-0.249
	543.00			-2.182E+01	1.867E+01	2.859E+01	3.878E+00	-0.763
	603.60			-1.327E+01	1.556E+01	2.056E+01	2.438E+00	-0.645
XE-127	685.20	*		-1.063E-01	1.595E+00	2.573E+00	2.824E-01	-0.041
	698.50			3.970E-01	1.791E+01	2.900E+01	4.503E+00	0.014
	722.20			6.022E+00	3.991E+01	5.614E+01	6.026E+00	0.107
	783.80			6.930E+00	4.219E+00	7.524E+00	8.994E-01	0.921
	57.60			-4.744E-01	2.009E+00	3.249E+00	3.002E-01	-0.146
	145.22			-3.150E-01	6.861E-01	1.088E+00	1.116E-01	-0.290
	172.10			3.143E-02	1.167E-01	1.877E-01	1.474E-02	0.167
	202.84	*		-4.530E-02	4.439E-02	7.239E-02	5.737E-03	-0.626
	374.96			-1.805E-01	2.072E-01	3.189E-01	1.992E-02	-0.566
	80.18			3.876E+00	4.032E+00	5.044E+00	4.224E-01	0.768
I-131	284.30			-7.774E-01	1.515E+00	2.446E+00	1.993E-01	-0.318
	364.48	*		-4.245E-04	1.186E-01	1.918E-01	1.358E-02	-0.002
	636.97			-4.305E-01	1.832E+00	2.948E+00	2.506E-01	-0.146
	722.89			-2.228E+00	9.966E+00	1.359E+01	1.115E+00	-0.164
TE-132	49.72			2.335E+00	4.265E+00	5.455E+00	5.515E-01	0.428
	111.76			-4.458E+00	2.811E+01	4.363E+01	5.610E+00	-0.102
	116.30			-1.666E-01	2.462E+01	4.026E+01	5.411E+00	-0.004
BA-133	228.16	*		-1.191E-01	6.224E-01	1.036E+00	1.586E-01	-0.115
	53.15			5.262E-01	1.262E+00	1.533E+00	1.286E-01	0.343
	79.62			3.737E-01	1.161E+00	1.409E+00	2.124E-01	0.265
	81.00			1.522E-02	8.986E-02	1.081E-01	1.696E-02	0.141
	276.40			2.250E-01	4.205E-01	6.224E-01	8.667E-02	0.362
I-133	302.84			-6.297E-02	1.635E-01	2.297E-01	2.887E-02	-0.274
	356.01	*		-2.296E-02	5.618E-02	7.647E-02	9.180E-03	-0.300
	383.85			1.397E-01	3.155E-01	5.186E-01	5.705E-02	0.269
	510.53	+		1.004E+00	3.155E-01	Half-Life	too short	
	529.87	*		6.506E-04	3.155E-01	Half-Life	too short	
	706.58			2.919E-01	3.155E-01	Half-Life	too short	
	856.28			2.602E-01	3.155E-01	Half-Life	too short	
	875.33			8.346E-02	3.155E-01	Half-Life	too short	
	1236.41			1.368E+00	3.155E-01	Half-Life	too short	
	1298.22			1.346E-01	3.155E-01	Half-Life	too short	
CS-134	475.35			-9.435E-01	2.175E+00	3.386E+00	2.254E-01	-0.279
	563.23			3.759E-01	4.257E-01	7.307E-01	5.492E-02	0.514
	569.32			-1.712E-01	2.520E-01	3.750E-01	2.852E-02	-0.457
	604.70			5.499E-03	4.440E-02	6.351E-02	4.936E-03	0.087
	795.84	*		9.105E-02	5.756E-02	1.031E-01	8.311E-03	0.883
	801.93			-1.485E-01	5.394E-01	8.041E-01	6.453E-02	-0.185
	1038.57			3.303E+00	4.879E+00	8.296E+00	5.556E-01	0.398

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-135	1167.94			-2.158E+00	3.194E+00	4.922E+00	2.732E-01	-0.439
	1365.15			1.001E+00	1.475E+00	2.569E+00	1.615E-01	0.390
	288.45			2.364E+09	1.475E+00	Half-Life	too short	
	417.63			4.087E+09	1.475E+00	Half-Life	too short	
	546.56			7.278E+09	1.475E+00	Half-Life	too short	
	836.80			7.764E+09	1.475E+00	Half-Life	too short	
	1038.76			9.136E+09	1.475E+00	Half-Life	too short	
	1124.00			-7.848E+09	1.475E+00	Half-Life	too short	
	1131.51			3.964E+09	1.475E+00	Half-Life	too short	
	1260.41	*		-2.806E+09	1.475E+00	Half-Life	too short	
	1457.56			8.239E+11	1.475E+00	Half-Life	too short	
	1678.03			8.652E+08	1.475E+00	Half-Life	too short	
	1706.46			1.677E+10	1.475E+00	Half-Life	too short	
	1791.20			-2.109E+08	1.475E+00	Half-Life	too short	
CS-136	66.91			2.184E-01	4.201E-01	6.467E-01	1.016E-01	0.338
	86.29		+	5.276E+00	1.262E+00	1.520E+00	1.889E-01	3.471
	153.22			5.497E-01	6.444E-01	1.060E+00	1.092E-01	0.518
	163.89			-6.252E-01	1.118E+00	1.651E+00	1.516E-01	-0.379
	176.55			5.919E-02	3.720E-01	5.944E-01	4.999E-02	0.100
	273.65			-9.400E-01	5.007E-01	6.419E-01	5.365E-02	-1.464
	340.57			2.247E-01	1.435E-01	2.216E-01	1.603E-02	1.014
	818.51			1.016E-02	8.615E-02	1.447E-01	1.146E-02	0.070
	1048.07	*		-5.314E-02	1.339E-01	2.125E-01	1.508E-02	-0.250
	1235.34			1.887E+00	7.483E-01	1.359E+00	1.340E-01	1.389
CE-139	165.85		*	2.175E-02	2.939E-02	4.808E-02	3.769E-03	0.452
	162.64			-5.577E-01	7.742E-01	1.133E+00	9.928E-02	-0.492
	304.84			-9.982E-01	1.405E+00	2.012E+00	5.569E-01	-0.496
	423.70			1.954E-01	2.139E+00	3.429E+00	1.092E+00	0.057
LA-140	537.32		*	-7.745E-02	2.940E-01	4.782E-01	1.569E-01	-0.162
	328.77		+	6.847E-01	4.742E-01	5.551E-01	4.271E-02	1.233
	432.53			-3.242E-01	2.267E+00	3.797E+00	2.588E-01	-0.085
	487.03			2.238E-03	1.456E-01	2.432E-01	1.807E-02	0.009
	751.79			8.781E-01	2.129E+00	3.500E+00	3.178E-01	0.251
	815.85			-3.235E-01	3.777E-01	5.957E-01	5.357E-02	-0.543
	867.82			-3.628E-01	1.708E+00	2.663E+00	2.183E-01	-0.136
	919.63			3.382E-01	3.394E+00	5.516E+00	5.353E-01	0.061
	925.24			-9.566E-01	1.355E+00	2.129E+00	1.707E-01	-0.449
	1596.49	*		1.926E-02	1.037E-01	1.718E-01	9.900E-03	0.112
	145.44		*	-1.839E-02	6.142E-02	9.794E-02	1.016E-02	-0.188
	57.37			-2.651E-04	6.142E-02	Half-Life	too short	
	231.56			-3.731E-04	6.142E-02	Half-Life	too short	
	293.26		*	7.406E-04	6.142E-02	Half-Life	too short	
	350.59		+	2.869E-02	6.142E-02	Half-Life	too short	
CE-141	490.36			-3.093E-04	6.142E-02	Half-Life	too short	
	664.57			1.482E-03	6.142E-02	Half-Life	too short	
	721.93			8.844E-04	6.142E-02	Half-Life	too short	
	80.11			1.820E+00	1.888E+00	2.363E+00	1.967E-01	0.770
CE-143	133.54	*		-1.068E-01	2.063E-01	3.108E-01	5.387E-02	-0.344
	476.78			-5.921E-02	7.913E-02	1.214E-01	9.330E-03	-0.488
PM-144								

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		618.01		-2.928E-03	3.930E-02	6.225E-02	5.047E-03	-0.047
		696.49	*	-1.833E-03	4.274E-02	6.897E-02	5.633E-03	-0.027
		778.57		-2.262E+00	2.696E+00	4.290E+00	3.452E-01	-0.527
PR-144		696.49	*	-1.242E-01	2.896E+00	4.673E+00	3.815E-01	-0.027
		1489.15		3.589E+00	1.424E+01	2.389E+01	1.377E+00	0.150
PM-146		453.90	*	3.160E-03	4.839E-02	8.146E-02	7.394E-03	0.039
		633.02		-1.609E+00	1.755E+00	2.538E+00	9.448E-01	-0.634
		735.90		-2.052E-02	1.876E-01	2.997E-01	8.528E-02	-0.068
		747.13		-7.021E-02	1.131E-01	1.739E-01	2.388E-02	-0.404
ND-147	+	91.11		1.021E+00	2.676E-01	4.541E-01	4.095E-02	2.248
		319.41		3.879E-01	3.326E+00	5.464E+00	3.964E-01	0.071
		439.89		-4.154E+00	6.345E+00	1.036E+01	6.549E-01	-0.401
		531.02	*	5.902E-01	6.238E-01	1.074E+00	1.520E-01	0.550
PM-149		285.90	*	6.200E+01	8.793E+01	1.482E+02	2.225E+01	0.418
EU-152		121.78		2.160E-02	6.994E-02	1.151E-01	1.557E-02	0.188
		244.69		1.996E-01	3.445E-01	5.204E-01	4.102E-02	0.384
		344.27	*	2.643E-02	1.209E-01	1.624E-01	1.217E-02	0.163
		443.98		1.177E-02	1.061E+00	1.784E+00	1.135E-01	0.007
		778.89		-3.146E-01	3.173E-01	5.004E-01	4.024E-02	-0.629
		867.32		-3.786E-01	1.085E+00	1.624E+00	1.249E-01	-0.233
		964.01		1.261E-01	4.506E-01	6.487E-01	4.665E-02	0.194
		1085.78		2.425E-01	4.956E-01	8.306E-01	5.250E-02	0.292
		1112.02		1.804E-01	4.520E-01	6.474E-01	3.943E-02	0.279
		1407.95		1.383E-01	2.248E-01	3.884E-01	2.228E-02	0.356
GD-153		69.67		2.188E-01	9.687E-01	1.479E+00	1.322E-01	0.148
	+	83.37		2.750E+01	1.433E+01	1.846E+01	1.503E+00	1.490
		97.43	*	-3.830E-02	7.297E-02	1.021E-01	9.290E-03	-0.375
		103.18		-7.832E-02	8.954E-02	1.430E-01	1.412E-02	-0.548
EU-154		123.07		2.516E-02	4.942E-02	8.164E-02	1.190E-02	0.308
		247.94		-5.151E-01	3.562E-01	5.536E-01	6.047E-02	-0.931
		591.81		-8.808E-01	7.374E-01	1.120E+00	1.229E-01	-0.786
		723.30		-1.545E-02	2.539E-01	3.510E-01	3.195E-02	-0.044
		756.87		2.895E-01	9.355E-01	1.529E+00	1.775E-01	0.189
		873.19		-2.291E-01	3.645E-01	5.794E-01	6.715E-02	-0.395
		996.32		-2.505E-01	4.745E-01	7.486E-01	1.275E-01	-0.335
		1004.76		-3.289E-01	2.707E-01	4.044E-01	4.228E-02	-0.813
		1274.45	*	-1.287E-01	1.516E-01	2.372E-01	2.191E-02	-0.543
EU-155		48.70		-3.253E-01	4.681E-01	6.442E-01	4.862E-02	-0.505
		60.01		2.057E+00	1.965E+00	3.098E+00	2.965E-01	0.664
	+	86.54		4.925E-01	1.083E-01	1.443E-01	1.163E-02	3.413
		105.31	*	2.016E-02	9.874E-02	1.582E-01	1.623E-02	0.127
TB-160	+	86.79		1.313E+00	2.881E-01	3.872E-01	3.079E-02	3.391
		197.04		-2.721E-01	5.714E-01	9.086E-01	7.193E-02	-0.299
		215.65		-1.557E-01	7.629E-01	1.183E+00	9.385E-02	-0.132
	+	298.57		2.216E-01	1.360E-01	1.992E-01	1.496E-02	1.113
		879.36	*	1.499E-01	1.726E-01	2.999E-01	2.288E-02	0.500
		962.29		4.575E-01	8.226E-01	1.182E+00	8.509E-02	0.387
		966.15		1.321E+00	3.661E-01	6.095E-01	4.376E-02	2.168
		1177.93		-5.008E-01	4.658E-01	6.970E-01	3.836E-02	-0.719

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1271.85			8.893E-01	8.579E-01	1.518E+00	8.543E-02	0.586
	80.57			2.008E-01	2.429E-01	3.020E-01	2.506E-02	0.665
	184.41		+	1.989E-01	6.381E-02	7.268E-02	5.734E-03	2.736
	280.46			-5.592E-02	8.720E-02	1.403E-01	1.077E-02	-0.399
	410.95			3.584E-01	2.736E-01	4.639E-01	2.801E-02	0.773
	711.68		*	-8.689E-03	7.295E-02	1.169E-01	9.535E-03	-0.074
TM-171	752.31			2.030E-01	3.483E-01	5.778E-01	4.682E-02	0.351
	810.29			2.231E-02	7.200E-02	1.223E-01	9.711E-03	0.182
	51.35			-4.803E-01	6.852E+00	1.055E+01	8.497E-01	-0.046
	52.39		+	2.192E+00	5.255E+00	6.296E+00	5.192E-01	0.348
	59.40			1.589E+01	1.028E+01	1.639E+01	1.571E+00	0.970
	66.72		*	7.700E+00	1.530E+01	2.361E+01	2.154E+00	0.326
LU-176	88.36		+	9.699E-01	2.129E-01	2.799E-01	2.220E-02	3.466
	201.83			-1.423E-02	2.779E-02	4.622E-02	3.662E-03	-0.308
	306.84		*	7.218E-03	2.650E-02	4.172E-02	3.093E-03	0.173
LU-177	401.10			-1.339E+00	8.008E+00	1.220E+01	7.245E-01	-0.110
	112.95			5.425E-01	1.584E+00	2.493E+00	2.808E-01	0.218
	208.36		*	5.918E+00	1.733E+00	1.891E+00	1.499E-01	3.130
LU-177M	52.97		+	2.349E-01	5.632E-01	6.828E-01	5.707E-02	0.344
	54.07		+	1.331E-01	3.192E-01	3.822E-01	3.275E-02	0.348
	61.30			5.891E-01	6.464E-01	1.013E+00	9.604E-02	0.582
HF-181	121.62			1.033E-01	3.578E-01	5.887E-01	7.402E-02	0.175
	147.16			-5.373E-01	6.390E-01	9.955E-01	1.000E-01	-0.540
	171.86			-3.973E-02	4.725E-01	7.499E-01	5.888E-02	-0.053
	218.09			3.790E-01	8.192E-01	1.398E+00	1.109E-01	0.271
	268.79		+	2.711E+00	1.450E+00	1.433E+00	1.112E-01	1.893
	319.02			-2.403E-02	2.622E-01	4.270E-01	3.099E-02	-0.056
	367.43			8.660E-01	9.764E-01	1.641E+00	1.052E-01	0.528
	413.65		*	-4.426E-02	1.976E-01	3.125E-01	1.895E-02	-0.142
	56.28			-4.824E-01	3.148E-01	4.525E-01	4.067E-02	-1.066
	57.53			-1.311E-01	1.712E-01	2.719E-01	2.509E-02	-0.482
	65.20			-2.696E-02	4.857E-01	7.381E-01	6.808E-02	-0.037
	133.02			-1.309E-02	6.995E-02	1.003E-01	1.159E-02	-0.131
W-181	136.25			1.497E-01	4.350E-01	7.118E-01	7.990E-02	0.210
	345.85			1.261E-01	2.139E-01	3.155E-01	2.156E-02	0.400
	482.03		*	1.608E-02	4.788E-02	8.121E-02	5.456E-03	0.198
	56.28			-1.892E-01	1.235E-01	1.776E-01	1.596E-02	-1.065
	57.53			-5.152E-02	6.722E-02	1.067E-01	9.850E-03	-0.483
	65.20		*	-1.050E-02	1.892E-01	2.875E-01	2.652E-02	-0.037
TA-182	67.75			3.186E-03	5.877E-02	9.499E-02	8.606E-03	0.034
	100.10			7.234E-02	1.473E-01	2.465E-01	2.332E-02	0.293
	152.43			3.399E-03	3.347E-01	5.377E-01	5.083E-02	0.006
	222.10			-1.146E-01	3.360E-01	5.579E-01	4.424E-02	-0.205
	1001.68			-2.315E-01	2.890E+00	4.354E+00	3.029E-01	-0.053
	1121.28			6.629E-01	2.375E-01	3.848E-01	2.311E-02	1.723
RE-183	1189.05			-3.076E-01	3.659E-01	5.811E-01	3.207E-02	-0.529
	1221.42		*	-1.079E-02	2.380E-01	3.964E-01	2.206E-02	-0.027
	1230.97			-6.328E-01	6.291E-01	9.938E-01	5.543E-02	-0.637
	57.98			2.023E-02	6.524E-02	1.119E-01	1.042E-02	0.181

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		6.708E-02	4.213E-02	6.719E-02	6.432E-03	0.998
		67.20		7.699E-02	1.092E-01	1.692E-01	1.539E-02	0.455
		162.32	*	-7.922E-02	1.140E-01	1.671E-01	1.383E-02	-0.474
	+	208.81		5.431E+00	1.590E+00	1.767E+00	1.401E-01	3.074
		291.72		8.195E-03	1.065E+00	1.539E+00	1.166E-01	0.005
		57.98		7.462E-02	2.407E-01	4.127E-01	3.844E-02	0.181
		59.32		2.473E-01	1.553E-01	2.477E-01	2.371E-02	0.998
		67.20		2.840E-01	4.028E-01	6.243E-01	5.678E-02	0.455
		161.27		-1.232E-01	3.456E-01	5.453E-01	4.583E-02	-0.226
		216.55		2.102E-02	2.638E-01	4.309E-01	3.418E-02	0.049
		252.85	*	2.697E-01	2.306E-01	3.985E-01	3.128E-02	0.677
		318.01		-4.224E-02	4.485E-01	7.303E-01	5.310E-02	-0.058
		792.07		7.968E-01	1.214E+00	2.096E+00	1.678E-01	0.380
		903.28		5.188E-01	1.413E+00	2.073E+00	1.554E-01	0.250
OS-185		920.93		-3.374E-01	5.474E-01	8.665E-01	6.427E-02	-0.389
		59.72		1.215E-01	1.153E-01	1.818E-01	1.744E-02	0.668
		61.14		9.220E-03	6.901E-02	1.059E-01	1.006E-02	0.087
		69.30		6.080E-03	1.732E-01	2.629E-01	2.356E-02	0.023
		592.07		-3.878E+00	2.979E+00	4.512E+00	3.452E-01	-0.859
		646.12	*	2.010E-02	4.948E-02	8.245E-02	6.636E-03	0.244
		717.42		3.900E-01	1.078E+00	1.776E+00	1.448E-01	0.220
		874.81		2.894E-01	7.119E-01	1.209E+00	9.250E-02	0.239
		880.27		3.395E-01	9.548E-01	1.615E+00	1.231E-01	0.210
		155.03	*	-2.717E-03	1.702E-01	2.729E-01	2.497E-02	-0.010
RE-188		477.96		6.980E-01	3.338E+00	5.636E+00	3.765E-01	0.124
		633.10		-3.186E+00	3.339E+00	5.131E+00	4.082E-01	-0.621
	+	63.58		8.769E+01	4.229E+01	5.331E+01	4.974E+00	1.645
W-188		227.08		-2.973E+00	1.210E+01	2.012E+01	1.594E+00	-0.148
	+	290.67	*	-3.907E+00	8.645E+00	1.217E+01	9.236E-01	-0.321
IR-192	+	295.96		9.877E-01	1.913E-01	2.629E-01	1.999E-02	3.757
		308.46		4.187E-02	1.036E-01	1.641E-01	1.222E-02	0.255
		316.51	*	-1.331E-02	3.457E-02	5.555E-02	4.063E-03	-0.240
		468.07		-1.776E-02	8.156E-02	1.170E-01	8.637E-03	-0.152
AU-195		604.41		5.620E-02	5.983E-01	8.541E-01	1.064E-01	0.066
		612.46		1.005E+00	9.652E-01	1.460E+00	1.343E-01	0.688
		65.12		3.254E-02	8.836E-02	1.360E-01	1.255E-02	0.239
		66.83		2.607E-02	5.076E-02	7.831E-02	7.141E-03	0.333
	+	75.70		1.293E+00	1.998E-01	3.088E-01	2.649E-02	4.188
		98.88	*	1.448E-01	2.010E-01	3.114E-01	2.894E-02	0.465
	+	129.76		4.908E+00	3.692E+00	4.633E+00	5.509E-01	1.059
TL-200		367.94	*	2.383E-04	3.692E+00	Half-Life	too short	
		579.30		4.388E-03	3.692E+00	Half-Life	too short	
		828.27		9.541E-04	3.692E+00	Half-Life	too short	
		1205.75		2.227E-04	3.692E+00	Half-Life	too short	
TL-201		68.90		-7.899E-01	2.492E+00	3.982E+00	3.579E-01	-0.198
		70.82		-3.890E-01	1.556E+00	2.337E+00	2.073E-01	-0.166
		80.30		5.772E+00	4.185E+00	5.333E+00	4.433E-01	1.082
		135.34		-4.894E+00	2.285E+01	3.672E+01	4.157E+00	-0.133
		167.43	*	1.940E+00	6.606E+00	1.065E+01	8.343E-01	0.182

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		-7.375E-02	2.326E-01	3.717E-01	3.341E-02	-0.198
		70.82		-3.622E-02	1.449E-01	2.176E-01	1.930E-02	-0.166
		80.30		5.376E-01	3.898E-01	4.967E-01	4.129E-02	1.082
		439.56	*	-4.221E-02	7.583E-02	1.244E-01	7.860E-03	-0.339
HG-203		70.83		-1.542E-01	6.342E-01	9.524E-01	1.311E-01	-0.162
		72.87		9.256E-01	3.775E-01	6.343E-01	8.426E-02	1.459
		82.60		-4.952E-01	9.636E-01	1.286E+00	1.732E-01	-0.385
		279.20	*	1.142E-02	4.068E-02	6.790E-02	5.406E-03	0.168
BI-207		72.80		2.364E-01	1.061E-01	1.838E-01	1.608E-02	1.286
	+	74.97		7.180E-01	1.109E-01	1.504E-01	1.296E-02	4.775
	+	84.90		3.559E-01	1.854E-01	2.442E-01	1.967E-02	1.458
		569.67		-2.993E-02	3.916E-02	5.794E-02	4.330E-03	-0.517
		1063.62	*	2.132E-02	6.560E-02	1.090E-01	7.090E-03	0.196
		1770.23		-4.461E-02	5.158E-01	7.167E-01	4.067E-02	-0.062
TL-207		81.07		3.095E-02	1.984E-01	2.386E-01	1.973E-02	0.130
	+	83.78		2.346E-01	1.223E-01	1.595E-01	1.295E-02	1.471
		94.90		4.559E-02	1.854E-01	3.091E-01	2.710E-02	0.147
		122.32		1.131E+00	1.673E+00	2.777E+00	3.628E-01	0.407
		144.24		2.208E-01	7.259E-01	1.131E+00	1.271E-01	0.195
		154.21		2.721E-01	3.922E-01	6.427E-01	6.460E-02	0.423
	+	269.46		6.354E-01	3.399E-01	3.403E-01	2.707E-02	1.867
		323.87	*	7.579E-02	7.757E-01	1.116E+00	1.902E-01	0.068
	+	338.28		6.212E+00	1.771E+00	2.349E+00	2.635E-01	2.645
		445.03		2.586E-01	2.538E+00	4.286E+00	4.545E-01	0.060
PO-209		260.50		-3.540E+00	9.467E+00	1.549E+01	1.210E+00	-0.229
		262.80		1.276E+00	2.664E+01	4.283E+01	3.340E+00	0.030
		896.60	*	6.087E+00	9.240E+00	1.586E+01	1.194E+00	0.384
PB-211		404.84	*	-9.269E-01	1.234E+00	1.677E+00	1.045E+00	-0.553
		427.08		-8.720E-01	2.495E+00	3.815E+00	2.360E+00	-0.229
		831.96		1.485E-01	1.435E+00	2.399E+00	1.501E+00	0.062
BI-212	+	727.18	*	8.428E-01	4.543E-01	7.201E-01	6.912E-02	1.171
		785.46		3.585E+00	2.124E+00	3.832E+00	3.075E-01	0.936
		1620.62		1.090E+00	1.441E+00	2.498E+00	1.438E-01	0.437
PO-215		81.07		3.095E-02	1.984E-01	2.386E-01	1.973E-02	0.130
	+	83.78		2.346E-01	1.223E-01	1.595E-01	1.295E-02	1.471
		94.90		4.559E-02	1.854E-01	3.091E-01	2.710E-02	0.147
		122.32		1.131E+00	1.673E+00	2.777E+00	3.628E-01	0.407
		144.24		2.208E-01	7.259E-01	1.131E+00	1.271E-01	0.195
		154.21		2.721E-01	3.922E-01	6.427E-01	6.460E-02	0.423
	+	269.46		6.354E-01	3.399E-01	3.403E-01	2.707E-02	1.867
		323.87	*	7.579E-02	7.757E-01	1.116E+00	1.902E-01	0.068
	+	338.28		6.212E+00	1.771E+00	2.349E+00	2.635E-01	2.645
		445.03		2.586E-01	2.538E+00	4.286E+00	4.545E-01	0.060
RN-219		271.23		4.517E-01	2.410E-01	4.195E-01	4.025E-02	1.077
		401.81	*	-3.984E-02	4.916E-01	7.516E-01	1.027E-01	-0.053
RN-220		549.76	*	-1.611E+01	2.960E+01	4.743E+01	3.468E+00	-0.340
RA-223		81.07		3.095E-02	1.984E-01	2.386E-01	1.973E-02	0.130
	+	83.78		2.346E-01	1.223E-01	1.595E-01	1.295E-02	1.471
		94.90		4.559E-02	1.854E-01	3.091E-01	2.710E-02	0.147



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		1.131E+00	1.673E+00	2.777E+00	3.628E-01	0.407
		144.24		2.208E-01	7.259E-01	1.131E+00	1.271E-01	0.195
		154.21		2.721E-01	3.922E-01	6.427E-01	6.460E-02	0.423
	+	269.46		6.354E-01	3.399E-01	3.403E-01	2.707E-02	1.867
		323.87	*	7.579E-02	7.757E-01	1.116E+00	1.902E-01	0.068
	+	338.28		6.212E+00	1.771E+00	2.349E+00	2.635E-01	2.645
		445.03		2.586E-01	2.538E+00	4.286E+00	4.545E-01	0.060
		79.80		5.959E-01	1.484E+00	1.803E+00	3.857E-01	0.330
		236.00		1.285E+00	3.046E-01	4.637E-01	5.450E-02	2.771
		256.20	*	-6.275E-02	3.769E-01	6.226E-01	9.290E-02	-0.101
		286.10		1.088E+00	1.574E+00	2.657E+00	3.341E-01	0.410
	+	299.80		2.829E+00	1.788E+00	2.559E+00	4.341E-01	1.105
TH-227		304.40		-1.194E+00	2.163E+00	2.994E+00	5.363E-01	-0.399
		334.20		3.112E-01	3.125E+00	3.776E+00	7.082E-01	0.082
		79.80		5.959E-01	1.484E+00	1.803E+00	3.907E-01	0.330
	+	94.00		1.074E+01	3.597E+00	3.310E+00	7.214E-01	3.244
		236.00		1.285E+00	2.971E-01	4.637E-01	4.883E-02	2.771
		256.20	*	-6.275E-02	3.769E-01	6.226E-01	1.102E-01	-0.101
		286.10		1.088E+00	1.911E+00	2.657E+00	2.664E+00	0.410
	+	299.80		2.829E+00	1.788E+00	2.559E+00	4.341E-01	1.105
		304.40		-1.194E+00	2.163E+00	2.994E+00	5.363E-01	-0.399
		334.20		3.112E-01	3.125E+00	3.776E+00	7.082E-01	0.082
	+	85.43		3.513E-01	1.830E-01	2.488E-01	1.997E-02	1.412
	+	88.47		4.107E-01	1.067E-01	1.603E-01	1.274E-02	2.562
TH-229		100.00		8.399E-02	1.533E-01	2.569E-01	2.426E-02	0.327
		193.63	*	-3.714E-01	4.797E-01	7.926E-01	6.270E-02	-0.469
	+	210.97		4.262E+00	1.248E+00	1.272E+00	1.009E-01	3.349
		283.67	*	-8.288E-01	1.574E+00	2.535E+00	3.716E-01	-0.327
		301.29		1.160E+00	6.549E-01	1.014E+00	1.163E-01	1.144
	TH-231	81.07		3.095E-02	1.984E-01	2.386E-01	1.973E-02	0.130
	+	83.78		2.346E-01	1.223E-01	1.595E-01	1.295E-02	1.471
		94.90		4.559E-02	1.854E-01	3.091E-01	2.710E-02	0.147
		122.32		1.131E+00	1.673E+00	2.777E+00	3.628E-01	0.407
		144.24		2.208E-01	7.259E-01	1.131E+00	1.271E-01	0.195
		154.21		2.721E-01	3.922E-01	6.427E-01	6.460E-02	0.423
	+	269.46		6.354E-01	3.399E-01	3.403E-01	2.707E-02	1.867
U-231		323.87	*	7.579E-02	7.757E-01	1.116E+00	1.902E-01	0.068
	+	338.28		6.212E+00	1.771E+00	2.349E+00	2.635E-01	2.645
		445.03		2.586E-01	2.538E+00	4.286E+00	4.545E-01	0.060
	+	84.21		9.745E+00	5.078E+00	6.623E+00	5.361E-01	1.471
	+	92.29		1.023E+01	2.749E+00	3.781E+00	3.188E-01	2.705
		95.87	*	-2.676E-01	8.602E-01	1.259E+00	1.120E-01	-0.213
		108.00		4.468E-01	1.803E+00	2.984E+00	3.149E-01	0.150
	PA-233	75.28		2.095E+01	4.190E+00	4.693E+00	7.198E-01	4.464
	+	86.59		8.006E+00	2.687E+00	2.349E+00	6.252E-01	3.408
	+	300.12		7.886E-01	4.932E-01	7.178E-01	1.023E-01	1.099
		311.98	*	-2.673E-02	6.580E-02	1.058E-01	8.081E-03	-0.253
		340.50		1.264E+00	7.642E-01	1.107E+00	2.578E-01	1.141
		398.62		3.096E-01	2.365E+00	3.818E+00	9.881E-01	0.081

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		1.239E-01	1.848E+00	2.964E+00	6.126E-01	0.042
		63.00		2.549E+00	1.272E+00	1.547E+00	2.465E-01	1.647
		94.67		2.115E-01	1.396E-01	2.361E-01	2.947E-02	0.896
		98.44		5.950E-02	9.186E-02	1.260E-01	7.044E-02	0.472
		99.86		2.859E-01	3.878E-01	6.531E-01	6.156E-02	0.438
		111.00		-2.012E-01	1.741E-01	2.718E-01	3.771E-02	-0.740
		131.20		2.390E-02	1.102E-01	1.610E-01	1.891E-02	0.148
		152.70		3.873E-02	3.229E-01	5.206E-01	9.092E-02	0.074
	+	186.00		7.159E+00	3.145E+00	2.785E+00	8.638E-01	2.571
		226.40		-2.051E-02	3.823E-01	6.402E-01	8.169E-02	-0.032
		227.20		3.588E-02	4.060E-01	6.831E-01	5.413E-02	0.053
		248.90		-8.657E-01	8.219E-01	1.277E+00	2.827E-01	-0.678
	+	293.70		6.230E+00	1.525E+00	1.613E+00	2.709E-01	3.863
		369.80		4.040E-02	9.264E-01	1.499E+00	3.146E-01	0.027
		568.70		-1.554E+00	1.295E+00	1.869E+00	1.396E-01	-0.831
		569.50		-2.517E-01	3.481E-01	5.165E-01	3.859E-02	-0.487
		574.00		2.531E-01	1.720E+00	2.852E+00	2.142E-01	0.089
		699.00		-3.568E-02	8.884E-01	1.433E+00	2.706E-01	-0.025
		706.10		3.829E-01	1.318E+00	2.146E+00	9.551E-01	0.178
		733.00		-9.394E-02	5.274E-01	7.566E-01	1.666E-01	-0.124
		742.81		-9.540E-02	1.705E+00	2.729E+00	1.833E+00	-0.035
		796.30		1.640E+00	1.202E+00	2.008E+00	5.392E-01	0.817
		805.60		2.729E-01	1.232E+00	2.079E+00	6.334E-01	0.131
		819.60		8.543E-01	1.476E+00	2.487E+00	9.417E-01	0.344
		826.30		-1.699E-01	9.946E-01	1.636E+00	7.299E-01	-0.104
		831.60		-1.570E-01	7.485E-01	1.229E+00	3.643E-01	-0.128
		876.40		5.985E-01	1.193E+00	1.754E+00	1.801E+00	0.341
		880.51		1.075E-01	3.448E-01	5.819E-01	4.435E-02	0.185
		883.24		-2.697E-01	3.965E-01	5.567E-01	3.735E-01	-0.484
		899.00		-6.599E-01	1.104E+00	1.699E+00	7.391E-01	-0.388
		925.00		-5.735E-01	1.410E+00	2.264E+00	1.675E-01	-0.253
		926.50		-1.523E-01	2.190E-01	3.397E-01	8.455E-02	-0.448
		946.00	*	-7.137E-03	3.733E-01	6.138E-01	1.117E-01	-0.012
		949.00		1.229E-01	5.571E-01	9.291E-01	6.759E-02	0.132
		980.50		5.031E-01	8.731E-01	1.485E+00	1.054E-01	0.339
		1394.10		-8.563E-01	1.415E+00	2.009E+00	1.301E+00	-0.426
PA-234M		766.42		1.556E+01	1.626E+01	2.507E+01	1.270E+01	0.621
		1001.03	*	2.551E+00	6.485E+00	1.004E+01	8.603E-01	0.254
U-235	+	89.95		4.122E+00	1.624E+00	1.520E+00	4.669E-01	2.713
	+	93.35		3.341E+00	1.265E+00	1.202E+00	3.366E-01	2.780
		105.00		4.907E-02	9.621E-01	1.534E+00	4.650E-01	0.032
		143.76	*	1.858E-01	2.242E-01	3.513E-01	6.485E-02	0.529
		163.35		-2.200E-01	4.969E-01	7.348E-01	1.387E-01	-0.299
	+	185.71		2.651E-01	8.507E-02	1.036E-01	8.179E-03	2.559
		205.31		2.491E-01	5.440E-01	8.013E-01	1.505E-01	0.311
NP-236		94.67		1.641E-01	1.050E-01	1.793E-01	1.567E-02	0.915
		98.44		4.498E-02	6.486E-02	9.529E-02	8.799E-03	0.472
		111.00		-1.522E-01	1.310E-01	2.056E-01	2.258E-02	-0.740
		160.31	*	-2.806E-02	7.700E-02	1.215E-01	1.036E-02	-0.231

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.177E-01	1.363E-01	2.202E-01	2.066E-02	0.534
		117.00	*	-5.510E-02	1.783E-01	2.884E-01	3.423E-02	-0.191
	+	209.75		4.294E+00	1.257E+00	1.410E+00	1.118E-01	3.045
		228.18		-3.759E-02	2.131E-01	3.551E-01	2.813E-02	-0.106
		277.60		1.766E-01	1.929E-01	3.084E-01	2.375E-02	0.573
		334.30		1.350E-01	1.770E+00	2.134E+00	1.500E-01	0.063
AM-241		59.54	*	8.766E-02	6.000E-02	9.535E-02	9.697E-03	0.919
CM-243		99.55		1.211E-01	1.403E-01	2.266E-01	2.126E-02	0.534
		103.76	*	-9.480E-03	8.277E-02	1.359E-01	1.353E-02	-0.070
		117.00		-5.669E-02	1.834E-01	2.967E-01	3.522E-02	-0.191
	+	209.75		4.232E+00	1.240E+00	1.390E+00	1.102E-01	3.045
		228.18		-3.798E-02	2.153E-01	3.588E-01	2.842E-02	-0.106
		277.60		1.780E-01	1.945E-01	3.109E-01	2.394E-02	0.573
AM-246		798.80		-3.243E-01	1.813E-01	2.710E-01	2.164E-02	-1.197
		1036.00		-1.825E-01	3.830E-01	6.054E-01	4.066E-02	-0.301
		1062.04		7.896E-02	2.869E-01	4.754E-01	3.098E-02	0.166
		1078.86	*	1.266E-01	1.808E-01	3.067E-01	1.957E-02	0.413
CM-247		278.00		7.773E-01	7.465E-01	1.278E+00	9.835E-02	0.608
		287.40		6.148E-01	1.285E+00	2.155E+00	1.642E-01	0.285
CF-249		402.60	*	1.414E-02	4.136E-02	6.740E-02	4.013E-03	0.210
		252.85		1.013E+00	8.661E-01	1.497E+00	1.175E-01	0.677
		333.44		8.433E-02	2.670E-01	2.832E-01	1.994E-02	0.298
CF-251		387.95	*	1.719E-02	4.227E-02	6.935E-02	4.118E-03	0.248
		176.60	*	-5.036E-03	1.309E-01	2.076E-01	1.633E-02	-0.024
		227.00		-1.049E-01	3.632E-01	6.031E-01	4.779E-02	-0.174
		285.00		8.442E-01	1.805E+00	3.029E+00	2.314E-01	0.279

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231005      *
* Acquisition date   : 21-JAN-2010 09:03:24 Detector SN#                   *
* Detector ID        : GAM13 Sensitivity      : 5.000                      *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 03:00:02.63 Half life ratio : 8.000              *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244231005 Analyst initials: MXR1                 *
* Batch Number       : 941242 Sample Quantity : 1.2054E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope                     *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.650E+01	2.879E+00	5.905E-01	0.000E+00
AS-73	1.240E-01	2.915E-01	3.531E-01	0.000E+00
CD-109	4.159E+00	8.946E-01	9.482E-01	0.000E+00
SN-126	4.089E-01	8.795E-02	9.311E-02	0.000E+00
CS-135	5.401E-01	2.842E-01	2.414E-01	0.000E+00
BA-137M	2.151E-01	6.302E-02	6.896E-02	0.000E+00
CS-137	2.274E-01	6.663E-02	7.290E-02	0.000E+00
TL-208	5.696E-01	9.437E-02	6.940E-02	0.000E+00
BI-210	1.566E+00	8.305E-01	7.640E-01	0.000E+00
PB-210	1.566E+00	8.305E-01	7.640E-01	0.000E+00
PO-210	1.566E+00	8.283E-01	7.640E-01	0.000E+00
BI-211	4.042E+00	5.500E-01	3.600E-01	0.000E+00
PB-212	1.529E+00	1.882E-01	1.255E-01	0.000E+00
PO-212	1.529E+00	1.882E-01	1.255E-01	0.000E+00
BI-214	1.317E+00	2.139E-01	1.236E-01	0.000E+00
PB-214	1.406E+00	2.044E-01	1.255E-01	0.000E+00
PO-214	1.406E+00	2.044E-01	1.255E-01	0.000E+00
PO-216	1.529E+00	1.882E-01	1.255E-01	0.000E+00
PO-218	1.406E+00	2.044E-01	1.255E-01	0.000E+00
RA-224	2.478E+00	7.950E-01	1.118E+00	0.000E+00
RA-226	1.317E+00	2.139E-01	1.236E-01	0.000E+00
AC-228	1.799E+00	3.557E-01	2.622E-01	0.000E+00
RA-228	1.799E+00	3.557E-01	2.622E-01	0.000E+00
TH-228	1.552E+00	1.910E-01	1.274E-01	0.000E+00
TH-230	1.317E+00	2.139E-01	1.236E-01	0.000E+00
TH-232	1.799E+00	3.557E-01	2.622E-01	0.000E+00
TH-234	2.187E+00	1.087E+00	9.588E-01	0.000E+00
U-234	1.317E+00	2.139E-01	1.236E-01	0.000E+00
NP-237	1.201E+00	3.545E-01	2.726E-01	0.000E+00
U-238	2.187E+00	1.087E+00	9.588E-01	0.000E+00
AM-243	4.000E-01	6.057E-02	5.648E-02	0.000E+00
ANH-511	1.175E-01	8.900E-02	5.320E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	-1.615E-01	3.474E-01	5.860E-01	0.000E+00	NOT IDENT.
NA-22	-4.541E-02	5.312E-02	8.500E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	6.853E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-3.340E-03	3.189E-02	5.301E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.051E-02	5.252E-02	0.000E+00	FAIL ABUN
SC-46	-7.183E-03	4.719E-02	7.930E-02	0.000E+00	FAIL ABUN
V-48	-6.463E-02	8.568E-02	1.366E-01	0.000E+00	NOT IDENT.
CR-51	1.634E-02	3.710E-01	6.299E-01	0.000E+00	NOT IDENT.
MN-52	-5.802E-02	2.662E-01	4.367E-01	0.000E+00	NOT IDENT.
MN-54	-3.442E-03	4.375E-02	7.436E-02	0.000E+00	NOT IDENT.
CO-56	-1.332E-02	4.694E-02	7.869E-02	0.000E+00	NOT IDENT.
CO-57	1.465E-02	2.356E-02	4.097E-02	0.000E+00	NOT IDENT.
CO-58	9.068E-03	4.705E-02	8.139E-02	0.000E+00	NOT IDENT.
FE-59	-3.635E-02	1.102E-01	1.786E-01	0.000E+00	NOT IDENT.
CO-60	2.442E-02	5.033E-02	8.319E-02	0.000E+00	NOT IDENT.
ZN-65	5.603E-02	1.321E-01	1.937E-01	0.000E+00	NOT IDENT.
GE-68	2.968E-01	1.544E+00	2.596E+00	0.000E+00	NOT IDENT.
AS-74	7.884E-02	1.066E-01	1.863E-01	0.000E+00	NOT IDENT.
SE-75	-7.840E-03	4.700E-02	7.055E-02	0.000E+00	NOT IDENT.
BR-77	1.104E+01	1.068E+01	1.916E+01	0.000E+00	FAIL ABUN
SR-82	-1.368E-01	4.322E-01	7.301E-01	0.000E+00	NOT IDENT.
RB-83	9.869E-02	7.642E-02	1.356E-01	0.000E+00	NOT IDENT.
RB-84	1.613E-02	8.314E-02	1.427E-01	0.000E+00	NOT IDENT.
KR-85	1.098E+01	8.748E+00	1.402E+01	0.000E+00	NOT IDENT.
SR-85	5.614E-02	4.475E-02	7.170E-02	0.000E+00	NOT IDENT.
RB-86	2.250E-01	9.531E-01	1.608E+00	0.000E+00	NOT IDENT.
Y-88	-1.227E-02	3.678E-02	5.909E-02	0.000E+00	NOT IDENT.
ZR-88	-2.908E-02	3.272E-02	5.190E-02	0.000E+00	NOT IDENT.
Y-91	7.493E+00	2.140E+01	3.722E+01	0.000E+00	NOT IDENT.
NB-94	2.571E-02	4.078E-02	6.990E-02	0.000E+00	NOT IDENT.
NB-95	0.000E+00	5.086E-02	9.438E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	1.394E-01	2.296E-01	0.000E+00	NOT IDENT.
ZR-95	7.060E-02	8.413E-02	1.452E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.050E+05	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.962E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	5.081E+00	1.349E+01	2.273E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	2.018E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-1.015E-02	3.329E-02	5.559E-02	0.000E+00	NOT IDENT.
RH-102	-1.010E-02	3.195E-02	5.155E-02	0.000E+00	NOT IDENT.
RU-103	2.630E-03	4.411E-02	7.602E-02	0.000E+00	FAIL ABUN
RH-106	1.699E-01	3.833E-01	6.583E-01	0.000E+00	FAIL ABUN
RU-106	1.699E-01	3.829E-01	6.583E-01	0.000E+00	FAIL ABUN
AG-108M	-1.412E-02	3.517E-02	6.013E-02	0.000E+00	NOT IDENT.
AG-110M	4.561E-02	4.618E-02	7.165E-02	0.000E+00	NOT IDENT.
IN-111	4.289E-01	1.048E+00	1.632E+00	0.000E+00	NOT IDENT.
IN-113M	-4.994E-02	4.704E-02	7.387E-02	0.000E+00	NOT IDENT.
SN-113	-4.994E-02	4.704E-02	7.387E-02	0.000E+00	NOT IDENT.
IN-114M	8.736E-02	1.959E-01	2.928E-01	0.000E+00	NOT IDENT.
CD-115	-1.442E+00	1.089E+01	1.849E+01	0.000E+00	NOT IDENT.
SN-117M	1.605E-02	5.151E-02	8.716E-02	0.000E+00	NOT IDENT.
SB-122	9.261E-01	2.297E+00	3.973E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.134E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	5.242E-03	2.692E-02	4.538E-02	0.000E+00	NOT IDENT.
I-124	-1.199E+00	8.909E-01	1.165E+00	0.000E+00	NOT IDENT.
SB-124	-7.813E-02	8.582E-02	1.230E-01	0.000E+00	FAIL ABUN
SB-125	-5.818E-04	9.997E-02	1.742E-01	0.000E+00	FAIL ABUN
TE-125M	4.816E+00	8.201E+00	1.436E+01	0.000E+00	NOT IDENT.
I-126	1.140E-02	2.459E-01	3.556E-01	0.000E+00	NOT IDENT.
SB-126	7.070E-03	1.884E-01	2.829E-01	0.000E+00	FAIL ABUN
SB-127	-1.063E-01	1.563E+00	2.591E+00	0.000E+00	NOT IDENT.
XE-127	-4.530E-02	4.350E-02	7.396E-02	0.000E+00	NOT IDENT.
I-131	-4.245E-04	1.162E-01	1.946E-01	0.000E+00	NOT IDENT.
TE-132	-1.191E-01	6.100E-01	1.057E+00	0.000E+00	NOT IDENT.
BA-133	-2.296E-02	5.506E-02	7.761E-02	0.000E+00	FAIL ABUN
I-133	0.000E+00	5.606E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	9.105E-02	5.641E-02	1.036E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.753E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-5.314E-02	1.312E-01	2.129E-01	0.000E+00	FAIL ABUN
CE-139	2.175E-02	2.880E-02	4.924E-02	0.000E+00	NOT IDENT.
BA-140	-7.745E-02	2.881E-01	4.829E-01	0.000E+00	NOT IDENT.
LA-140	1.926E-02	1.016E-01	1.712E-01	0.000E+00	FAIL ABUN
CE-141	-1.839E-02	6.020E-02	1.005E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	2.207E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	-1.068E-01	2.022E-01	3.191E-01	0.000E+00	NOT IDENT.
PM-144	-1.833E-03	4.189E-02	6.944E-02	0.000E+00	NOT IDENT.
PR-144	-1.242E-01	2.838E+00	4.705E+00	0.000E+00	NOT IDENT.
PM-146	3.160E-03	4.742E-02	8.244E-02	0.000E+00	NOT IDENT.
ND-147	5.902E-01	6.113E-01	1.085E+00	0.000E+00	FAIL ABUN
PM-149	6.200E+01	8.617E+01	1.508E+02	0.000E+00	NOT IDENT.
EU-152	2.643E-02	1.185E-01	1.649E-01	0.000E+00	NOT IDENT.
GD-153	-3.830E-02	7.151E-02	1.052E-01	0.000E+00	FAIL ABUN
EU-154	-1.287E-01	1.486E-01	2.370E-01	0.000E+00	NOT IDENT.
EU-155	2.016E-02	9.676E-02	1.629E-01	0.000E+00	FAIL ABUN
TB-160	1.499E-01	1.691E-01	3.011E-01	0.000E+00	FAIL ABUN
HO-166M	-8.689E-03	7.149E-02	1.177E-01	0.000E+00	FAIL ABUN
TM-171	7.700E+00	1.500E+01	2.443E+01	0.000E+00	FAIL ABUN
LU-176	7.218E-03	2.597E-02	4.242E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.699E+00	1.931E+00	0.000E+00	FAIL ABUN
LU-177M	-4.426E-02	1.937E-01	3.166E-01	0.000E+00	FAIL ABUN
HF-181	1.608E-02	4.692E-02	8.213E-02	0.000E+00	NOT IDENT.
W-181	-1.050E-02	1.854E-01	2.977E-01	0.000E+00	NOT IDENT.
TA-182	-1.079E-02	2.333E-01	3.964E-01	0.000E+00	NOT IDENT.
RE-183	-7.922E-02	1.117E-01	1.712E-01	0.000E+00	FAIL ABUN
RE-184	2.697E-01	2.260E-01	4.061E-01	0.000E+00	NOT IDENT.
OS-185	2.010E-02	4.849E-02	8.309E-02	0.000E+00	NOT IDENT.
RE-188	-2.717E-03	1.668E-01	2.797E-01	0.000E+00	NOT IDENT.
W-188	-3.907E+00	8.472E+00	1.238E+01	0.000E+00	FAIL ABUN
IR-192	-1.331E-02	3.388E-02	5.646E-02	0.000E+00	FAIL ABUN
AU-195	1.448E-01	1.970E-01	3.208E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	4.243E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	1.940E+00	6.474E+00	1.090E+01	0.000E+00	NOT IDENT.
TL-202	-4.221E-02	7.432E-02	1.259E-01	0.000E+00	NOT IDENT.
HG-203	1.142E-02	3.986E-02	6.912E-02	0.000E+00	NOT IDENT.
BI-207	2.132E-02	6.429E-02	1.092E-01	0.000E+00	FAIL ABUN
TL-207	7.579E-02	7.602E-01	1.133E+00	0.000E+00	FAIL ABUN
PO-209	6.087E+00	9.055E+00	1.592E+01	0.000E+00	NOT IDENT.
PB-211	-9.269E-01	1.209E+00	1.699E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	4.452E-01	7.246E-01	0.000E+00	FAIL ABUN
PO-215	7.579E-02	7.602E-01	1.133E+00	0.000E+00	FAIL ABUN
RN-219	-3.984E-02	4.818E-01	7.618E-01	0.000E+00	NOT IDENT.
RN-220	-1.611E+01	2.901E+01	4.789E+01	0.000E+00	NOT IDENT.
RA-223	7.579E-02	7.602E-01	1.133E+00	0.000E+00	FAIL ABUN
AC-227	-6.275E-02	3.693E-01	6.344E-01	0.000E+00	FAIL ABUN
TH-227	-6.275E-02	3.694E-01	6.344E-01	0.000E+00	FAIL ABUN
TH-229	-3.714E-01	4.701E-01	8.102E-01	0.000E+00	FAIL ABUN
PA-231	-8.288E-01	1.543E+00	2.580E+00	0.000E+00	NOT IDENT.
TH-231	7.579E-02	7.602E-01	1.133E+00	0.000E+00	FAIL ABUN
U-231	-2.676E-01	8.430E-01	1.297E+00	0.000E+00	FAIL ABUN
PA-233	-2.673E-02	6.449E-02	1.076E-01	0.000E+00	FAIL ABUN
PA-234	-7.137E-03	3.658E-01	6.156E-01	0.000E+00	FAIL ABUN
PA-234M	2.551E+00	6.355E+00	1.006E+01	0.000E+00	NOT IDENT.
U-235	1.858E-01	2.197E-01	3.604E-01	0.000E+00	FAIL ABUN
NP-236	-2.806E-02	7.546E-02	1.245E-01	0.000E+00	NOT IDENT.
NP-239	-5.510E-02	1.747E-01	2.966E-01	0.000E+00	FAIL ABUN
AM-241	8.766E-02	5.880E-02	9.882E-02	0.000E+00	NOT IDENT.
CM-243	-9.480E-03	8.111E-02	1.399E-01	0.000E+00	FAIL ABUN
AM-246	1.266E-01	1.772E-01	3.072E-01	0.000E+00	NOT IDENT.
CM-247	1.414E-02	4.053E-02	6.831E-02	0.000E+00	NOT IDENT.
CF-249	1.719E-02	4.143E-02	7.032E-02	0.000E+00	NOT IDENT.
CF-251	-5.036E-03	1.282E-01	2.125E-01	0.000E+00	NOT IDENT.

```

*****
*                                     GEL Laboratories LLC                               *
*                                     2040 Savage Road                               *
*                                     Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231005.CNF;2
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:03:24
Sample ID          : G244231005           Sample quantity  : 1.20540E+02 GRAM
Detector name      : GAM13                Detector geometry: CAN
Elapsed live time  : 0 03:00:00.00        Elapsed real time: 0 03:00:02.63  0.0%
Energy tolerance   : 1.50000 keV          Analyst Initials : MXR1
Abundance limit    : 75.00000             Sensitivity       : 5.00000
Batch ID           : 941242               Detector SN#      :
Matrix Spike ID    :                     LCS ID           : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1953	10.67*	1.041E+00	3.650E+01	3.650E+01	8.05
AS-73	53.44	40	10.30*	7.354E+00	1.090E-01	1.240E-01	239.77
CD-109	88.03	528	3.72*	7.249E+00	4.067E+00	4.159E+00	21.95
SN-126	64.28	296	9.60	7.391E+00	8.655E-01	8.655E-01	49.82
	86.94	528	8.90	7.249E+00	1.700E+00	1.700E+00	46.02
	87.57	528	37.00*	7.249E+00	4.089E-01	4.089E-01	21.95
CS-135	268.24	180	16.00*	4.316E+00	5.401E-01	5.401E-01	53.70
BA-137M	661.65	188	89.98*	2.019E+00	2.149E-01	2.151E-01	29.90
CS-137	661.65	188	85.12*	2.019E+00	2.271E-01	2.274E-01	29.90
TL-208	277.35	-----	6.80	4.225E+00	-----	Line Not Found	-----
	510.84	144	21.60	2.535E+00	5.441E-01	5.441E-01	77.71
	583.14	522	84.20*	2.257E+00	5.696E-01	5.696E-01	16.91
	860.37	82	12.46	1.607E+00	8.502E-01	8.502E-01	67.05
BI-210	46.50	223	4.05*	7.296E+00	1.564E+00	1.566E+00	54.11
PB-210	46.50	223	4.05*	7.296E+00	1.564E+00	1.566E+00	54.11
PO-210	46.50	223	4.05*	7.296E+00	1.564E+00	1.566E+00	53.97
BI-211	72.87	-----	1.27	7.369E+00	-----	Line Not Found	-----
	351.07	881	12.94*	3.499E+00	4.042E+00	4.042E+00	13.88
PB-212	74.81	936	10.70	7.359E+00	2.467E+00	2.467E+00	18.06
	77.11	1393	18.00	7.344E+00	2.188E+00	2.188E+00	12.77
	87.30	528	8.00	7.249E+00	1.891E+00	1.891E+00	24.12
	238.63	1549	44.60*	4.717E+00	1.529E+00	1.529E+00	12.56
	300.09	100	3.41	3.983E+00	1.526E+00	1.526E+00	61.63
PO-212	74.81	936	10.70	7.359E+00	2.467E+00	2.467E+00	18.06
	77.11	1393	18.00	7.344E+00	2.188E+00	2.188E+00	12.77
	87.30	528	8.00	7.249E+00	1.891E+00	1.891E+00	24.12
	115.19	-----	0.60	6.822E+00	-----	Line Not Found	-----
	238.63	1549	44.60*	4.717E+00	1.529E+00	1.529E+00	12.56
	300.09	100	3.41	3.983E+00	1.526E+00	1.526E+00	61.63
BI-214	609.31	638	46.30*	2.171E+00	1.317E+00	1.317E+00	16.57
	1120.29	120	15.10	1.288E+00	1.278E+00	1.278E+00	47.88
	1764.49	121	15.80	8.991E-01	1.765E+00	1.765E+00	23.47

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PB-214	74.81	936	6.21	7.359E+00	4.251E+00	4.251E+00	17.13
	77.11	1393	10.50	7.344E+00	3.750E+00	3.750E+00	14.87
	87.30	528	4.67	7.249E+00	3.240E+00	3.240E+00	23.26
	241.98	220	7.49	4.673E+00	1.307E+00	1.307E+00	33.22
	295.21	484	19.20	4.028E+00	1.298E+00	1.298E+00	20.32
PO-214	351.92	881	37.20*	3.499E+00	1.406E+00	1.406E+00	14.83
	74.81	936	6.21	7.359E+00	4.251E+00	4.251E+00	17.13
	77.11	1393	10.50	7.344E+00	3.750E+00	3.750E+00	14.87
	87.30	528	4.67	7.249E+00	3.240E+00	3.240E+00	23.26
	241.98	220	7.49	4.673E+00	1.307E+00	1.307E+00	33.22
PO-216	295.21	484	19.20	4.028E+00	1.298E+00	1.298E+00	20.32
	351.92	881	37.20*	3.499E+00	1.406E+00	1.406E+00	14.83
	74.81	936	10.70	7.359E+00	2.467E+00	2.467E+00	18.06
	77.11	1393	18.00	7.344E+00	2.188E+00	2.188E+00	12.77
	87.30	528	8.00	7.249E+00	1.891E+00	1.891E+00	24.12
PO-218	238.63	1549	44.60*	4.717E+00	1.529E+00	1.529E+00	12.56
	300.09	100	3.41	3.983E+00	1.526E+00	1.526E+00	61.63
	74.81	936	6.21	7.359E+00	4.251E+00	4.251E+00	17.13
	77.11	1393	10.50	7.344E+00	3.750E+00	3.750E+00	14.87
	87.30	528	4.67	7.249E+00	3.240E+00	3.240E+00	23.26
RA-224	241.98	220	7.49	4.673E+00	1.307E+00	1.307E+00	33.22
	295.21	484	19.20	4.028E+00	1.298E+00	1.298E+00	20.32
	351.92	881	37.20*	3.499E+00	1.406E+00	1.406E+00	14.83
	240.98	220	3.95*	4.673E+00	2.478E+00	2.478E+00	32.74
	609.31	638	46.30*	2.171E+00	1.317E+00	1.317E+00	16.57
AC-228	1120.29	120	15.10	1.288E+00	1.278E+00	1.278E+00	47.88
	1764.49	121	15.80	8.991E-01	1.765E+00	1.765E+00	23.47
	338.32	295	11.40	3.614E+00	1.488E+00	1.488E+00	48.62
	911.07	367	27.70*	1.530E+00	1.799E+00	1.799E+00	20.17
	969.11	128	16.60	1.451E+00	1.102E+00	1.102E+00	62.55
RA-228	338.32	295	11.40	3.614E+00	1.488E+00	1.488E+00	48.62
	911.07	367	27.70*	1.530E+00	1.799E+00	1.799E+00	20.17
	969.11	128	16.60	1.451E+00	1.102E+00	1.102E+00	62.55
	74.81	936	10.70	7.359E+00	2.467E+00	2.504E+00	15.49
	77.11	1393	18.00	7.344E+00	2.188E+00	2.220E+00	12.77
TH-228	87.30	528	8.00	7.249E+00	1.891E+00	1.920E+00	21.95
	238.63	1549	44.60*	4.717E+00	1.529E+00	1.552E+00	12.56
	300.09	100	3.41	3.983E+00	1.526E+00	1.549E+00	84.88
	609.31	638	46.30*	2.171E+00	1.317E+00	1.317E+00	16.57
	1120.29	120	15.10	1.288E+00	1.278E+00	1.278E+00	47.88
TH-230	1764.49	121	15.80	8.991E-01	1.765E+00	1.765E+00	23.47
	338.32	295	11.40	3.614E+00	1.488E+00	1.488E+00	27.12
	911.07	367	27.70*	1.530E+00	1.799E+00	1.799E+00	20.17
	969.11	128	16.60	1.451E+00	1.102E+00	1.102E+00	62.55
	63.29	296	3.80*	7.391E+00	2.187E+00	2.187E+00	50.74
TH-234	92.38	520	5.41	7.181E+00	2.779E+00	2.779E+00	31.22
	609.31	638	46.30*	2.171E+00	1.317E+00	1.317E+00	16.57
	1120.29	120	15.10	1.288E+00	1.278E+00	1.278E+00	47.88
	1764.49	121	15.80	8.991E-01	1.765E+00	1.765E+00	23.47



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
NP-237	86.50	528	12.60*	7.249E+00	1.201E+00	1.201E+00	30.12
	95.87	-----	2.60	7.135E+00	-----	Line Not Found	-----
U-238	63.29	296	3.80*	7.391E+00	2.187E+00	2.187E+00	50.74
	92.38	520	5.41	7.181E+00	2.779E+00	2.779E+00	26.87
AM-243	74.67	936	66.00*	7.359E+00	4.000E-01	4.000E-01	15.45
	86.72	528	0.34	7.249E+00	4.503E+01	4.503E+01	21.95
	117.66	-----	0.55	6.778E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.323E+00	-----	Line Not Found	-----
ANH-511	511.00	144	100.00*	2.535E+00	1.175E-01	1.175E-01	77.27

Flag: "\*" = Keyline

Total number of lines in spectrum 33  
Number of unidentified lines 1  
Number of lines tentatively identified by NID 32 96.97%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.650E+01	3.650E+01	0.294E+01	8.05	
AS-73	80.30D	1.14	1.090E-01	1.240E-01	2.974E-01	239.77	
CD-109	464.00D	1.02	4.067E+00	4.159E+00	0.913E+00	21.95	
SN-126	1.00E+05Y	1.00	4.089E-01	4.089E-01	0.897E-01	21.95	
CS-135	2.30E+06Y	1.00	5.401E-01	5.401E-01	2.900E-01	53.70	
BA-137M	30.17Y	1.00	2.149E-01	2.151E-01	0.643E-01	29.90	
CS-137	30.17Y	1.00	2.271E-01	2.274E-01	0.680E-01	29.90	
TL-208	1.41E+10Y	1.00	5.696E-01	5.696E-01	0.963E-01	16.91	
BI-210	22.26Y	1.00	1.564E+00	1.566E+00	0.847E+00	54.11	
PB-210	22.26Y	1.00	1.564E+00	1.566E+00	0.847E+00	54.11	
PO-210	22.26Y	1.00	1.564E+00	1.566E+00	0.845E+00	53.97	
BI-211	7.04E+08Y	1.00	4.042E+00	4.042E+00	0.561E+00	13.88	
PB-212	1.41E+10Y	1.00	1.529E+00	1.529E+00	0.192E+00	12.56	
PO-212	1.41E+10Y	1.00	1.529E+00	1.529E+00	0.192E+00	12.56	
BI-214	1600.00Y	1.00	1.317E+00	1.317E+00	0.218E+00	16.57	
PB-214	1600.00Y	1.00	1.406E+00	1.406E+00	0.209E+00	14.83	
PO-214	1600.00Y	1.00	1.406E+00	1.406E+00	0.209E+00	14.83	
PO-216	1.41E+10Y	1.00	1.529E+00	1.529E+00	0.192E+00	12.56	
PO-218	1600.00Y	1.00	1.406E+00	1.406E+00	0.209E+00	14.83	
RA-224	1.41E+10Y	1.00	2.478E+00	2.478E+00	0.811E+00	32.74	
RA-226	1600.00Y	1.00	1.317E+00	1.317E+00	0.218E+00	16.57	
AC-228	1.41E+10Y	1.00	1.799E+00	1.799E+00	0.363E+00	20.17	
RA-228	1.41E+10Y	1.00	1.799E+00	1.799E+00	0.363E+00	20.17	
TH-228	1.91Y	1.01	1.529E+00	1.552E+00	0.195E+00	12.56	
TH-230	4.47E+09Y	1.00	1.317E+00	1.317E+00	0.218E+00	16.57	
TH-232	1.41E+10Y	1.00	1.799E+00	1.799E+00	0.363E+00	20.17	
TH-234	4.47E+09Y	1.00	2.187E+00	2.187E+00	1.109E+00	50.74	
U-234	4.47E+09Y	1.00	1.317E+00	1.317E+00	0.218E+00	16.57	
NP-237	2.14E+06Y	1.00	1.201E+00	1.201E+00	0.362E+00	30.12	
U-238	4.47E+09Y	1.00	2.187E+00	2.187E+00	1.109E+00	50.74	
AM-243	7380.00Y	1.00	4.000E-01	4.000E-01	0.618E-01	15.45	
ANH-511	1.00E+09Y	1.00	1.175E-01	1.175E-01	0.908E-01	77.27	

Total Activity : 8.094E+01 8.108E+01

Grand Total Activity : 8.094E+01 8.108E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244231005

Page : 5  
Acquisition date : 21-JAN-2010 09:03:24

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	84.12	203	752	1.52	168.02	164	29	1.88E-02	51.5	7.28E+00	T
5	89.81	387	671	1.09	179.39	164	29	3.58E-02	24.7	7.22E+00	T
0	128.81	119	608	1.19	257.42	254	8	1.10E-02	74.3	6.57E+00	T
0	185.62	382	628	1.39	371.07	366	12	3.53E-02	31.1	5.53E+00	T
0	209.48	345	502	1.31	418.79	414	12	3.19E-02	28.2	5.14E+00	T
0	328.21	111	360	2.51	656.32	651	11	1.03E-02	68.8	3.70E+00	T
0	462.62	76	210	0.91	925.21	920	10	7.07E-03	74.6	2.77E+00	T
0	726.95	89	144	0.76	1454.04	1450	9	8.24E-03	53.0	1.86E+00	T
0	1631.49	22	24	4.99	3263.93	3257	14	2.04E-03	****	9.55E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231005.CNF;2
* Acquisition date   : 21-JAN-2010 09:03:24  Detector SN#      :
* Detector ID        : GAM13                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 03:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 03:00:02.63          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244231005           Analyst initials: MXR1
* Batch Number       : 941242               Sample Quantity : 1.20540E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22.03MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A               LCS Isotope       :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.650E+01	2.937E+00	5.918E-01	3.618E-02	61.669
AS-73	1.240E-01	2.974E-01	3.402E-01	2.874E-02	0.365
CD-109	4.159E+00	9.128E-01	9.190E-01	7.252E-02	4.526
SN-126	4.089E-01	8.975E-02	9.024E-02	7.138E-03	4.532
CS-135	5.401E-01	2.900E-01	2.371E-01	2.190E-02	2.278
BA-137M	2.151E-01	6.430E-02	6.845E-02	5.583E-03	3.142
CS-137	2.274E-01	6.799E-02	7.236E-02	5.914E-03	3.142
TL-208	5.696E-01	9.629E-02	6.878E-02	5.694E-03	8.281
BI-210	1.566E+00	8.475E-01	7.351E-01	5.992E-02	2.130
PB-210	1.566E+00	8.475E-01	7.351E-01	5.992E-02	2.130
PO-210	1.566E+00	8.452E-01	7.351E-01	5.241E-02	2.130
BI-211	4.042E+00	5.612E-01	3.546E-01	2.585E-02	11.398
PB-212	1.529E+00	1.920E-01	1.230E-01	1.118E-02	12.424
PO-212	1.529E+00	1.920E-01	1.230E-01	1.118E-02	12.424
BI-214	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
PB-214	1.406E+00	2.085E-01	1.236E-01	1.107E-02	11.371
PO-214	1.406E+00	2.085E-01	1.236E-01	1.107E-02	11.371
PO-216	1.529E+00	1.920E-01	1.230E-01	1.118E-02	12.424

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-218	1.406E+00	2.085E-01	1.236E-01	1.107E-02	11.371
RA-224	2.478E+00	8.113E-01	1.096E+00	8.655E-02	2.260
RA-226	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
AC-228	1.799E+00	3.630E-01	2.613E-01	2.713E-02	6.887
RA-228	1.799E+00	3.630E-01	2.613E-01	2.713E-02	6.887
TH-228	1.552E+00	1.949E-01	1.249E-01	1.135E-02	12.424
TH-230	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
TH-232	1.799E+00	3.630E-01	2.613E-01	2.713E-02	6.887
TH-234	2.187E+00	1.109E+00	9.258E-01	1.699E-01	2.362
U-234	1.317E+00	2.183E-01	1.225E-01	1.146E-02	10.750
NP-237	1.201E+00	3.617E-01	2.642E-01	5.843E-02	4.546
U-238	2.187E+00	1.109E+00	9.258E-01	1.699E-01	2.362
AM-243	4.000E-01	6.180E-02	5.464E-02	4.720E-03	7.321
ANH-511	1.175E-01	9.081E-02	5.265E-02	3.674E-03	2.232

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.615E-01		3.545E-01	5.794E-01	4.356E-02	-0.279
NA-22	-4.541E-02		5.420E-02	8.505E-02	4.801E-03	-0.534
NA-24	-1.099E-01		3.497E-01	Half-Life too short		
AL-26	-3.340E-03		3.255E-02	5.327E-02	3.006E-03	-0.063
TI-44	4.037E-01	+	5.155E-02	5.083E-02	4.281E-03	7.942
SC-46	-7.183E-03		4.816E-02	7.900E-02	5.982E-03	-0.091
V-48	-6.463E-02		8.743E-02	1.362E-01	9.638E-03	-0.474
CR-51	1.634E-02		3.785E-01	6.198E-01	4.824E-02	0.026
MN-52	-5.802E-02		2.716E-01	4.375E-01	2.514E-02	-0.133
MN-54	-3.442E-03		4.464E-02	7.402E-02	5.808E-03	-0.046
CO-56	-1.332E-02		4.790E-02	7.834E-02	6.106E-03	-0.170
CO-57	1.465E-02		2.404E-02	3.986E-02	5.041E-03	0.368
CO-58	9.068E-03		4.801E-02	8.099E-02	6.450E-03	0.112
FE-59	-3.635E-02		1.124E-01	1.784E-01	1.274E-02	-0.204
CO-60	2.442E-02		5.136E-02	8.328E-02	4.737E-03	0.293
ZN-65	5.603E-02		1.348E-01	1.935E-01	1.175E-02	0.290
GE-68	2.968E-01		1.575E+00	2.592E+00	1.657E-01	0.115
AS-74	7.884E-02		1.087E-01	1.847E-01	1.418E-02	0.427
SE-75	-7.840E-03		4.795E-02	6.927E-02	5.426E-03	-0.113
BR-77	1.104E+01		1.090E+01	1.896E+01	1.340E+00	0.582
SR-82	-1.368E-01		4.411E-01	7.261E-01	5.844E-02	-0.188
RB-83	9.869E-02		7.798E-02	1.342E-01	9.476E-03	0.735
RB-84	1.613E-02		8.483E-02	1.422E-01	1.083E-02	0.113
KR-85	1.098E+01		8.927E+00	1.387E+01	9.716E-01	0.791
SR-85	5.614E-02		4.567E-02	7.095E-02	4.970E-03	0.791
RB-86	2.250E-01		9.726E-01	1.605E+00	1.027E-01	0.140
Y-88	-1.227E-02		3.753E-02	5.939E-02	3.344E-03	-0.207
ZR-88	-2.908E-02		3.338E-02	5.119E-02	2.998E-03	-0.568
Y-91	7.493E+00		2.184E+01	3.721E+01	2.063E+00	0.201

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-94	2.571E-02		4.161E-02	6.944E-02	5.668E-03	0.370
NB-95	9.813E-02		5.190E-02	9.385E-02	7.579E-03	1.046
NB-95M	4.008E-01		1.423E-01	2.251E-01	2.082E-02	1.780
ZR-95	7.060E-02		8.585E-02	1.444E-01	1.302E-02	0.489
NB-97	1.248E-01		5.358E-02	Half-Life too short		
ZR-97	2.823E+00		1.001E+00	Half-Life too short		
MO-99	5.081E+00		1.377E+01	2.260E+01	3.369E+00	0.225
TC-99M	-1.215E+10		1.030E+10	Half-Life too short		
RH-101	-1.015E-02		3.397E-02	5.439E-02	4.307E-03	-0.187
RH-102	-1.010E-02		3.260E-02	5.097E-02	3.392E-03	-0.198
RU-103	2.630E-03		4.501E-02	7.520E-02	9.898E-03	0.035
RH-106	1.699E-01		3.911E-01	6.529E-01	8.416E-02	0.260
RU-106	1.699E-01		3.908E-01	6.529E-01	5.141E-02	0.260
AG-108M	-1.412E-02		3.589E-02	5.938E-02	3.995E-03	-0.238
AG-110M	4.561E-02		4.712E-02	7.112E-02	5.974E-03	0.641
IN-111	4.289E-01		1.069E+00	1.601E+00	1.262E-01	0.268
IN-113M	-4.994E-02		4.800E-02	7.286E-02	4.540E-03	-0.685
SN-113	-4.994E-02		4.800E-02	7.286E-02	4.540E-03	-0.685
IN-114M	8.736E-02		1.999E-01	2.864E-01	2.263E-02	0.305
CD-115	-1.442E+00		1.112E+01	1.830E+01	1.304E+00	-0.079
SN-117M	1.605E-02		5.256E-02	8.506E-02	7.428E-03	0.189
SB-122	9.261E-01		2.344E+00	3.936E+00	2.923E-01	0.235
I-123	8.049E-01		2.109E+00	Half-Life too short		
TE-123M	5.242E-03		2.747E-02	4.428E-02	3.867E-03	0.118
I-124	-1.199E+00		9.091E-01	1.155E+00	8.927E-02	-1.039
SB-124	-7.813E-02		8.757E-02	1.235E-01	7.692E-03	-0.633
SB-125	-5.818E-04		1.020E-01	1.720E-01	1.107E-02	-0.003
TE-125M	4.816E+00		8.368E+00	1.395E+01	1.695E+00	0.345
I-126	1.140E-02		2.509E-01	3.531E-01	2.881E-02	0.032
SB-126	7.070E-03		1.922E-01	2.811E-01	2.291E-02	0.025
SB-127	-1.063E-01		1.595E+00	2.573E+00	2.824E-01	-0.041
XE-127	-4.530E-02		4.439E-02	7.239E-02	5.737E-03	-0.626
I-131	-4.245E-04		1.186E-01	1.918E-01	1.358E-02	-0.002
TE-132	-1.191E-01		6.224E-01	1.036E+00	1.586E-01	-0.115
BA-133	-2.296E-02		5.618E-02	7.647E-02	9.180E-03	-0.300
I-133	6.506E-04		2.860E-03	Half-Life too short		
CS-134	9.105E-02		5.756E-02	1.031E-01	8.311E-03	0.883
I-135	-2.806E+09		1.915E+09	Half-Life too short		
CS-136	-5.314E-02		1.339E-01	2.125E-01	1.508E-02	-0.250
CE-139	2.175E-02		2.939E-02	4.808E-02	3.769E-03	0.452
BA-140	-7.745E-02		2.940E-01	4.782E-01	1.569E-01	-0.162
LA-140	1.926E-02		1.037E-01	1.718E-01	9.900E-03	0.112
CE-141	-1.839E-02		6.142E-02	9.794E-02	1.016E-02	-0.188
CE-143	7.406E-04		1.126E-04	Half-Life too short		
CE-144	-1.068E-01		2.063E-01	3.108E-01	5.387E-02	-0.344
PM-144	-1.833E-03		4.274E-02	6.897E-02	5.633E-03	-0.027
PR-144	-1.242E-01		2.896E+00	4.673E+00	3.815E-01	-0.027
PM-146	3.160E-03		4.839E-02	8.146E-02	7.394E-03	0.039

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	5.902E-01		6.238E-01	1.074E+00	1.520E-01	0.550
PM-149	6.200E+01		8.793E+01	1.482E+02	2.225E+01	0.418
EU-152	2.643E-02		1.209E-01	1.624E-01	1.217E-02	0.163
GD-153	-3.830E-02		7.297E-02	1.021E-01	9.290E-03	-0.375
EU-154	-1.287E-01		1.516E-01	2.372E-01	2.191E-02	-0.543
EU-155	2.016E-02		9.874E-02	1.582E-01	1.623E-02	0.127
TB-160	1.499E-01		1.726E-01	2.999E-01	2.288E-02	0.500
HO-166M	-8.689E-03		7.295E-02	1.169E-01	9.535E-03	-0.074
TM-171	7.700E+00		1.530E+01	2.361E+01	2.154E+00	0.326
LU-176	7.218E-03		2.650E-02	4.172E-02	3.093E-03	0.173
LU-177	5.918E+00	+	1.733E+00	1.891E+00	1.499E-01	3.130
LU-177M	-4.426E-02		1.976E-01	3.125E-01	1.895E-02	-0.142
HF-181	1.608E-02		4.788E-02	8.121E-02	5.456E-03	0.198
W-181	-1.050E-02		1.892E-01	2.875E-01	2.652E-02	-0.037
TA-182	-1.079E-02		2.380E-01	3.964E-01	2.206E-02	-0.027
RE-183	-7.922E-02		1.140E-01	1.671E-01	1.383E-02	-0.474
RE-184	2.697E-01		2.306E-01	3.985E-01	3.128E-02	0.677
OS-185	2.010E-02		4.948E-02	8.245E-02	6.636E-03	0.244
RE-188	-2.717E-03		1.702E-01	2.729E-01	2.497E-02	-0.010
W-188	-3.907E+00		8.645E+00	1.217E+01	9.236E-01	-0.321
IR-192	-1.331E-02		3.457E-02	5.555E-02	4.063E-03	-0.240
AU-195	1.448E-01		2.010E-01	3.114E-01	2.894E-02	0.465
TL-200	2.383E-04		2.165E-04	Half-Life too short		
TL-201	1.940E+00		6.606E+00	1.065E+01	8.343E-01	0.182
TL-202	-4.221E-02		7.583E-02	1.244E-01	7.860E-03	-0.339
HG-203	1.142E-02		4.068E-02	6.790E-02	5.406E-03	0.168
BI-207	2.132E-02		6.560E-02	1.090E-01	7.090E-03	0.196
TL-207	7.579E-02		7.757E-01	1.116E+00	1.902E-01	0.068
PO-209	6.087E+00		9.240E+00	1.586E+01	1.194E+00	0.384
PB-211	-9.269E-01		1.234E+00	1.677E+00	1.045E+00	-0.553
BI-212	8.428E-01	+	4.543E-01	7.201E-01	6.912E-02	1.171
PO-215	7.579E-02		7.757E-01	1.116E+00	1.902E-01	0.068
RN-219	-3.984E-02		4.916E-01	7.516E-01	1.027E-01	-0.053
RN-220	-1.611E+01		2.960E+01	4.743E+01	3.468E+00	-0.340
RA-223	7.579E-02		7.757E-01	1.116E+00	1.902E-01	0.068
AC-227	-6.275E-02		3.769E-01	6.226E-01	9.290E-02	-0.101
TH-227	-6.275E-02		3.769E-01	6.226E-01	1.102E-01	-0.101
TH-229	-3.714E-01		4.797E-01	7.926E-01	6.270E-02	-0.469
PA-231	-8.288E-01		1.574E+00	2.535E+00	3.716E-01	-0.327
TH-231	7.579E-02		7.757E-01	1.116E+00	1.902E-01	0.068
U-231	-2.676E-01		8.602E-01	1.259E+00	1.120E-01	-0.213
PA-233	-2.673E-02		6.580E-02	1.058E-01	8.081E-03	-0.253
PA-234	-7.137E-03		3.733E-01	6.138E-01	1.117E-01	-0.012
PA-234M	2.551E+00		6.485E+00	1.004E+01	8.603E-01	0.254
U-235	1.858E-01		2.242E-01	3.513E-01	6.485E-02	0.529
NP-236	-2.806E-02		7.700E-02	1.215E-01	1.036E-02	-0.231
NP-239	-5.510E-02		1.783E-01	2.884E-01	3.423E-02	-0.191
AM-241	8.766E-02		6.000E-02	9.535E-02	9.697E-03	0.919

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	-9.480E-03		8.277E-02	1.359E-01	1.353E-02	-0.070
AM-246	1.266E-01		1.808E-01	3.067E-01	1.957E-02	0.413
CM-247	1.414E-02		4.136E-02	6.740E-02	4.013E-03	0.210
CF-249	1.719E-02		4.227E-02	6.935E-02	4.118E-03	0.248
CF-251	-5.036E-03		1.309E-01	2.076E-01	1.633E-02	-0.024



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244231005          *
* Acquisition date   : 21-JAN-2010 09:03:24 Detector SN#      :          *
* Detector ID        : GAM13 Sensitivity      : 5.000              *
* Geometry           : CAN Energy tolerance: 1.500              *
* Elapsed live time  : 0 03:00:00.00 Abundance limit : 75.000      *
* Elapsed real time  : 0 03:00:02.63 Half life ratio : 8.000      *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID      *
* Sample ID          : G244231005 Analyst initials: MXR1           *
* Batch Number       : 941242 Sample Quantity : 1.2054E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000            *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope          :          *
* MSD DPM             : 0.000 MSD Isotope                      :          *
* LCS DPM             : 0.000 LCS Isotope                      :          *
* LCSD DPM            : 0.000 LCSD Isotope                     :          *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.650E+01	2.879E+00	2.954E-01	1.469E+00
AS-73	1.240E-01	2.915E-01	1.766E-01	1.487E-01
CD-109	4.159E+00	8.946E-01	4.744E-01	4.564E-01
SN-126	4.089E-01	8.795E-02	4.658E-02	4.487E-02
CS-135	5.401E-01	2.842E-01	1.208E-01	1.450E-01
BA-137M	2.151E-01	6.302E-02	3.450E-02	3.215E-02
CS-137	2.274E-01	6.663E-02	3.647E-02	3.399E-02
TL-208	5.696E-01	9.437E-02	3.472E-02	4.815E-02
BI-210	1.566E+00	8.305E-01	3.822E-01	4.237E-01
PB-210	1.566E+00	8.305E-01	3.822E-01	4.237E-01
PO-210	1.566E+00	8.283E-01	3.822E-01	4.226E-01
BI-211	4.042E+00	5.500E-01	1.801E-01	2.806E-01
PB-212	1.529E+00	1.882E-01	6.278E-02	9.602E-02
PO-212	1.529E+00	1.882E-01	6.278E-02	9.602E-02
BI-214	1.317E+00	2.139E-01	6.183E-02	1.091E-01
PB-214	1.406E+00	2.044E-01	6.280E-02	1.043E-01
PO-214	1.406E+00	2.044E-01	6.280E-02	1.043E-01
PO-216	1.529E+00	1.882E-01	6.278E-02	9.602E-02
PO-218	1.406E+00	2.044E-01	6.280E-02	1.043E-01
RA-224	2.478E+00	7.950E-01	5.593E-01	4.056E-01
RA-226	1.317E+00	2.139E-01	6.183E-02	1.091E-01
AC-228	1.799E+00	3.557E-01	1.312E-01	1.815E-01
RA-228	1.799E+00	3.557E-01	1.312E-01	1.815E-01
TH-228	1.552E+00	1.910E-01	6.372E-02	9.746E-02
TH-230	1.317E+00	2.139E-01	6.182E-02	1.091E-01
TH-232	1.799E+00	3.557E-01	1.312E-01	1.815E-01
TH-234	2.187E+00	1.087E+00	4.797E-01	5.547E-01
U-234	1.317E+00	2.139E-01	6.182E-02	1.091E-01
NP-237	1.201E+00	3.545E-01	1.364E-01	1.809E-01
U-238	2.187E+00	1.087E+00	4.797E-01	5.547E-01
AM-243	4.000E-01	6.057E-02	2.826E-02	3.090E-02
ANH-511	1.175E-01	8.900E-02	2.662E-02	4.541E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	-1.615E-01	3.474E-01	2.932E-01	1.773E-01 NOT IDENT.
NA-22	-4.541E-02	5.312E-02	4.253E-02	2.710E-02 NOT IDENT.
NA-24	-1.099E+05	6.853E+05	0.000E+00	3.497E+05 SHORT HLIF
AL-26	-3.340E-03	3.189E-02	2.652E-02	1.627E-02 NOT IDENT.
TI-44	4.037E-01	5.051E-02	2.627E-02	2.577E-02 FAIL ABUN
SC-46	-7.183E-03	4.719E-02	3.968E-02	2.408E-02 FAIL ABUN
V-48	-6.463E-02	8.568E-02	6.834E-02	4.371E-02 NOT IDENT.
CR-51	1.634E-02	3.710E-01	3.151E-01	1.893E-01 NOT IDENT.
MN-52	-5.802E-02	2.662E-01	2.185E-01	1.358E-01 NOT IDENT.
MN-54	-3.442E-03	4.375E-02	3.720E-02	2.232E-02 NOT IDENT.
CO-56	-1.332E-02	4.694E-02	3.937E-02	2.395E-02 NOT IDENT.
CO-57	1.465E-02	2.356E-02	2.050E-02	1.202E-02 NOT IDENT.
CO-58	9.068E-03	4.705E-02	4.072E-02	2.400E-02 NOT IDENT.
FE-59	-3.635E-02	1.102E-01	8.936E-02	5.621E-02 NOT IDENT.
CO-60	2.442E-02	5.033E-02	4.162E-02	2.568E-02 NOT IDENT.
ZN-65	5.603E-02	1.321E-01	9.689E-02	6.738E-02 NOT IDENT.
GE-68	2.968E-01	1.544E+00	1.299E+00	7.875E-01 NOT IDENT.
AS-74	7.884E-02	1.066E-01	9.321E-02	5.437E-02 NOT IDENT.
SE-75	-7.840E-03	4.700E-02	3.530E-02	2.398E-02 NOT IDENT.
BR-77	1.104E+01	1.068E+01	9.586E+00	5.451E+00 FAIL ABUN
SR-82	-1.368E-01	4.322E-01	3.653E-01	2.205E-01 NOT IDENT.
RB-83	9.869E-02	7.642E-02	6.783E-02	3.899E-02 NOT IDENT.
RB-84	1.613E-02	8.314E-02	7.141E-02	4.242E-02 NOT IDENT.
KR-85	1.098E+01	8.748E+00	7.012E+00	4.463E+00 NOT IDENT.
SR-85	5.614E-02	4.475E-02	3.587E-02	2.283E-02 NOT IDENT.
RB-86	2.250E-01	9.531E-01	8.044E-01	4.863E-01 NOT IDENT.
Y-88	-1.227E-02	3.678E-02	2.956E-02	1.876E-02 NOT IDENT.
ZR-88	-2.908E-02	3.272E-02	2.596E-02	1.669E-02 NOT IDENT.
Y-91	7.493E+00	2.140E+01	1.862E+01	1.092E+01 NOT IDENT.
NB-94	2.571E-02	4.078E-02	3.497E-02	2.080E-02 NOT IDENT.
NB-95	9.813E-02	5.086E-02	4.722E-02	2.595E-02 NOT IDENT.
NB-95M	4.008E-01	1.394E-01	1.149E-01	7.114E-02 NOT IDENT.
ZR-95	7.060E-02	8.413E-02	7.265E-02	4.292E-02 NOT IDENT.
NB-97	1.248E+05	1.050E+05	0.000E+00	5.358E+04 SHORT HLIF
ZR-97	2.823E+06	1.962E+06	0.000E+00	1.001E+06 SHORT HLIF
MO-99	5.081E+00	1.349E+01	1.137E+01	6.883E+00 NOT IDENT.
TC-99M	-1.215E+16	2.018E+16	0.000E+00	0.000E+00 SHORT HLIF
RH-101	-1.015E-02	3.329E-02	2.781E-02	1.698E-02 NOT IDENT.
RH-102	-1.010E-02	3.195E-02	2.579E-02	1.630E-02 NOT IDENT.
RU-103	2.630E-03	4.411E-02	3.803E-02	2.250E-02 FAIL ABUN
RH-106	1.699E-01	3.833E-01	3.293E-01	1.956E-01 FAIL ABUN
RU-106	1.699E-01	3.829E-01	3.293E-01	1.954E-01 FAIL ABUN
AG-108M	-1.412E-02	3.517E-02	3.008E-02	1.794E-02 NOT IDENT.
AG-110M	4.561E-02	4.618E-02	3.585E-02	2.356E-02 NOT IDENT.
IN-111	4.289E-01	1.048E+00	8.166E-01	5.345E-01 NOT IDENT.
IN-113M	-4.994E-02	4.704E-02	3.695E-02	2.400E-02 NOT IDENT.
SN-113	-4.994E-02	4.704E-02	3.695E-02	2.400E-02 NOT IDENT.
IN-114M	8.736E-02	1.959E-01	1.465E-01	9.993E-02 NOT IDENT.
CD-115	-1.442E+00	1.089E+01	9.249E+00	5.558E+00 NOT IDENT.
SN-117M	1.605E-02	5.151E-02	4.361E-02	2.628E-02 NOT IDENT.
SB-122	9.261E-01	2.297E+00	1.988E+00	1.172E+00 NOT IDENT.
I-123	8.049E+05	4.134E+06	0.000E+00	2.109E+06 SHORT HLIF
TE-123M	5.242E-03	2.692E-02	2.270E-02	1.374E-02 NOT IDENT.
I-124	-1.199E+00	8.909E-01	5.826E-01	4.546E-01 NOT IDENT.
SB-124	-7.813E-02	8.582E-02	6.154E-02	4.379E-02 FAIL ABUN
SB-125	-5.818E-04	9.997E-02	8.715E-02	5.100E-02 FAIL ABUN
TE-125M	4.816E+00	8.201E+00	7.182E+00	4.184E+00 NOT IDENT.
I-126	1.140E-02	2.459E-01	1.779E-01	1.254E-01 NOT IDENT.
SB-126	7.070E-03	1.884E-01	1.415E-01	9.611E-02 FAIL ABUN
SB-127	-1.063E-01	1.563E+00	1.296E+00	7.973E-01 NOT IDENT.
XE-127	-4.530E-02	4.350E-02	3.700E-02	2.220E-02 NOT IDENT.
I-131	-4.245E-04	1.162E-01	9.735E-02	5.931E-02 NOT IDENT.
TE-132	-1.191E-01	6.100E-01	5.291E-01	3.112E-01 NOT IDENT.
BA-133	-2.296E-02	5.506E-02	3.883E-02	2.809E-02 FAIL ABUN
I-133	6.506E+02	5.606E+03	0.000E+00	2.860E+03 SHORT HLIF
CS-134	9.105E-02	5.641E-02	5.185E-02	2.878E-02 NOT IDENT.
I-135	-2.806E+15	3.753E+15	0.000E+00	1.915E+15 SHORT HLIF
CS-136	-5.314E-02	1.312E-01	1.065E-01	6.696E-02 FAIL ABUN
CE-139	2.175E-02	2.880E-02	2.463E-02	1.470E-02 NOT IDENT.
BA-140	-7.745E-02	2.881E-01	2.416E-01	1.470E-01 NOT IDENT.
LA-140	1.926E-02	1.016E-01	8.566E-02	5.186E-02 FAIL ABUN
CE-141	-1.839E-02	6.020E-02	5.026E-02	3.071E-02 NOT IDENT.
CE-143	7.406E+02	2.207E+02	0.000E+00	1.126E+02 SHORT HLIF

CE-144	-1.068E-01	2.022E-01	1.597E-01	1.031E-01	NOT IDENT.
PM-144	-1.833E-03	4.189E-02	3.474E-02	2.137E-02	NOT IDENT.
PR-144	-1.242E-01	2.838E+00	2.354E+00	1.448E+00	NOT IDENT.
PM-146	3.160E-03	4.742E-02	4.125E-02	2.419E-02	NOT IDENT.
ND-147	5.902E-01	6.113E-01	5.427E-01	3.119E-01	FAIL ABUN
PM-149	6.200E+01	8.617E+01	7.543E+01	4.396E+01	NOT IDENT.
EU-152	2.643E-02	1.185E-01	8.250E-02	6.045E-02	NOT IDENT.
GD-153	-3.830E-02	7.151E-02	5.263E-02	3.649E-02	FAIL ABUN
EU-154	-1.287E-01	1.486E-01	1.186E-01	7.579E-02	NOT IDENT.
EU-155	2.016E-02	9.676E-02	8.149E-02	4.937E-02	FAIL ABUN
TB-160	1.499E-01	1.691E-01	1.506E-01	8.628E-02	FAIL ABUN
HO-166M	-8.689E-03	7.149E-02	5.886E-02	3.647E-02	FAIL ABUN
TM-171	7.700E+00	1.500E+01	1.222E+01	7.652E+00	FAIL ABUN
LU-176	7.218E-03	2.597E-02	2.122E-02	1.325E-02	FAIL ABUN
LU-177	5.918E+00	1.699E+00	9.662E-01	8.666E-01	FAIL ABUN
LU-177M	-4.426E-02	1.937E-01	1.584E-01	9.881E-02	FAIL ABUN
HF-181	1.608E-02	4.692E-02	4.109E-02	2.394E-02	NOT IDENT.
W-181	-1.050E-02	1.854E-01	1.489E-01	9.460E-02	NOT IDENT.
TA-182	-1.079E-02	2.333E-01	1.983E-01	1.190E-01	NOT IDENT.
RE-183	-7.922E-02	1.117E-01	8.564E-02	5.701E-02	FAIL ABUN
RE-184	2.697E-01	2.260E-01	2.032E-01	1.153E-01	NOT IDENT.
OS-185	2.010E-02	4.849E-02	4.157E-02	2.474E-02	NOT IDENT.
RE-188	-2.717E-03	1.668E-01	1.399E-01	8.510E-02	NOT IDENT.
W-188	-3.907E+00	8.472E+00	6.196E+00	4.322E+00	FAIL ABUN
IR-192	-1.331E-02	3.388E-02	2.825E-02	1.728E-02	FAIL ABUN
AU-195	1.448E-01	1.970E-01	1.605E-01	1.005E-01	FAIL ABUN
TL-200	2.383E+02	4.243E+02	0.000E+00	2.165E+02	SHORT HLIF
TL-201	1.940E+00	6.474E+00	5.454E+00	3.303E+00	NOT IDENT.
TL-202	-4.221E-02	7.432E-02	6.300E-02	3.792E-02	NOT IDENT.
HG-203	1.142E-02	3.986E-02	3.458E-02	2.034E-02	NOT IDENT.
BI-207	2.132E-02	6.429E-02	5.463E-02	3.280E-02	FAIL ABUN
TL-207	7.579E-02	7.602E-01	5.671E-01	3.878E-01	FAIL ABUN
PO-209	6.087E+00	9.055E+00	7.966E+00	4.620E+00	NOT IDENT.
PB-211	-9.269E-01	1.209E+00	8.500E-01	6.170E-01	NOT IDENT.
BI-212	8.428E-01	4.452E-01	3.625E-01	2.271E-01	FAIL ABUN
PO-215	7.579E-02	7.602E-01	5.671E-01	3.878E-01	FAIL ABUN
RN-219	-3.984E-02	4.818E-01	3.811E-01	2.458E-01	NOT IDENT.
RN-220	-1.611E+01	2.901E+01	2.396E+01	1.480E+01	NOT IDENT.
RA-223	7.579E-02	7.602E-01	5.671E-01	3.878E-01	FAIL ABUN
AC-227	-6.275E-02	3.693E-01	3.174E-01	1.884E-01	FAIL ABUN
TH-227	-6.275E-02	3.694E-01	3.174E-01	1.885E-01	FAIL ABUN
TH-229	-3.714E-01	4.701E-01	4.054E-01	2.399E-01	FAIL ABUN
PA-231	-8.288E-01	1.543E+00	1.291E+00	7.871E-01	NOT IDENT.
TH-231	7.579E-02	7.602E-01	5.671E-01	3.878E-01	FAIL ABUN
U-231	-2.676E-01	8.430E-01	6.491E-01	4.301E-01	FAIL ABUN
PA-233	-2.673E-02	6.449E-02	5.381E-02	3.290E-02	FAIL ABUN
PA-234	-7.137E-03	3.658E-01	3.080E-01	1.866E-01	FAIL ABUN
PA-234M	2.551E+00	6.355E+00	5.034E+00	3.242E+00	NOT IDENT.
U-235	1.858E-01	2.197E-01	1.803E-01	1.121E-01	FAIL ABUN
NP-236	-2.806E-02	7.546E-02	6.229E-02	3.850E-02	NOT IDENT.
NP-239	-5.510E-02	1.747E-01	1.484E-01	8.913E-02	FAIL ABUN
AM-241	8.766E-02	5.880E-02	4.944E-02	3.000E-02	NOT IDENT.
CM-243	-9.480E-03	8.111E-02	7.001E-02	4.138E-02	FAIL ABUN
AM-246	1.266E-01	1.772E-01	1.537E-01	9.040E-02	NOT IDENT.
CM-247	1.414E-02	4.053E-02	3.417E-02	2.068E-02	NOT IDENT.
CF-249	1.719E-02	4.143E-02	3.518E-02	2.114E-02	NOT IDENT.
CF-251	-5.036E-03	1.282E-01	1.063E-01	6.543E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	505.1760
46.50	505.1760
46.50	505.1760
48.70	551.2454
49.72	465.5049
51.35	530.6517
52.39	527.7673
52.97	549.7927
53.15	550.1810
53.44	550.8046
54.07	545.3266
56.28	657.0823
56.28	657.0901
57.37	0.0000
57.53	650.5623
57.53	650.5680
57.60	615.4438
57.98	614.9213
57.98	614.9213
59.32	573.1145
59.32	573.1145
59.40	573.2803
59.54	573.5700
59.72	602.7060
60.01	603.3356
61.10	687.1437
61.14	687.2415
61.30	687.6306
63.00	724.8033
63.29	725.5308
63.29	725.5308
63.58	726.2582
64.28	795.7571
65.12	782.0457
65.20	782.2573
65.20	782.2573
66.05	781.8270
66.72	748.7466
66.83	749.0281
66.91	749.2243
67.20	739.2124
67.20	739.2124
67.75	784.9059
67.85	785.1688
68.90	798.6616
68.90	798.6616
69.30	775.3809
69.67	756.0288
70.82	787.3224
70.82	787.3224
70.83	787.3489
72.80	751.2775
72.87	751.4412
72.87	751.4412
74.67	755.6374
74.81	755.9604
74.81	755.9604
74.81	755.9604
74.81	755.9604
74.81	755.9604
74.81	755.9604
74.81	755.9604
74.97	756.3339
75.28	757.0473
75.70	758.0166
77.11	761.2476
77.11	761.2476

77.11	761.2476
77.11	761.2476
77.11	761.2476
77.11	761.2476
77.11	761.2476
78.38	779.4130
79.62	705.5710
79.80	705.9417
79.80	705.9417
80.11	664.6866
80.18	664.8246
80.30	623.1383
80.30	623.1383
80.57	665.5764
81.00	708.4047
81.07	708.5494
81.07	708.5494
81.07	708.5494
81.07	708.5494
82.60	717.2925
83.37	620.1868
83.78	620.9119
83.78	620.9119
83.78	620.9119
83.78	620.9119
84.21	621.6638
84.90	622.8656
85.43	623.7854
86.29	625.2725
86.50	625.6351
86.54	625.7022
86.59	625.7895
86.72	626.0110
86.79	626.1285
86.94	626.3904
87.30	627.0081
87.30	627.0081
87.30	627.0081
87.30	627.0081
87.30	627.0081
87.30	627.0081
87.30	627.0081
87.57	627.4713
87.88	628.0017
88.03	628.2568
88.36	628.8208
88.47	629.0088
89.95	631.5164
91.11	633.4702
92.29	635.4440
92.38	635.5951
92.38	635.5951
93.35	637.2064
94.00	638.2806
94.67	639.3784
94.67	639.3884
94.90	639.7644
94.90	639.7644
94.90	639.7644
94.90	639.7644
95.87	511.6269
95.87	511.6269
96.73	560.9590
97.43	526.8246
98.44	481.2145
98.44	481.2145
98.88	482.9200
99.55	483.5291
99.55	483.5291
99.86	502.5495
100.00	509.5971
100.10	509.7265
103.18	546.2247
103.76	522.2154
105.00	528.7394
105.31	529.1290
108.00	554.5129
109.28	523.0352

111.00	603.7224
111.00	603.7224
111.76	557.3148
112.95	533.5109
115.19	547.3859
116.30	526.2933
117.00	527.1043
117.00	527.1043
117.66	523.7761
121.11	508.1179
121.62	493.1952
121.78	493.3629
122.06	479.1986
122.32	481.5295
122.32	481.5295
122.32	481.5295
122.32	481.5295
123.07	487.4700
127.23	485.4570
129.76	502.1417
131.20	478.3476
133.02	499.1089
133.54	507.5537
135.34	482.8358
136.00	468.5849
136.25	468.8137
136.48	457.3255
140.51	533.7856
140.51	0.0000
142.18	547.3107
142.65	500.4436
143.76	456.1975
144.24	484.6719
144.24	484.6719
144.24	484.6719
144.24	484.6719
145.22	537.4662
145.44	519.2969
147.16	524.2081
152.43	499.6731
152.70	496.6254
153.22	465.2639
154.21	468.2819
154.21	468.2819
154.21	468.2819
154.21	468.2819
155.03	494.2864
156.02	500.6635
158.56	438.6519
159.00	0.0000
159.00	440.0947
160.31	454.4250
161.27	459.6297
162.32	449.3083
162.64	451.7853
163.35	451.2122
163.89	460.5704
165.85	430.6914
167.43	444.2022
171.28	449.3025
171.86	429.3398
172.10	418.1730
176.55	457.7170
176.60	471.4521
181.06	488.0170
184.41	433.3649
185.71	413.3914
186.00	413.5766
190.27	405.7805
192.34	415.0649
193.63	457.9300
197.04	460.2434
198.01	465.3185
198.60	420.5645
200.40	418.1153
201.83	470.5756
202.84	465.0218
205.31	360.4597

208.36	425.2254
208.81	381.8295
209.75	382.3320
209.75	382.3320
210.97	382.9838
215.65	407.5306
216.55	406.8203
218.09	390.3850
222.10	413.5390
223.80	389.7152
226.40	380.9361
227.00	383.9987
227.08	384.0401
227.20	368.4387
228.16	376.2806
228.18	375.3677
228.18	375.3677
231.56	0.0000
235.69	350.1534
236.00	350.2911
236.00	350.2911
238.63	717.8730
238.63	717.8730
238.63	717.8730
238.63	717.8730
239.00	718.2070
240.98	440.9982
241.98	462.5752
241.98	462.5752
241.98	462.5752
244.69	314.9491
245.39	321.2524
247.94	374.4586
248.90	363.5361
249.79	347.8173
252.40	300.4305
252.85	306.3019
252.85	306.3019
254.15	0.0000
256.20	340.0038
256.20	340.0038
260.50	334.0611
260.90	320.7697
262.80	305.8078
264.65	305.5851
268.24	289.8044
268.79	291.7361
269.46	291.9566
269.46	291.9566
269.46	291.9566
269.46	291.9566
271.23	292.5491
273.65	378.9222
276.40	318.0459
277.35	299.4631
277.60	307.3785
277.60	307.3785
278.00	306.5381
278.60	300.8634
279.20	320.6782
279.53	334.5272
280.46	352.5525
281.68	330.4065
283.67	331.1345
284.30	333.3325
285.00	306.9426
285.90	295.3866
286.10	295.4505
286.10	295.4505
287.40	312.6923
288.45	0.0000
290.67	338.4235
290.80	324.1712
291.72	313.3579
293.26	0.0000
293.70	296.4875
295.21	314.5267
295.21	314.5267

295.21	314.5267
295.96	247.6670
296.50	247.8070
297.23	248.0000
298.57	248.3519
299.80	277.5476
299.80	277.5476
300.09	279.2368
300.09	279.2368
300.09	279.2368
300.09	279.2368
300.12	279.2454
301.29	265.1279
302.84	299.3528
303.76	288.3622
303.91	281.9611
304.40	301.4508
304.40	301.4508
304.84	306.4260
306.84	262.6184
308.46	262.0431
311.98	285.3220
316.51	267.2491
318.01	258.4549
319.02	265.8755
319.41	261.8867
320.08	267.1769
323.87	276.1992
323.87	276.1992
323.87	276.1992
323.87	276.1992
325.23	268.3372
328.77	272.5682
333.44	253.0584
334.20	262.9315
334.20	262.9315
334.30	262.9586
338.28	255.2731
338.28	255.2731
338.28	255.2731
338.28	255.2731
338.32	255.2843
338.32	255.2843
338.32	255.2843
340.50	245.5790
340.57	245.5969
344.27	238.9067
345.85	214.9156
350.59	0.0000
351.07	277.3266
351.92	277.5433
351.92	277.5433
351.92	277.5433
355.39	0.0000
356.01	252.5288
364.48	228.4199
366.43	218.1259
367.43	220.4592
367.94	0.0000
369.80	242.3700
374.96	243.4700
383.85	210.6097
387.95	215.7045
388.63	210.3781
391.69	250.2661
391.69	250.2661
392.90	249.4272
398.62	244.0252
400.65	255.4421
401.10	251.1336
401.81	246.8730
402.60	234.9026
404.84	285.0535
410.95	213.1904
411.60	273.2929
413.65	240.3600
414.70	213.8350
415.30	222.8516



415.76	225.1633
417.63	0.0000
418.52	223.4253
423.70	224.3439
427.08	248.5609
427.89	234.9860
432.53	234.0295
433.93	231.5688
439.47	231.6509
439.56	237.1175
439.89	237.1780
443.98	220.5975
444.90	220.7512
445.03	220.7718
445.03	220.7718
445.03	220.7718
453.90	216.7357
463.38	192.6702
468.07	202.6113
473.00	206.7484
475.06	186.5356
475.35	197.7666
476.78	216.6476
477.59	210.2316
477.96	189.7252
482.03	198.7112
484.57	212.2143
487.03	181.5406
490.36	0.0000
492.35	179.3821
497.08	189.4434
507.63	0.0000
510.53	0.0000
510.84	191.2280
511.00	191.2488
511.85	191.3599
511.85	191.3599
513.99	188.4406
513.99	188.4406
520.41	151.8264
520.65	159.7628
527.90	174.0674
528.96	0.0000
529.64	183.9465
529.87	0.0000
531.02	157.9500
537.32	188.7616
543.00	208.0026
546.56	0.0000
549.76	185.3640
552.65	163.1023
555.20	165.3340
563.23	177.0466
563.90	192.9481
568.70	210.3955
569.32	193.5956
569.50	193.6194
569.67	193.6384
573.80	177.2047
574.00	177.2265
574.64	179.2881
578.91	169.7676
579.30	0.0000
583.14	183.2189
585.48	188.8207
591.81	200.2729
592.07	200.3020
593.00	202.4280
595.88	172.5113
600.56	193.2196
602.52	0.0000
602.71	231.2767
602.71	231.2767
603.60	221.2651
604.41	185.8801
604.70	185.9115
609.31	162.6875

609.31	162.6875
609.31	162.6875
609.31	162.6875
610.33	162.7852
612.46	181.6597
614.37	152.9663
618.01	178.2647
621.84	172.0564
621.84	172.0564
631.29	144.1494
633.02	181.3926
633.10	181.4012
634.78	150.6231
635.90	174.4628
636.97	171.4671
645.85	147.4013
646.12	145.3457
656.30	133.9792
657.75	142.7926
657.90	0.0000
661.65	165.4333
661.65	165.4333
664.57	0.0000
666.33	173.1976
666.33	173.1976
675.00	169.7850
677.61	145.7288
685.20	162.2189
692.80	158.6071
695.00	165.1794
696.49	179.1727
696.49	179.1727
697.00	180.2887
697.49	180.3341
698.33	168.6696
698.50	176.1544
699.00	181.5422
702.63	165.8341
706.10	172.5601
706.58	0.0000
706.67	156.5258
709.31	171.7656
711.68	158.0035
713.82	162.4762
717.42	146.6051
720.50	160.4035
721.93	0.0000
722.20	160.2840
722.78	176.5444
722.78	176.5444
722.89	180.1554
722.95	180.1636
723.30	180.1920
724.18	182.0762
727.18	166.8208
733.00	169.1682
735.90	159.9307
739.58	148.2287
742.81	155.0144
744.21	145.2902
747.13	159.7160
751.79	149.1152
752.31	149.1518
753.82	139.3837
755.35	146.0760
756.15	130.7518
756.87	139.5884
763.93	167.2666
765.79	143.4983
766.42	174.8277
766.84	174.8625
776.49	148.8510
778.00	151.7314
778.57	158.2495
778.89	166.6040
783.80	125.2414
785.46	125.3375
792.07	152.7323

795.84	136.2067
796.30	140.8989
798.80	208.3230
801.93	146.8777
805.60	147.1236
810.29	138.0488
810.76	141.8359
815.85	144.9860
817.79	135.6914
818.51	126.3093
819.60	116.9387
826.30	139.0477
828.27	0.0000
831.60	146.0105
831.96	138.4493
834.83	151.9173
836.80	0.0000
846.75	143.1702
848.13	129.8878
856.28	0.0000
856.80	118.3259
860.37	134.9660
867.32	136.1029
867.82	128.3004
871.10	136.9674
873.19	139.0195
874.81	121.7267
875.33	0.0000
876.40	119.8752
879.36	118.0907
880.27	124.9136
880.51	124.9268
881.50	124.9766
883.24	142.5199
884.67	135.8158
889.25	132.1899
896.60	121.8719
898.02	143.4052
899.00	151.2694
903.28	127.3753
911.07	131.4292
911.07	131.4292
911.07	131.4292
919.63	120.2553
920.93	131.9581
925.00	125.2714
925.24	132.1898
926.50	137.1901
935.52	137.6906
937.48	161.5906
944.10	128.2231
946.00	128.3176
949.00	127.4766
962.29	166.4718
964.01	185.4743
966.15	177.0349
968.20	162.5537
969.11	122.1749
969.11	122.1749
969.11	122.1749
977.42	115.3495
980.50	104.8527
983.50	135.2568
989.30	116.3360
996.32	145.0482
1001.03	114.8208
1001.68	128.0636
1004.76	150.5985
1021.30	0.0000
1024.50	0.0000
1034.80	129.6504
1036.00	134.8539
1037.82	122.5832
1038.57	113.3435
1038.76	0.0000
1045.16	131.1754
1046.59	133.3094
1048.07	130.2810

1050.47	110.7312
1050.47	110.7312
1062.04	119.5062
1063.62	118.5320
1076.63	116.9948
1077.35	122.2463
1078.86	114.9951
1085.78	113.1812
1099.22	127.4006
1112.02	105.1533
1112.84	106.9951
1115.52	141.5818
1120.29	116.3616
1120.29	116.3616
1120.29	116.3616
1120.29	116.3616
1120.51	114.5522
1121.28	130.9520
1124.00	0.0000
1129.67	124.4839
1131.51	0.0000
1147.95	0.0000
1167.94	149.7971
1173.22	115.5118
1175.09	113.4210
1177.93	161.1014
1189.05	147.8869
1204.90	127.1443
1205.75	0.0000
1213.00	140.5936
1221.42	150.3683
1230.97	204.5576
1235.34	128.3775
1236.41	0.0000
1238.25	161.5649
1246.25	122.1838
1260.41	0.0000
1271.85	92.6020
1274.45	127.0718
1274.54	127.0764
1291.56	109.4872
1298.22	0.0000
1312.09	113.0581
1325.50	99.9249
1325.50	99.9249
1332.49	75.8291
1333.61	82.6610
1360.21	84.2813
1362.66	0.0000
1365.15	60.8474
1368.21	66.7928
1368.53	0.0000
1376.25	49.2257
1384.27	70.0615
1394.10	62.3386
1395.20	64.3380
1407.95	64.5693
1434.06	61.0340
1436.60	58.0728
1457.56	0.0000
1460.81	46.3626
1489.15	48.7467
1509.49	37.7781
1596.49	50.1110
1620.62	32.7993
1678.03	0.0000
1691.02	38.4559
1691.02	38.4559
1706.46	0.0000
1750.46	0.0000
1764.49	15.2129
1764.49	15.2129
1764.49	15.2129
1764.49	15.2129
1770.23	22.0024
1771.40	82.8502
1791.20	0.0000
1808.65	24.9677

1836.01

28.0176

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244231005

Total Uranium Activity	6.5909E+00	ug/g
Total Uranium Counting Unc.	3.2363E+00	ug/g
Total Uranium Tpu	1.6512E-06	ug/g
Total Uranium Mda	1.4295E+00	ug/g

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*****
*
*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                          *
*                               GROSS GAMMA REPORT                            *
*
*****
*
*  BATCH ID      : 941242                SAMPLE ID   : G244231005                *
*  ANALYST       : MXR1                  DETECTOR    : GAM13                  *
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 03:00:00.00          *
*  ANALYSIS DATE: 21-JAN-2010 09:03:24.40  SAMPLE ALQT: 120.540 GRAM          *
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.029E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 1.535E+00
GROSS GAMMA MDA     (pCi/GRAM ) : 3.061E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.497E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:06:49.87

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231006.CNF;1
Sample date   : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:03:53
Sample ID     : G244231006           Sample quantity : 1.35400E+02 GRAM
Detector name : GAM20                Detector geometry: CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:33.49 0.5%
Energy tolerance: 1.50000 keV         Analyst Initials : MXR1
Abundance limit: 75.00000             Sensitivity      : 5.00000
Batch ID      : 941242                Detector SN#     :
Matrix Spike ID:                      LCS ID           : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.33*	74	391	1.11	92.70	89	8	1.03E-02	49.0	
2	0	63.47*	224	699	1.09	126.92	123	10	3.11E-02	23.5	
3	2	74.91*	512	504	1.23	149.77	145	15	7.11E-02	8.6	1.30E+00
4	2	77.18*	739	409	1.06	154.30	145	15	1.03E-01	5.9	
5	2	84.35*	123	512	1.26	168.62	163	30	1.70E-02	32.8	3.02E+00
6	2	87.35	310	482	1.27	174.61	163	30	4.31E-02	13.4	
7	2	89.98	207	342	1.08	179.87	163	30	2.87E-02	15.9	
8	2	92.64*	555	365	1.16	185.17	163	30	7.71E-02	7.9	
9	0	185.70*	326	280	1.02	371.03	367	9	4.53E-02	11.3	
10	0	208.72	79	305	0.82	417.01	414	8	1.09E-02	39.9	
11	5	238.54*	1290	202	1.09	476.58	472	19	1.79E-01	3.4	7.06E-01
12	5	241.63	369	240	1.97	482.74	472	19	5.12E-02	12.9	
13	0	270.10	152	193	1.22	539.61	535	11	2.11E-02	19.5	
14	0	294.97*	376	250	1.31	589.30	582	13	5.22E-02	10.2	
15	0	299.72	89	143	1.26	598.79	595	8	1.24E-02	25.5	
16	0	328.18	74	158	1.18	655.64	652	10	1.02E-02	34.1	
17	0	338.43*	235	204	1.15	676.13	669	12	3.27E-02	14.0	
18	0	351.74	653	177	1.22	702.71	696	12	9.07E-02	5.6	
19	0	463.66	61	187	1.46	926.34	919	14	8.52E-03	49.1	
20	0	510.72*	120	135	2.00	1020.39	1013	15	1.67E-02	26.2	
21	0	583.28*	353	148	1.40	1165.41	1158	14	4.91E-02	9.2	
22	0	609.37*	494	141	1.48	1217.57	1211	15	6.86E-02	7.0	
23	0	661.53	542	150	1.47	1321.83	1316	14	7.53E-02	6.4	
24	0	727.20*	124	39	1.12	1453.13	1448	12	1.72E-02	13.7	
25	0	841.80	25	102	5.73	1682.28	1673	16	3.51E-03	92.3	
26	0	860.71	49	61	0.99	1720.09	1715	11	6.82E-03	34.3	
27	0	910.97	306	42	1.94	1820.62	1814	15	4.25E-02	7.3	
28	1	964.67	59	60	1.84	1928.01	1922	32	8.18E-03	27.6	2.53E+00
29	1	968.83	152	57	1.84	1936.33	1922	32	2.11E-02	12.6	
30	0	1119.97	122	54	1.86	2238.70	2230	18	1.69E-02	16.8	
31	0	1377.40	36	10	1.45	2753.91	2747	13	5.04E-03	24.3	
32	0	1460.49	1591	32	1.94	2920.25	2912	16	2.21E-01	2.6	
33	4	1587.29	26	18	2.82	3174.14	3168	19	3.64E-03	34.9	2.14E+00
34	4	1591.93	14	9	1.70	3183.44	3168	19	1.95E-03	45.1	
35	0	1729.31	30	0	1.19	3458.60	3453	10	4.17E-03	18.3	
36	0	1764.15	90	0	1.91	3528.39	3522	13	1.25E-02	10.5	

Flag: "\*" = Peak area was modified by background subtraction



VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 11:06:52

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231006.CNF;1  
Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
Sample title : MXR1  
Sample date : 6-JAN-2010 12:00:00 Acquisition date : 21-JAN-2010 09:03:53  
Sample ID : G244231006 Sample quantity : 135.40 GRAM  
Sample type : SOLID Sample geometry :  
Detector name : GAMMA20 Detector geometry: CAN  
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:33.49 0.5%  
Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
Energy tolerance : 1.50 keV Half life ratio : 8.00  
Errors propagated: Yes Systematic Error : 0.00 %  
Efficiency type : Empirical Efficiencies at : Peak Energy  
Abundance limit : 75.00 WTM error limit : 3.00

Full Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Line	Energy	Activity	Act error	MDA	MDA error	Act/MDA
Ided	(keV)	Key	(pCi/GRAM)		(pCi/GRAM)		
K-40	+	1460.81 *	3.298E+01	3.359E+00	5.027E-01	4.384E-02	65.613
CD-109	+	88.03 *	3.406E+00	9.674E-01	9.805E-01	9.271E-02	3.474
SN-126	+	64.28	1.387E+00	6.816E-01	6.126E-01	8.870E-02	2.264
	+	86.94	1.392E+00	6.881E-01	4.036E-01	1.675E-01	3.450
	+	87.57 *	3.349E-01	9.512E-02	9.668E-02	9.093E-03	3.464
BA-137M	+	661.65 *	6.866E-01	1.117E-01	5.755E-02	5.775E-03	11.930
CS-137	+	661.65 *	7.258E-01	1.182E-01	6.083E-02	6.114E-03	11.931
TL-208		277.35	2.921E-01	3.312E-01	5.724E-01	7.611E-02	0.510
	+	510.84	5.161E-01	2.780E-01	1.901E-01	2.377E-02	2.714
	+	583.14 *	4.314E-01	9.085E-02	5.399E-02	5.551E-03	7.989
	+	860.37	5.596E-01	3.884E-01	4.175E-01	4.425E-02	1.340
BI-210	+	46.50 *	2.806E+00	2.761E+00	3.077E+00	2.853E-01	0.912
PB-210	+	46.50 *	2.806E+00	2.761E+00	3.077E+00	2.853E-01	0.912
PO-210	+	46.50 *	2.806E+00	2.759E+00	3.077E+00	2.581E-01	0.912
BI-211		72.87	2.133E+00	2.726E+00	4.104E+00	3.240E-01	0.520
	+	351.07 *	3.525E+00	5.218E-01	2.912E-01	2.790E-02	12.103
PB-212	+	74.81	2.193E+00	4.638E-01	4.284E-01	5.287E-02	5.120
	+	77.11	1.818E+00	2.632E-01	2.465E-01	2.039E-02	7.375
	+	87.30	1.549E+00	4.664E-01	4.479E-01	6.139E-02	3.458
	+	238.63 *	1.527E+00	1.921E-01	7.920E-02	8.423E-03	19.282
	+	300.09	1.628E+00	8.511E-01	1.043E+00	1.192E-01	1.561
PO-212	+	74.81	2.193E+00	4.638E-01	4.284E-01	5.287E-02	5.120
	+	77.11	1.818E+00	2.632E-01	2.465E-01	2.039E-02	7.375
	+	87.30	1.549E+00	4.664E-01	4.479E-01	6.139E-02	3.458
		115.19	-3.735E-02	3.401E+00	5.474E+00	4.597E-01	-0.007
	+	238.63 *	1.527E+00	1.921E-01	7.920E-02	8.423E-03	19.282
	+	300.09	1.628E+00	8.511E-01	1.043E+00	1.192E-01	1.561
BI-214	+	609.31 *	1.137E+00	2.034E-01	1.100E-01	1.225E-02	10.332
	+	1120.29	1.435E+00	5.069E-01	4.076E-01	4.410E-02	3.520
	+	1764.49	1.435E+00	3.248E-01	2.369E-01	1.946E-02	6.059
PB-214	+	74.81	3.779E+00	7.696E-01	7.381E-01	8.081E-02	5.120
	+	77.11	3.117E+00	5.099E-01	4.226E-01	4.752E-02	7.375
	+	87.30	2.653E+00	7.809E-01	7.673E-01	9.312E-02	3.458
	+	241.98	2.621E+00	7.371E-01	4.768E-01	5.332E-02	5.498

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	295.21		1.202E+00	2.826E-01	1.761E-01	2.055E-02	6.823
	+	351.92	*	1.226E+00	1.924E-01	1.015E-01	1.106E-02	12.078
	+	74.81		3.779E+00	7.696E-01	7.381E-01	8.081E-02	5.120
	+	77.11		3.117E+00	5.099E-01	4.226E-01	4.752E-02	7.375
	+	87.30		2.653E+00	7.809E-01	7.673E-01	9.312E-02	3.458
PO-216	+	241.98		2.621E+00	7.371E-01	4.768E-01	5.332E-02	5.498
	+	295.21		1.202E+00	2.826E-01	1.761E-01	2.055E-02	6.823
	+	351.92	*	1.226E+00	1.924E-01	1.015E-01	1.106E-02	12.078
	+	74.81		2.193E+00	4.638E-01	4.284E-01	5.287E-02	5.120
	+	77.11		1.818E+00	2.632E-01	2.465E-01	2.039E-02	7.375
PO-218	+	87.30		1.549E+00	4.664E-01	4.479E-01	6.139E-02	3.458
	+	238.63	*	1.527E+00	1.921E-01	7.920E-02	8.423E-03	19.282
	+	300.09		1.628E+00	8.511E-01	1.043E+00	1.192E-01	1.561
	+	74.81		3.779E+00	7.696E-01	7.381E-01	8.081E-02	5.120
	+	77.11		3.117E+00	5.099E-01	4.226E-01	4.752E-02	7.375
RA-224	+	87.30		2.653E+00	7.809E-01	7.673E-01	9.312E-02	3.458
	+	241.98		2.621E+00	7.371E-01	4.768E-01	5.332E-02	5.498
	+	295.21		1.202E+00	2.826E-01	1.761E-01	2.055E-02	6.823
	+	351.92	*	1.226E+00	1.924E-01	1.015E-01	1.106E-02	12.078
	+	240.98	*	4.971E+00	1.370E+00	9.012E-01	8.711E-02	5.516
RA-226	+	609.31	*	1.137E+00	2.034E-01	1.100E-01	1.225E-02	10.332
	+	1120.29		1.435E+00	5.069E-01	4.076E-01	4.410E-02	3.520
	+	1764.49		1.435E+00	3.248E-01	2.369E-01	1.946E-02	6.059
	+	338.32		1.400E+00	6.994E-01	3.474E-01	1.439E-01	4.029
	+	911.07	*	1.644E+00	3.142E-01	1.703E-01	2.086E-02	9.653
RA-228	+	969.11		1.435E+00	4.971E-01	3.117E-01	7.396E-02	4.605
	+	338.32		1.400E+00	6.994E-01	3.474E-01	1.439E-01	4.029
	+	911.07	*	1.644E+00	3.142E-01	1.703E-01	2.086E-02	9.653
	+	969.11		1.435E+00	4.971E-01	3.117E-01	7.396E-02	4.605
	+	74.81		2.226E+00	4.230E-01	4.348E-01	3.539E-02	5.120
TH-228	+	77.11		1.845E+00	2.671E-01	2.502E-01	2.069E-02	7.375
	+	87.30		1.572E+00	4.465E-01	4.546E-01	4.261E-02	3.458
	+	238.63	*	1.550E+00	1.949E-01	8.039E-02	8.549E-03	19.282
	+	300.09		1.652E+00	1.294E+00	1.058E+00	6.293E-01	1.561
	+	609.31	*	1.137E+00	2.034E-01	1.100E-01	1.224E-02	10.332
TH-230	+	1120.29		1.434E+00	5.069E-01	4.076E-01	4.410E-02	3.520
	+	1764.49		1.435E+00	3.248E-01	2.369E-01	1.946E-02	6.059
	+	338.32		1.400E+00	4.125E-01	3.474E-01	3.255E-02	4.029
	+	911.07	*	1.644E+00	3.142E-01	1.703E-01	2.086E-02	9.653
	+	969.11		1.435E+00	4.971E-01	3.117E-01	7.396E-02	4.605
TH-234	+	63.29	*	3.504E+00	1.755E+00	1.594E+00	2.770E-01	2.198
	+	92.38		3.971E+00	9.618E-01	6.449E-01	1.183E-01	6.158
	+	609.31	*	1.137E+00	2.034E-01	1.100E-01	1.224E-02	10.332
	+	1120.29		1.434E+00	5.069E-01	4.076E-01	4.410E-02	3.520
	+	1764.49		1.435E+00	3.248E-01	2.369E-01	1.946E-02	6.059
NP-237	+	86.50	*	9.834E-01	3.453E-01	2.859E-01	6.468E-02	3.440
	+	95.87		-9.524E-01	9.576E-01	1.271E+00	3.145E-01	-0.750
	+	63.29	*	3.504E+00	1.755E+00	1.594E+00	2.770E-01	2.198
	+	92.38		3.971E+00	7.256E-01	6.449E-01	5.895E-02	6.158
	+	92.38		3.971E+00	7.256E-01	6.449E-01	5.895E-02	6.158

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AM-243	+	74.67	*	3.556E-01	6.745E-02	6.960E-02	5.602E-03	5.109
	+	86.72		3.688E+01	1.047E+01	1.071E+01	9.959E-01	3.445
		117.66		-2.102E+00	3.617E+00	5.673E+00	4.749E-01	-0.370
		142.18		2.940E+00	1.657E+01	2.667E+01	2.251E+00	0.110
ANH-511	+	511.00	*	1.115E-01	5.932E-02	4.108E-02	3.828E-03	2.714

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.833E-01	2.851E-01	4.838E-01	4.702E-02	0.379
NA-22		1274.54	*	3.913E-02	4.341E-02	7.583E-02	6.281E-03	0.516
NA-24		1368.53	*	2.341E-02	4.341E-02	Half-Life too short		
AL-26		1129.67		1.007E+00	1.607E+00	2.758E+00	2.336E-01	0.365
		1808.65	*	2.468E-03	2.455E-02	4.121E-02	3.347E-03	0.060
TI-44		67.85		-1.249E-02	4.026E-02	5.826E-02	4.383E-03	-0.214
	+	78.38	*	3.355E-01	4.857E-02	6.606E-02	5.545E-03	5.078
SC-46		889.25	*	-4.291E-03	3.432E-02	5.604E-02	5.587E-03	-0.077
	+	1120.51		2.451E-01	8.506E-02	1.089E-01	9.317E-03	2.250
V-48		944.10		-6.817E-01	8.075E-01	1.215E+00	1.186E-01	-0.561
		983.50	*	6.354E-02	6.459E-02	1.151E-01	1.100E-02	0.552
		1312.09		1.301E-02	7.359E-02	1.208E-01	1.008E-02	0.108
CR-51		320.08	*	1.667E-01	3.227E-01	5.498E-01	5.512E-02	0.303
MN-52		744.21		3.699E-02	2.126E-01	3.600E-01	3.656E-02	0.103
		848.13		1.590E+00	7.007E+00	1.035E+01	1.043E+00	0.154
		935.52		-1.555E-02	2.277E-01	3.726E-01	3.650E-02	-0.042
		1246.25		2.871E+00	6.658E+00	1.117E+01	9.178E-01	0.257
		1333.61		1.514E+00	4.397E+00	7.366E+00	6.172E-01	0.206
		1434.06	*	8.460E-02	1.682E-01	3.021E-01	2.557E-02	0.280
MN-54		834.83	*	4.678E-03	3.737E-02	5.463E-02	5.519E-03	0.086
CO-56		846.75	*	4.430E-03	4.075E-02	5.942E-02	5.988E-03	0.075
		977.42		-1.157E+00	3.138E+00	4.230E+00	4.057E-01	-0.273
		1037.82		-1.758E-01	2.609E-01	3.940E-01	3.801E-02	-0.446
		1175.09		-1.061E+00	1.988E+00	3.045E+00	2.449E-01	-0.348
		1238.25		1.792E-01	9.162E-02	1.670E-01	1.413E-02	1.073
		1360.21		2.468E-01	8.290E-01	1.441E+00	1.212E-01	0.171
		1771.40		9.062E-02	1.609E-01	2.970E-01	2.436E-02	0.305
CO-57		122.06	*	4.006E-03	2.393E-02	3.871E-02	3.232E-03	0.103
		136.48		9.859E-02	1.907E-01	3.117E-01	2.822E-02	0.316
CO-58		810.76	*	-1.994E-02	3.341E-02	5.235E-02	5.316E-03	-0.381
FE-59		142.65		2.369E-01	2.587E+00	4.104E+00	3.466E-01	0.058
		192.34		2.616E-01	8.051E-01	1.381E+00	1.897E-01	0.189
		1099.22	*	1.148E-02	8.535E-02	1.408E-01	1.328E-02	0.082
		1291.56		-7.956E-02	1.131E-01	1.666E-01	1.584E-02	-0.478
CO-60		1173.22		1.876E-02	3.984E-02	6.749E-02	5.426E-03	0.278
		1332.49	*	1.458E-02	3.552E-02	5.994E-02	5.021E-03	0.243
ZN-65		1115.52	*	-2.798E-02	9.590E-02	1.295E-01	1.114E-02	-0.216
GE-68		1077.35	*	4.044E-01	1.037E+00	1.761E+00	1.571E-01	0.230
AS-73		53.44	*	3.266E-01	5.376E-01	9.056E-01	6.723E-02	0.361

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AS-74	595.88	*		-4.924E-02	8.303E-02	1.260E-01	1.233E-02	-0.391
	634.78			1.315E-01	3.124E-01	5.425E-01	5.396E-02	0.242
SE-75	66.05			-5.456E-01	4.026E+00	5.877E+00	5.560E-01	-0.093
	96.73			-6.046E-01	7.581E-01	1.043E+00	1.440E-01	-0.580
	121.11			8.553E-02	1.283E-01	2.113E-01	2.327E-02	0.405
	136.00			3.105E-02	3.581E-02	5.930E-02	5.010E-03	0.524
	198.60			9.077E-01	1.597E+00	2.730E+00	2.747E-01	0.333
	264.65	*		3.491E-03	3.993E-02	6.232E-02	6.170E-03	0.056
	279.53			1.313E-02	9.476E-02	1.592E-01	1.629E-02	0.082
	303.91			6.985E-01	1.944E+00	2.919E+00	3.611E-01	0.239
	400.65			1.578E-01	2.247E-01	3.838E-01	4.212E-02	0.411
BR-77	87.88	+		6.866E+02	1.950E+02	2.752E+02	2.599E+01	2.494
	200.40			8.180E+00	1.353E+02	2.296E+02	2.111E+01	0.036
	239.00	+		2.287E+02	2.688E+01	3.275E+01	3.159E+00	6.985
	249.79			1.013E+01	5.349E+01	9.050E+01	8.821E+00	0.112
	281.68			-7.382E+01	7.185E+01	1.124E+02	1.118E+01	-0.657
	297.23			1.691E+02	6.966E+01	9.203E+01	9.055E+00	1.837
	303.76			6.175E+01	1.549E+02	2.334E+02	2.284E+01	0.265
	439.47			1.278E+01	1.262E+02	2.072E+02	1.820E+01	0.062
	484.57			6.301E+01	1.996E+02	3.308E+02	3.022E+01	0.191
	520.65	*		5.462E+00	8.950E+00	1.510E+01	1.416E+00	0.362
	574.64			-1.673E+01	1.776E+02	2.828E+02	2.739E+01	-0.059
	578.91			5.520E-01	9.002E+01	1.260E+02	1.223E+01	0.004
	585.48			7.739E+02	2.043E+02	3.535E+02	3.443E+01	2.189
	755.35			6.975E+01	1.458E+02	2.518E+02	2.559E+01	0.277
	817.79			-2.132E+01	1.101E+02	1.796E+02	1.819E+01	-0.119
SR-82	698.33			-2.083E-01	3.073E+01	5.116E+01	5.172E+00	-0.004
	776.49	*		-2.065E-01	3.251E-01	5.105E-01	5.187E-02	-0.404
	1395.20			4.275E+00	8.249E+00	1.479E+01	1.248E+00	0.289
RB-83	520.41	*		3.739E-02	6.171E-02	1.042E-01	9.772E-03	0.359
	529.64			3.486E-02	9.038E-02	1.503E-01	1.419E-02	0.232
	552.65			-9.797E-02	1.744E-01	2.664E-01	2.550E-02	-0.368
RB-84	881.50	*		-1.153E-02	5.875E-02	9.523E-02	9.516E-03	-0.121
KR-85	513.99	*		9.719E+00	6.981E+00	1.113E+01	1.040E+00	0.873
SR-85	513.99	*		4.971E-02	3.571E-02	5.695E-02	5.318E-03	0.873
RB-86	1076.63	*		2.143E-01	6.478E-01	1.094E+00	9.764E-02	0.196
Y-88	898.02			2.410E-02	3.541E-02	6.205E-02	6.192E-03	0.388
	1836.01	*		2.389E-03	2.489E-02	4.177E-02	3.370E-03	0.057
ZR-88	392.90	*		8.360E-03	2.772E-02	4.632E-02	3.874E-03	0.180
Y-91	1204.90	*		1.563E+01	1.894E+01	3.290E+01	2.671E+00	0.475
NB-94	702.63	*		9.251E-03	3.014E-02	5.164E-02	5.224E-03	0.179
	871.10			2.257E-02	3.043E-02	5.354E-02	5.365E-03	0.422
NB-95	765.79	*		-1.795E-02	3.967E-02	6.390E-02	6.494E-03	-0.281
NB-95M	235.69	*		5.210E-02	1.208E-01	1.833E-01	1.970E-02	0.284
ZR-95	724.18			2.118E-02	9.335E-02	1.392E-01	1.501E-02	0.152
	756.15	*		2.471E-02	6.931E-02	1.186E-01	1.294E-02	0.208
NB-97	657.90	*		5.629E-02	6.931E-02	Half-Life too short		
	1024.50			-4.176E+00	6.931E-02	Half-Life too short		
ZR-97	254.15			-8.714E-01	6.931E-02	Half-Life too short		

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	355.39			-1.166E+00	6.931E-02	Half-Life too short		
	507.63	*		9.806E-01	6.931E-02	Half-Life too short		
	602.52			-5.986E+00	6.931E-02	Half-Life too short		
	1021.30			1.395E+00	6.931E-02	Half-Life too short		
	1147.95			6.750E-01	6.931E-02	Half-Life too short		
	1362.66			2.155E+00	6.931E-02	Half-Life too short		
	1750.46			-2.355E-01	6.931E-02	Half-Life too short		
MO-99	140.51			-1.278E+01	2.384E+01	3.627E+01	1.002E+01	-0.352
	181.06			9.607E+00	1.653E+01	2.392E+01	4.411E+00	0.402
	366.43			-2.181E+01	7.333E+01	1.184E+02	1.053E+01	-0.184
	739.58	*		-4.044E+00	1.019E+01	1.648E+01	2.654E+00	-0.245
	778.00			-4.556E+01	2.862E+01	4.025E+01	4.090E+00	-1.132
TC-99M	140.51	*		-1.019E+10	2.862E+01	Half-Life too short		
RH-101	127.23			-1.163E-02	2.888E-02	4.549E-02	3.794E-03	-0.256
	198.01	*		1.036E-02	2.945E-02	4.998E-02	4.581E-03	0.207
	325.23			1.800E-01	2.172E-01	3.355E-01	3.203E-02	0.537
RH-102	418.52			3.068E-02	2.528E-01	4.166E-01	3.584E-02	0.074
	475.06	*		-1.679E-02	2.707E-02	4.185E-02	3.794E-03	-0.401
	631.29			2.179E-02	5.279E-02	8.702E-02	8.645E-03	0.250
	697.49			-5.337E-02	6.934E-02	1.084E-01	1.096E-02	-0.492
	766.84			4.343E-02	1.005E-01	1.726E-01	1.755E-02	0.252
	1046.59			4.277E-03	1.088E-01	1.784E-01	1.634E-02	0.024
	1112.84			-1.751E-02	2.480E-01	3.454E-01	2.978E-02	-0.051
RU-103	497.08	*		2.118E-02	3.530E-02	5.961E-02	8.666E-03	0.355
	610.33	+		1.223E+01	2.726E+00	2.770E+00	4.806E-01	4.414
RH-106	511.85	+		5.566E-01	2.962E-01	3.961E-01	3.693E-02	1.405
	621.84	*		-2.199E-01	2.963E-01	4.392E-01	6.243E-02	-0.501
	1050.47			2.965E-01	2.243E+00	3.708E+00	3.385E-01	0.080
RU-106	511.85	+		5.566E-01	2.962E-01	3.961E-01	3.693E-02	1.405
	621.84	*		-2.199E-01	2.955E-01	4.392E-01	4.347E-02	-0.501
	1050.47			2.965E-01	2.243E+00	3.708E+00	3.385E-01	0.080
AG-108M	433.93	*		4.785E-03	3.209E-02	5.284E-02	4.796E-03	0.091
	614.37			8.541E-03	4.099E-02	5.842E-02	5.938E-03	0.146
	722.95			-2.765E-02	4.133E-02	5.534E-02	5.773E-03	-0.500
AG-110M	657.75	*		2.102E-02	3.472E-02	5.408E-02	5.541E-03	0.389
	677.61			-2.407E-02	2.810E-01	4.691E-01	4.823E-02	-0.051
	706.67			-3.116E-02	1.822E-01	3.012E-01	3.111E-02	-0.103
	763.93			-1.268E-01	1.550E-01	2.416E-01	2.506E-02	-0.525
	884.67			-2.240E-02	4.251E-02	6.650E-02	6.798E-03	-0.337
	937.48			-8.376E-02	1.001E-01	1.508E-01	1.518E-02	-0.555
	1384.27			1.177E-01	1.325E-01	2.303E-01	1.999E-02	0.511
IN-111	171.28			9.163E-01	8.672E-01	1.438E+00	1.265E-01	0.637
	245.39	*		-6.732E-01	9.260E-01	1.294E+00	1.256E-01	-0.520
IN-113M	391.69	*		-6.163E-03	4.021E-02	6.530E-02	5.633E-03	-0.094
SN-113	391.69	*		-6.163E-03	4.021E-02	6.530E-02	5.633E-03	-0.094
IN-114M	190.27	*		5.357E-03	1.769E-01	2.656E-01	2.407E-02	0.020
CD-115	260.90			1.025E+00	1.042E+02	1.744E+02	1.716E+01	0.006
	492.35			-8.529E+00	2.935E+01	4.640E+01	4.265E+00	-0.184
	527.90	*		-7.570E+00	8.758E+00	1.302E+01	1.227E+00	-0.581

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SN-117M	156.02			-2.073E+00	2.103E+00	3.183E+00	2.737E-01	-0.651
	158.56	*		2.870E-02	4.906E-02	8.004E-02	6.907E-03	0.359
SB-122	563.90	*		1.315E+00	1.815E+00	3.071E+00	2.957E-01	0.428
	692.80			2.676E+01	3.623E+01	6.391E+01	6.456E+00	0.419
I-123	159.00	*		-1.093E-01	3.623E+01	Half-Life	too short	
	528.96			2.346E+02	3.623E+01	Half-Life	too short	
TE-123M	159.00	*		-7.297E-04	2.628E-02	4.173E-02	3.625E-03	-0.017
I-124	602.71	*		-6.435E-01	7.085E-01	8.831E-01	8.670E-02	-0.729
	722.78			-2.471E+00	4.169E+00	5.645E+00	5.725E-01	-0.438
	1325.50			-2.448E+00	2.992E+01	4.758E+01	3.980E+00	-0.051
	1376.25	+		5.622E+01	2.771E+01	4.701E+01	3.960E+00	1.196
	1509.49			1.407E+01	1.292E+01	2.443E+01	2.071E+00	0.576
	1691.02			1.259E-01	2.303E+00	3.857E+00	3.216E-01	0.033
SB-124	602.71			-3.881E-02	4.273E-02	5.325E-02	5.229E-03	-0.729
	645.85			2.301E-01	4.380E-01	7.655E-01	7.988E-02	0.301
	709.31			-1.276E+00	2.317E+00	3.699E+00	3.746E-01	-0.345
	713.82			5.775E-01	1.376E+00	2.380E+00	3.133E-01	0.243
	722.78			-2.160E-01	3.645E-01	4.934E-01	5.083E-02	-0.438
	968.20	+		1.473E+01	3.979E+00	6.448E+00	6.216E-01	2.285
	1045.16			-1.835E+00	2.347E+00	3.535E+00	3.240E-01	-0.519
	1325.50			-2.285E-01	2.794E+00	4.442E+00	3.716E-01	-0.051
	1368.21			1.493E-01	1.431E+00	2.384E+00	3.182E-01	0.063
	1436.60			1.566E+00	2.654E+00	4.833E+00	4.091E-01	0.324
	1691.02	*		2.596E-03	4.749E-02	7.953E-02	6.911E-03	0.033
SB-125	427.89	*		3.429E-03	8.919E-02	1.451E-01	1.284E-02	0.024
	463.38	+		5.149E-01	5.084E-01	5.241E-01	5.046E-02	0.982
	600.56			2.005E-02	1.557E-01	2.519E-01	2.612E-02	0.080
	635.90			-1.515E-01	2.407E-01	3.856E-01	4.072E-02	-0.393
TE-125M	109.28	*		6.022E-01	8.472E+00	1.371E+01	1.401E+00	0.044
I-126	388.63			-1.097E-01	1.856E-01	2.928E-01	2.466E-02	-0.375
	666.33	*		2.612E-02	1.856E-01	2.759E-01	2.772E-02	0.095
	753.82			1.026E+00	1.374E+00	2.415E+00	2.454E-01	0.425
SB-126	223.80			-2.854E+00	3.530E+00	5.719E+00	5.424E-01	-0.499
	278.60			2.636E+00	2.143E+00	3.762E+00	3.744E-01	0.701
	296.50			9.250E+00	2.230E+00	3.124E+00	3.075E-01	2.961
	414.70			-5.549E-02	6.877E-02	1.061E-01	9.094E-03	-0.523
	415.30			-5.792E+00	5.670E+00	8.590E+00	7.365E-01	-0.674
	555.20			-4.319E-01	3.416E+00	5.197E+00	4.981E-01	-0.083
	573.80			-3.427E-02	9.508E-01	1.522E+00	1.473E-01	-0.023
	593.00			-8.881E-02	8.223E-01	1.305E+00	1.275E-01	-0.068
	656.30			2.251E+00	3.253E+00	5.112E+00	5.122E-01	0.440
	666.33			1.091E-02	7.753E-02	1.152E-01	1.158E-02	0.095
	675.00			8.432E-01	1.724E+00	3.000E+00	3.020E-01	0.281
	695.00			-2.809E-02	6.772E-02	1.099E-01	1.111E-02	-0.256
	697.00			-2.624E-01	2.448E-01	3.724E-01	3.764E-02	-0.705
	720.50	*		8.084E-02	1.329E-01	2.212E-01	2.243E-02	0.365
	856.80			-7.560E-02	4.816E-01	6.784E-01	6.823E-02	-0.111
	989.30			-1.042E+00	1.089E+00	1.598E+00	1.522E-01	-0.652
	1034.80			-2.545E+00	7.195E+00	1.130E+01	1.044E+00	-0.225

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-127	1213.00			2.369E+00	4.605E+00	7.782E+00	6.334E-01	0.304
	61.10			2.634E+01	4.337E+01	6.540E+01	6.531E+00	0.403
	252.40			-7.088E-01	3.590E+00	5.937E+00	2.509E+00	-0.119
	290.80			-1.848E+01	2.069E+01	2.810E+01	3.401E+00	-0.658
	411.60			9.881E+00	1.111E+01	1.898E+01	2.967E+00	0.521
	444.90			4.777E-01	8.512E+00	1.392E+01	1.756E+00	0.034
	473.00			4.495E-01	1.445E+00	2.397E+00	3.140E-01	0.188
	543.00			-8.891E+00	1.391E+01	2.106E+01	3.136E+00	-0.422
	603.60			6.483E+00	1.123E+01	1.663E+01	2.213E+00	0.390
	685.20	*		-7.395E-02	1.185E+00	1.981E+00	2.470E-01	-0.037
	698.50			-2.116E+00	1.339E+01	2.170E+01	3.609E+00	-0.098
	722.20			-4.941E+00	2.878E+01	4.109E+01	5.059E+00	-0.120
	783.80			5.699E+00	3.146E+00	5.803E+00	7.818E-01	0.982
	57.60			-1.066E+00	4.133E+00	6.739E+00	4.815E-01	-0.158
XE-127	145.22			8.395E-02	6.591E-01	1.046E+00	8.864E-02	0.080
	172.10			9.947E-02	1.104E-01	1.818E-01	1.602E-02	0.547
	202.84	*		-4.020E-02	4.176E-02	6.761E-02	6.240E-02	-0.595
	374.96			-1.225E-01	1.767E-01	2.715E-01	2.367E-02	-0.451
I-131	80.18			8.535E-01	4.868E+00	5.662E+00	4.884E-01	0.151
	284.30			-1.118E+00	1.285E+00	2.032E+00	2.097E-01	-0.550
	364.48	*		3.064E-02	1.021E-01	1.712E-01	1.606E-02	0.179
	636.97			-1.095E+00	1.304E+00	2.045E+00	2.122E-01	-0.535
TE-132	722.89			-4.385E+00	6.830E+00	9.182E+00	9.354E-01	-0.478
	49.72			4.904E+00	1.214E+01	1.831E+01	1.866E+00	0.268
	111.76			-4.766E+00	2.645E+01	4.232E+01	4.510E+00	-0.113
	116.30			1.169E+01	2.454E+01	4.022E+01	4.265E+00	0.291
BA-133	228.16	*		2.567E-01	5.589E-01	9.575E-01	1.550E-01	0.268
	53.15			8.916E-01	2.323E+00	3.885E+00	2.895E-01	0.229
	79.62			1.482E+00	1.369E+00	1.677E+00	2.544E-01	0.884
	81.00			8.823E-04	1.058E-01	1.215E-01	1.931E-02	0.007
I-133	276.40			1.876E-01	3.527E-01	5.617E-01	8.578E-02	0.334
	302.84			2.552E-02	1.352E-01	2.005E-01	2.822E-02	0.127
	356.01	*		-1.068E-02	4.307E-02	6.092E-02	8.230E-03	-0.175
	383.85			-2.812E-02	2.783E-01	4.541E-01	5.695E-02	-0.062
	510.53	+		9.367E-01	2.783E-01	Half-Life	too short	
	529.87	*		1.265E-03	2.783E-01	Half-Life	too short	
	706.58			-3.986E-02	2.783E-01	Half-Life	too short	
	856.28			-3.243E-02	2.783E-01	Half-Life	too short	
	875.33			3.865E-03	2.783E-01	Half-Life	too short	
	1236.41			1.051E+00	2.783E-01	Half-Life	too short	
	1298.22			2.812E-03	2.783E-01	Half-Life	too short	
	475.35			-7.945E-01	1.753E+00	2.747E+00	2.491E-01	-0.289
CS-134	563.23			3.184E-01	3.320E-01	5.707E-01	5.536E-02	0.558
	569.32			3.421E-02	1.801E-01	2.935E-01	2.866E-02	0.117
	604.70			2.223E-02	3.434E-02	5.120E-02	5.042E-03	0.434
	795.84	*		6.072E-02	4.520E-02	8.192E-02	8.359E-03	0.741
	801.93			-2.882E-01	3.430E-01	5.253E-01	5.351E-02	-0.549
	1038.57			-8.821E-01	3.206E+00	5.083E+00	4.682E-01	-0.174
	1167.94			-5.562E-01	2.280E+00	3.610E+00	2.922E-01	-0.154

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-135 I-135	1365.15			-3.998E-01	1.048E+00	1.674E+00	1.475E-01	-0.239
	268.24	*		1.653E-01	1.549E-01	2.428E-01	2.690E-02	0.681
	288.45			7.705E+09	1.549E-01	Half-Life	too short	
	417.63			2.791E+09	1.549E-01	Half-Life	too short	
	546.56			3.848E+09	1.549E-01	Half-Life	too short	
	836.80			1.143E+10	1.549E-01	Half-Life	too short	
	1038.76			-1.905E+09	1.549E-01	Half-Life	too short	
	1124.00			-1.063E+10	1.549E-01	Half-Life	too short	
	1131.51			6.043E+08	1.549E-01	Half-Life	too short	
	1260.41	*		2.245E+09	1.549E-01	Half-Life	too short	
	1457.56			3.648E+11	1.549E-01	Half-Life	too short	
	1678.03			-5.830E+08	1.549E-01	Half-Life	too short	
	1706.46			1.490E+09	1.549E-01	Half-Life	too short	
	1791.20			-2.003E+09	1.549E-01	Half-Life	too short	
CS-136 +	66.91			-3.700E-02	6.540E-01	9.576E-01	1.419E-01	-0.039
	86.29			4.316E+00	1.293E+00	1.709E+00	2.269E-01	2.526
	153.22			3.264E-01	5.944E-01	9.685E-01	9.282E-02	0.337
	163.89			-1.376E-02	9.925E-01	1.541E+00	1.500E-01	-0.009
	176.55			4.927E-04	3.366E-01	5.328E-01	4.986E-02	0.001
	273.65			-4.511E-01	4.397E-01	5.948E-01	6.199E-02	-0.758
	340.57			1.902E-01	1.228E-01	1.970E-01	1.885E-02	0.965
	818.51			-1.068E-02	6.518E-02	1.067E-01	1.081E-02	-0.100
	1048.07	*		6.229E-02	9.957E-02	1.719E-01	1.631E-02	0.362
	1235.34			2.569E-01	6.076E-01	1.011E+00	1.167E-01	0.254
CE-139 BA-140	165.85	*		-2.415E-02	2.705E-02	4.092E-02	3.572E-03	-0.590
	162.64			6.486E-01	6.940E-01	1.122E+00	1.030E-01	0.578
	304.84			1.497E-01	1.161E+00	1.804E+00	5.123E-01	0.083
	423.70			9.138E-01	1.734E+00	2.890E+00	9.371E-01	0.316
LA-140 +	537.32	*		1.943E-02	2.295E-01	3.721E-01	1.242E-01	0.052
	328.77			5.354E-01	3.691E-01	4.806E-01	4.779E-02	1.114
	432.53			-9.218E-01	2.030E+00	3.213E+00	2.937E-01	-0.287
	487.03			-2.693E-02	1.281E-01	2.044E-01	1.974E-02	-0.132
	751.79			-7.290E-01	1.558E+00	2.501E+00	2.740E-01	-0.291
	815.85			-6.312E-02	2.826E-01	4.601E-01	5.056E-02	-0.137
	867.82			-3.878E-01	1.291E+00	1.948E+00	2.031E-01	-0.199
	919.63			7.992E-02	2.471E+00	3.979E+00	4.645E-01	0.020
	925.24			4.025E-01	1.079E+00	1.791E+00	1.848E-01	0.225
	1596.49	*		3.603E-02	6.357E-02	1.045E-01	8.821E-03	0.345
CE-141 CE-143	145.44	*		1.636E-02	5.791E-02	9.352E-02	8.074E-03	0.175
	57.37			-1.015E-04	5.791E-02	Half-Life	too short	
	231.56			-9.515E-04	5.791E-02	Half-Life	too short	
	293.26	*		6.035E-04	5.791E-02	Half-Life	too short	
+	350.59			2.477E-02	5.791E-02	Half-Life	too short	
	490.36			-2.260E-04	5.791E-02	Half-Life	too short	
	664.57			3.123E-03	5.791E-02	Half-Life	too short	
	721.93			-2.700E-04	5.791E-02	Half-Life	too short	
	80.11			4.356E-01	2.287E+00	2.662E+00	2.281E-01	0.164
CE-144 PM-144	133.54	*		9.905E-02	1.891E-01	3.086E-01	4.761E-02	0.321
	476.78			-1.698E-04	6.066E-02	9.841E-02	9.692E-03	-0.002



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	618.01			3.489E-03	2.922E-02	4.715E-02	4.758E-03	0.074
	696.49	*		-2.606E-02	3.140E-02	4.883E-02	4.936E-03	-0.534
	778.57			-2.749E+00	2.040E+00	2.962E+00	3.010E-01	-0.928
PR-144	696.49	*		-1.766E+00	2.127E+00	3.308E+00	3.344E-01	-0.534
	1489.15			5.874E+00	8.451E+00	1.568E+01	1.329E+00	0.375
PM-146	453.90	*		1.086E-02	4.029E-02	6.676E-02	7.312E-03	0.163
	633.02			7.213E-01	1.344E+00	2.196E+00	8.279E-01	0.328
	735.90			-3.965E-02	1.337E-01	2.173E-01	6.324E-02	-0.182
	747.13			-6.935E-02	8.306E-02	1.281E-01	1.925E-02	-0.541
ND-147	91.11	+		7.441E-01	2.474E-01	4.963E-01	4.909E-02	1.499
	319.41			1.703E+00	2.857E+00	4.888E+00	4.703E-01	0.348
	439.89			2.759E-01	5.388E+00	8.813E+00	7.746E-01	0.031
	531.02	*		-3.452E-01	5.091E-01	7.708E-01	1.190E-01	-0.448
PM-149	285.90	*		3.817E+01	7.530E+01	1.283E+02	2.092E+01	0.297
EU-152	121.78			1.972E-02	6.886E-02	1.119E-01	1.084E-02	0.176
	244.69			-1.579E-01	3.032E-01	4.312E-01	4.184E-02	-0.366
	344.27	*		-2.256E-02	9.182E-02	1.379E-01	1.345E-02	-0.164
	443.98			1.465E-01	8.846E-01	1.450E+00	1.279E-01	0.101
	778.89			-2.849E-01	2.347E-01	3.462E-01	3.518E-02	-0.823
	867.32			-1.014E-01	7.850E-01	1.161E+00	1.165E-01	-0.087
	964.01	+		6.413E-01	3.592E-01	5.144E-01	4.970E-02	1.247
	1085.78			2.432E-01	3.410E-01	5.952E-01	5.270E-02	0.409
	1112.02			-4.939E-02	3.589E-01	4.956E-01	4.277E-02	-0.100
	1407.95			1.131E-01	1.530E-01	2.786E-01	2.353E-02	0.406
GD-153	69.67			-4.440E-01	1.351E+00	2.082E+00	1.593E-01	-0.213
	83.37	+		2.380E+01	1.575E+01	2.097E+01	1.870E+00	1.135
	97.43	*		-1.043E-02	7.831E-02	1.120E-01	9.932E-03	-0.093
	103.18			-4.250E-02	9.469E-02	1.502E-01	1.299E-02	-0.283
EU-154	123.07			2.649E-03	4.836E-02	7.786E-02	8.682E-03	0.034
	247.94			3.374E-01	3.436E-01	5.384E-01	6.640E-02	0.627
	591.81			-8.931E-02	5.686E-01	8.985E-01	1.127E-01	-0.099
	723.30			-1.278E-01	1.774E-01	2.362E-01	2.581E-02	-0.541
	756.87			1.998E-01	7.422E-01	1.263E+00	1.658E-01	0.158
	873.19			1.638E-01	2.766E-01	4.795E-01	6.360E-02	0.342
	996.32			-4.718E-01	3.514E-01	4.815E-01	8.764E-02	-0.980
	1004.76			-1.869E-01	1.936E-01	2.842E-01	3.482E-02	-0.658
	1274.45	*		1.019E-01	1.219E-01	2.114E-01	2.336E-02	0.482
EU-155	48.70			2.558E-01	1.563E+00	2.333E+00	1.867E-01	0.110
	60.01			-1.004E+00	3.920E+00	5.696E+00	4.041E-01	-0.176
	86.54	+		4.033E-01	1.147E-01	1.596E-01	1.495E-02	2.526
	105.31	*		1.109E-01	9.825E-02	1.649E-01	1.434E-02	0.672
TB-160	86.79	+		1.075E+00	3.053E-01	4.252E-01	3.959E-02	2.528
	197.04			-4.140E-01	4.985E-01	8.045E-01	7.364E-02	-0.515
	215.65			-3.915E-02	6.254E-01	1.052E+00	9.881E-02	-0.037
	298.57	+		2.363E-01	1.228E-01	1.821E-01	1.790E-02	1.298
	879.36	*		5.553E-02	1.151E-01	1.990E-01	1.989E-02	0.279
	962.29			3.744E-01	5.371E-01	8.204E-01	7.933E-02	0.456
	966.15	+		4.394E-01	2.461E-01	4.483E-01	4.326E-02	0.980
	1177.93			-2.918E-01	3.265E-01	4.800E-01	3.865E-02	-0.608

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M		1271.85		-3.132E-01	7.247E-01	1.117E+00	9.235E-02	-0.280
		80.57		2.723E-02	2.927E-01	3.383E-01	2.914E-02	0.080
	+	184.41		2.032E-01	4.925E-02	6.604E-02	5.931E-03	3.077
		280.46		-3.059E-02	7.345E-02	1.197E-01	1.191E-02	-0.255
		410.95		3.327E-01	2.318E-01	4.087E-01	3.488E-02	0.814
		711.68	*	-1.221E-02	5.063E-02	8.312E-02	8.419E-03	-0.147
TM-171		752.31		-5.463E-02	2.560E-01	4.202E-01	4.270E-02	-0.130
		810.29		-3.341E-02	5.052E-02	7.864E-02	7.971E-03	-0.425
		51.35		-1.295E+01	1.934E+01	3.108E+01	2.375E+00	-0.416
		52.39		-6.757E-01	1.012E+01	1.666E+01	1.254E+00	-0.041
		59.40		1.294E+01	2.010E+01	3.046E+01	2.155E+00	0.425
		66.72	*	4.243E+00	2.378E+01	3.518E+01	2.621E+00	0.121
LU-176	+	88.36		7.943E-01	2.256E-01	3.208E-01	3.025E-02	2.476
		201.83		-1.408E-02	2.507E-02	4.138E-02	3.814E-03	-0.340
		306.84	*	-6.474E-03	2.169E-02	3.540E-02	3.453E-03	-0.183
		401.10		1.456E+00	5.842E+00	9.727E+00	8.212E-01	0.150
		112.95		-9.137E-01	1.536E+00	2.376E+00	2.003E-01	-0.385
	+	208.36	*	1.614E+00	1.297E+00	1.810E+00	1.683E-01	0.892
LU-177M		52.97		3.810E-01	1.047E+00	1.750E+00	1.307E-01	0.218
		54.07		3.904E-01	5.549E-01	9.375E-01	6.909E-02	0.416
		61.30		1.184E+00	1.173E+00	1.798E+00	1.286E-01	0.658
		121.62		8.188E-02	3.543E-01	5.747E-01	4.792E-02	0.142
		147.16		-1.557E-01	5.985E-01	9.432E-01	8.010E-02	-0.165
		171.86		3.844E-01	4.455E-01	7.327E-01	6.454E-02	0.525
HF-181		218.09		-4.599E-01	7.451E-01	1.221E+00	1.150E-01	-0.377
	+	268.79		2.745E+00	1.103E+00	1.321E+00	1.307E-01	2.078
		319.02		8.841E-02	2.221E-01	3.764E-01	3.623E-02	0.235
		367.43		-3.771E-01	8.638E-01	1.383E+00	1.227E-01	-0.273
		413.65	*	-1.006E-02	1.646E-01	2.682E-01	2.296E-02	-0.037
		56.28		-1.910E-01	6.350E-01	1.034E+00	7.461E-02	-0.185
W-181		57.53		-7.941E-02	3.481E-01	5.683E-01	4.063E-02	-0.140
		65.20		-1.139E-01	8.077E-01	1.179E+00	8.678E-02	-0.097
		133.02		5.804E-03	6.132E-02	9.858E-02	8.249E-03	0.059
		136.25		2.608E-01	4.184E-01	6.865E-01	5.760E-02	0.380
		345.85		-1.272E-02	1.891E-01	2.725E-01	2.522E-02	-0.047
		482.03	*	-2.412E-03	3.923E-02	6.333E-02	5.775E-03	-0.038
TA-182		56.28		-7.462E-02	2.492E-01	4.059E-01	2.928E-02	-0.184
		57.53		-3.107E-02	1.367E-01	2.232E-01	1.596E-02	-0.139
		65.20	*	-4.437E-02	3.147E-01	4.595E-01	3.381E-02	-0.097
		67.75		-3.354E-02	9.611E-02	1.388E-01	1.044E-02	-0.242
		100.10		9.666E-02	1.578E-01	2.611E-01	2.287E-02	0.370
		152.43		3.425E-01	3.023E-01	5.039E-01	4.310E-02	0.680
RE-183		222.10		1.805E-01	3.012E-01	5.198E-01	4.920E-02	0.347
		1001.68		1.764E+00	1.869E+00	3.299E+00	3.118E-01	0.535
	+	1121.28		6.773E-01	2.351E-01	3.026E-01	2.586E-02	2.238
		1189.05		-2.440E-02	3.090E-01	4.970E-01	4.016E-02	-0.049
		1221.42	*	1.869E-02	1.855E-01	3.026E-01	2.469E-02	0.062
		1230.97		-5.204E-01	5.061E-01	7.465E-01	6.108E-02	-0.697
		57.98		-8.336E-02	1.380E-01	2.220E-01	1.582E-02	-0.375

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		5.071E-02	8.235E-02	1.246E-01	8.823E-03	0.407
		67.20		-1.239E-02	1.694E-01	2.479E-01	1.854E-02	-0.050
		162.32	*	1.120E-01	1.030E-01	1.676E-01	1.455E-02	0.668
	+	208.81		1.484E+00	1.193E+00	1.656E+00	1.541E-01	0.896
		291.72		-9.137E-01	9.566E-01	1.296E+00	1.280E-01	-0.705
		57.98		-3.076E-01	5.092E-01	8.191E-01	5.839E-02	-0.375
		59.32		1.870E-01	3.036E-01	4.596E-01	3.253E-02	0.407
		67.20		-4.572E-02	6.250E-01	9.143E-01	6.840E-02	-0.050
		161.27		-1.889E-02	3.304E-01	5.235E-01	4.536E-02	-0.036
		216.55		1.550E-01	2.207E-01	3.830E-01	3.601E-02	0.405
		252.85	*	-1.364E-01	2.002E-01	3.232E-01	3.158E-02	-0.422
		318.01		-1.874E-01	3.983E-01	6.418E-01	6.184E-02	-0.292
		792.07		1.600E-01	8.934E-01	1.508E+00	1.531E-01	0.106
		903.28		2.990E-01	9.116E-01	1.469E+00	1.458E-01	0.203
OS-185		920.93		-3.287E-01	4.104E-01	6.220E-01	6.130E-02	-0.529
		59.72		1.682E-01	2.225E-01	3.387E-01	2.399E-02	0.497
		61.14		8.268E-02	1.286E-01	1.944E-01	1.389E-02	0.425
		69.30		-8.479E-02	2.414E-01	3.717E-01	2.834E-02	-0.228
		592.07		1.481E-02	2.283E+00	3.659E+00	3.575E-01	0.004
		646.12	*	3.127E-02	3.679E-02	6.568E-02	6.559E-03	0.476
		717.42		-2.252E-03	8.116E-01	1.359E+00	1.377E-01	-0.002
		874.81		1.419E-01	5.199E-01	8.810E-01	8.820E-02	0.161
		880.27		6.118E-02	6.543E-01	1.092E+00	1.091E-01	0.056
		155.03	*	8.681E-03	1.556E-01	2.483E-01	2.132E-02	0.035
RE-188		477.96		1.333E+00	2.762E+00	4.636E+00	4.214E-01	0.287
		633.10		2.073E+00	2.599E+00	4.413E+00	4.386E-01	0.470
	+	63.58		1.405E+02	6.678E+01	7.735E+01	5.622E+00	1.816
W-188		227.08		1.011E+01	1.074E+01	1.876E+01	1.787E+00	0.539
		290.67	*	-6.714E+00	7.447E+00	1.013E+01	1.001E+00	-0.663
	+	295.96		9.143E-01	2.075E-01	2.546E-01	2.522E-02	3.591
IR-192		308.46		7.119E-02	8.217E-02	1.426E-01	1.394E-02	0.499
		316.51	*	-1.087E-02	3.045E-02	4.942E-02	4.779E-03	-0.220
		468.07		-2.837E-02	6.967E-02	9.480E-02	9.109E-03	-0.299
		604.41		1.220E-01	4.747E-01	6.802E-01	9.418E-02	0.179
		612.46		7.906E-01	7.727E-01	1.182E+00	1.300E-01	0.669
AU-195		65.12		5.910E-02	1.456E-01	2.172E-01	1.597E-02	0.272
		66.83		-4.134E-03	7.948E-02	1.164E-01	8.681E-03	-0.036
	+	75.70		1.150E+00	2.181E-01	3.761E-01	3.062E-02	3.057
		98.88	*	3.905E-01	2.214E-01	3.437E-01	3.026E-02	1.136
TL-200		129.76		4.346E+00	2.632E+00	4.463E+00	3.727E-01	0.974
		367.94	*	-6.667E-05	2.632E+00	Half-Life	too short	
		579.30		1.485E-03	2.632E+00	Half-Life	too short	
		828.27		-1.072E-03	2.632E+00	Half-Life	too short	
TL-201		1205.75		-6.772E-04	2.632E+00	Half-Life	too short	
		68.90		-5.191E-01	3.666E+00	5.692E+00	4.323E-01	-0.091
		70.82		6.139E-01	2.197E+00	3.252E+00	2.515E-01	0.189
		80.30		7.734E-01	5.127E+00	5.952E+00	5.110E-01	0.130
		135.34		1.196E+01	2.209E+01	3.614E+01	3.030E+00	0.331
		167.43	*	-2.037E+00	5.952E+00	9.279E+00	8.118E-01	-0.220

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		-4.863E-02	3.434E-01	5.333E-01	4.050E-02	-0.091
		70.82		5.736E-02	2.053E-01	3.038E-01	2.350E-02	0.189
		80.30		7.228E-02	4.792E-01	5.562E-01	4.776E-02	0.130
HG-203		439.56	*	6.166E-03	6.461E-02	1.060E-01	9.311E-03	0.058
		70.83		2.516E-01	8.990E-01	1.330E+00	1.737E-01	0.189
		72.87		4.227E-01	5.419E-01	8.133E-01	1.036E-01	0.520
		82.60		2.931E-01	1.082E+00	1.455E+00	2.019E-01	0.201
BI-207		279.20	*	3.219E-02	3.527E-02	6.126E-02	6.230E-03	0.525
		72.80		1.104E-01	1.568E-01	2.355E-01	1.858E-02	0.469
	+	74.97		6.383E-01	1.211E-01	1.841E-01	1.487E-02	3.467
	+	84.90		3.080E-01	2.038E-01	2.739E-01	2.490E-02	1.124
		569.67		2.089E-03	2.819E-02	4.553E-02	4.399E-03	0.046
		1063.62	*	3.666E-02	4.645E-02	8.146E-02	7.356E-03	0.450
TL-207		1770.23		-1.427E+00	5.763E-01	5.438E-01	4.461E-02	-2.624
		81.07		-1.221E-03	2.334E-01	2.677E-01	2.320E-02	-0.005
	+	83.78		2.031E-01	1.344E-01	1.823E-01	1.634E-02	1.114
		94.90		5.216E-01	2.249E-01	3.534E-01	3.178E-02	1.476
		122.32		2.786E-01	1.654E+00	2.675E+00	2.404E-01	0.104
		144.24		-7.775E-02	6.583E-01	1.035E+00	9.832E-02	-0.075
		154.21		2.480E-02	3.680E-01	5.875E-01	5.545E-02	0.042
	+	269.46		6.434E-01	2.588E-01	3.226E-01	3.243E-02	1.994
	+	323.87	*	3.708E-01	6.519E-01	9.865E-01	1.794E-01	0.376
	+	338.28		5.845E+00	1.798E+00	2.220E+00	2.852E-01	2.633
		445.03		1.530E-01	2.073E+00	3.394E+00	4.154E-01	0.045
PO-209		260.50		1.894E+00	8.295E+00	1.404E+01	1.381E+00	0.135
		262.80		-1.602E+01	2.296E+01	3.693E+01	3.638E+00	-0.434
		896.60	*	5.633E-01	6.586E+00	1.096E+01	1.090E+00	0.051
PB-211		404.84	*	-3.101E-01	8.617E-01	1.342E+00	8.404E-01	-0.231
		427.08		1.066E-01	1.999E+00	3.255E+00	2.023E+00	0.033
		831.96		2.916E-01	1.064E+00	1.781E+00	1.120E+00	0.164
BI-212	+	727.18	*	1.294E+00	3.844E-01	6.077E-01	6.897E-02	2.129
		785.46		-5.693E-01	1.575E+00	2.544E+00	2.584E-01	-0.224
		1620.62		2.122E-01	1.078E+00	1.840E+00	1.550E-01	0.115
PO-215		81.07		-1.221E-03	2.334E-01	2.677E-01	2.320E-02	-0.005
	+	83.78		2.031E-01	1.344E-01	1.823E-01	1.634E-02	1.114
		94.90		5.216E-01	2.249E-01	3.534E-01	3.178E-02	1.476
		122.32		2.786E-01	1.654E+00	2.675E+00	2.404E-01	0.104
		144.24		-7.775E-02	6.583E-01	1.035E+00	9.832E-02	-0.075
		154.21		2.480E-02	3.680E-01	5.875E-01	5.545E-02	0.042
	+	269.46		6.434E-01	2.588E-01	3.226E-01	3.243E-02	1.994
	+	323.87	*	3.708E-01	6.519E-01	9.865E-01	1.794E-01	0.376
	+	338.28		5.845E+00	1.798E+00	2.220E+00	2.852E-01	2.633
		445.03		1.530E-01	2.073E+00	3.394E+00	4.154E-01	0.045
RN-219	+	271.23		8.254E-01	3.350E-01	4.043E-01	4.614E-02	2.042
		401.81	*	-1.280E-01	3.700E-01	5.915E-01	8.830E-02	-0.216
RN-220		549.76	*	6.939E+00	2.366E+01	3.897E+01	3.723E+00	0.178
RA-223		81.07		-1.221E-03	2.334E-01	2.677E-01	2.320E-02	-0.005
	+	83.78		2.031E-01	1.344E-01	1.823E-01	1.634E-02	1.114
		94.90		5.216E-01	2.249E-01	3.534E-01	3.178E-02	1.476

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		2.786E-01	1.654E+00	2.675E+00	2.404E-01	0.104
		144.24		-7.775E-02	6.583E-01	1.035E+00	9.832E-02	-0.075
		154.21		2.480E-02	3.680E-01	5.875E-01	5.545E-02	0.042
	+	269.46		6.434E-01	2.588E-01	3.226E-01	3.243E-02	1.994
		323.87	*	3.708E-01	6.519E-01	9.865E-01	1.794E-01	0.376
	+	338.28		5.845E+00	1.798E+00	2.220E+00	2.852E-01	2.633
		445.03		1.530E-01	2.073E+00	3.394E+00	4.154E-01	0.045
		79.80		5.363E-01	1.778E+00	2.083E+00	4.472E-01	0.257
		236.00		3.942E-01	2.486E-01	3.913E-01	5.073E-02	1.007
		256.20	*	-1.469E-01	3.328E-01	5.438E-01	8.723E-02	-0.270
		286.10		8.695E-01	1.371E+00	2.350E+00	3.309E-01	0.370
	+	299.80		3.017E+00	1.633E+00	2.357E+00	4.268E-01	1.280
TH-227		304.40		1.631E-02	1.807E+00	2.641E+00	5.019E-01	0.006
		334.20		8.943E-01	2.817E+00	3.560E+00	7.043E-01	0.251
		79.80		5.363E-01	1.778E+00	2.083E+00	4.529E-01	0.257
	+	94.00		1.534E+01	4.157E+00	3.849E+00	8.448E-01	3.987
		236.00		3.942E-01	2.478E-01	3.913E-01	4.644E-02	1.007
		256.20	*	-1.469E-01	3.331E-01	5.438E-01	1.014E-01	-0.270
		286.10		8.695E-01	1.621E+00	2.350E+00	2.361E+00	0.370
	+	299.80		3.017E+00	1.633E+00	2.357E+00	4.268E-01	1.280
		304.40		1.631E-02	1.807E+00	2.641E+00	5.019E-01	0.006
		334.20		8.943E-01	2.817E+00	3.560E+00	7.043E-01	0.251
	+	85.43		3.040E-01	2.012E-01	2.786E-01	2.549E-02	1.091
	+	88.47		4.572E-01	1.299E-01	1.844E-01	1.737E-02	2.479
TH-229		100.00		8.409E-02	1.670E-01	2.732E-01	2.394E-02	0.308
		193.63	*	6.246E-02	4.308E-01	7.343E-01	6.687E-02	0.085
		210.97		1.045E+00	7.553E-01	1.192E+00	1.113E-01	0.877
	PA-231	283.67	*	-1.306E+00	1.331E+00	2.072E+00	3.308E-01	-0.630
		301.29		6.351E-01	5.682E-01	8.874E-01	1.163E-01	0.716
	TH-231	81.07		-1.221E-03	2.334E-01	2.677E-01	2.320E-02	-0.005
	+	83.78		2.031E-01	1.344E-01	1.823E-01	1.634E-02	1.114
		94.90		5.216E-01	2.249E-01	3.534E-01	3.178E-02	1.476
		122.32		2.786E-01	1.654E+00	2.675E+00	2.404E-01	0.104
		144.24		-7.775E-02	6.583E-01	1.035E+00	9.832E-02	-0.075
		154.21		2.480E-02	3.680E-01	5.875E-01	5.545E-02	0.042
	+	269.46		6.434E-01	2.588E-01	3.226E-01	3.243E-02	1.994
U-231		323.87	*	3.708E-01	6.519E-01	9.865E-01	1.794E-01	0.376
	+	338.28		5.845E+00	1.798E+00	2.220E+00	2.852E-01	2.633
		445.03		1.530E-01	2.073E+00	3.394E+00	4.154E-01	0.045
	+	84.21		8.407E+00	5.564E+00	7.551E+00	6.803E-01	1.113
	+	92.29		1.457E+01	2.662E+00	4.057E+00	3.711E-01	3.590
		95.87	*	-1.037E+00	1.015E+00	1.384E+00	1.238E-01	-0.750
		108.00		-1.343E+00	1.835E+00	2.870E+00	2.446E-01	-0.468
	PA-233	75.28		1.863E+01	4.252E+00	5.544E+00	8.352E-01	3.359
	+	86.59		6.556E+00	2.498E+00	2.596E+00	7.021E-01	2.525
	+	300.12		8.410E-01	4.487E-01	6.559E-01	1.023E-01	1.282
		311.98	*	-4.288E-02	5.728E-02	9.073E-02	9.002E-03	-0.473
		340.50		1.118E+00	6.632E-01	9.982E-01	2.406E-01	1.120
		398.62		1.645E-01	1.867E+00	3.077E+00	8.173E-01	0.053

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76	-1.784E+00	1.549E+00	2.252E+00	4.850E-01	-0.792
		63.00	4.084E+00	2.011E+00	2.288E+00	3.381E-01	1.785
		94.67	5.076E-01	1.660E-01	2.745E-01	3.479E-02	1.849
		98.44	1.494E-01	1.220E-01	1.393E-01	7.775E-02	1.072
		99.86	4.513E-01	4.186E-01	6.976E-01	6.115E-02	0.647
		111.00	4.537E-02	1.697E-01	2.764E-01	3.311E-02	0.164
		131.20	-5.309E-02	1.015E-01	1.589E-01	1.328E-02	-0.334
		152.70	3.644E-01	2.958E-01	4.869E-01	8.284E-02	0.748
		186.00	7.316E+00	2.821E+00	2.589E+00	8.110E-01	2.825
		226.40	1.782E-01	3.404E-01	5.851E-01	8.076E-02	0.304
		227.20	1.838E-01	3.703E-01	6.364E-01	6.061E-02	0.289
		248.90	4.814E-01	7.340E-01	1.219E+00	2.787E-01	0.395
		293.70	5.769E+00	1.568E+00	1.548E+00	2.779E-01	3.727
		369.80	7.053E-01	8.144E-01	1.384E+00	3.025E-01	0.510
		568.70	6.320E-01	9.084E-01	1.536E+00	1.483E-01	0.412
		569.50	4.074E-02	2.487E-01	4.046E-01	3.908E-02	0.101
		574.00	-1.109E-01	1.379E+00	2.199E+00	2.130E-01	-0.050
		699.00	-3.167E-01	6.689E-01	1.055E+00	2.088E-01	-0.300
		706.10	2.512E-01	9.176E-01	1.558E+00	6.997E-01	0.161
		733.00	-3.103E-02	3.657E-01	5.264E-01	1.202E-01	-0.059
		742.81	8.404E-01	1.399E+00	2.243E+00	1.512E+00	0.375
		796.30	1.096E+00	9.108E-01	1.566E+00	4.318E-01	0.700
		805.60	6.769E-01	8.984E-01	1.529E+00	4.758E-01	0.443
		819.60	-9.674E-03	1.079E+00	1.791E+00	6.875E-01	-0.005
		826.30	-3.673E-01	7.255E-01	1.116E+00	5.026E-01	-0.329
		831.60	1.651E-01	5.333E-01	9.052E-01	2.743E-01	0.182
		876.40	-5.126E-01	9.194E-01	1.165E+00	1.200E+00	-0.440
		880.51	1.016E-02	2.335E-01	3.877E-01	3.875E-02	0.026
		883.24	1.075E-01	2.545E-01	4.202E-01	2.832E-01	0.256
		899.00	2.307E-02	7.416E-01	1.228E+00	5.402E-01	0.019
		925.00	4.478E-01	1.138E+00	1.892E+00	1.862E-01	0.237
		926.50	3.699E-02	1.732E-01	2.836E-01	7.293E-02	0.130
		946.00	* -2.226E-01	2.998E-01	4.556E-01	8.797E-02	-0.488
		949.00	6.895E-01	4.462E-01	8.170E-01	7.954E-02	0.844
		980.50	-3.769E-01	8.117E-01	1.080E+00	1.034E-01	-0.349
		1394.10	3.234E-01	8.988E-01	1.541E+00	1.003E+00	0.210
PA-234M		766.42	6.170E+00	1.076E+01	1.790E+01	9.134E+00	0.345
		1001.03	* 2.685E+00	4.184E+00	7.242E+00	7.746E-01	0.371
U-235	+	89.95	3.009E+00	1.336E+00	1.639E+00	5.091E-01	1.835
		93.35	4.774E+00	1.543E+00	1.323E+00	3.727E-01	3.608
		105.00	1.108E+00	1.015E+00	1.619E+00	4.831E-01	0.684
		143.76	* 3.636E-02	2.035E-01	3.238E-01	5.643E-02	0.112
NP-236	+	163.35	1.621E-01	4.427E-01	6.983E-01	1.335E-01	0.232
		185.71	2.709E-01	6.567E-02	9.634E-02	8.670E-03	2.812
		205.31	3.006E-01	5.145E-01	7.864E-01	1.524E-01	0.382
		94.67	3.887E-01	1.214E-01	2.086E-01	1.878E-02	1.864
		98.44	1.129E-01	6.808E-02	1.053E-01	9.291E-03	1.072
		111.00	3.432E-02	1.283E-01	2.091E-01	1.769E-02	0.164
		160.31	* -5.594E-02	7.578E-02	1.161E-01	1.005E-02	-0.482

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.942E-01	1.416E-01	2.378E-01	2.088E-02	0.816
		117.00	*	-5.056E-02	1.802E-01	2.865E-01	2.400E-02	-0.176
	+	209.75		1.173E+00	9.430E-01	1.333E+00	1.242E-01	0.880
		228.18		3.829E-02	1.939E-01	3.292E-01	3.138E-02	0.116
		277.60		1.664E-01	1.605E-01	2.798E-01	2.783E-02	0.595
		334.30		4.737E-01	1.593E+00	2.012E+00	1.896E-01	0.236
AM-241		59.54	*	8.115E-02	1.171E-01	1.778E-01	1.391E-02	0.456
CM-243		99.55		1.998E-01	1.457E-01	2.447E-01	2.148E-02	0.816
		103.76	*	6.649E-02	8.535E-02	1.420E-01	1.226E-02	0.468
		117.00		-5.202E-02	1.853E-01	2.948E-01	2.470E-02	-0.176
	+	209.75		1.157E+00	9.296E-01	1.314E+00	1.224E-01	0.880
		228.18		3.869E-02	1.959E-01	3.326E-01	3.171E-02	0.116
		277.60		1.678E-01	1.618E-01	2.820E-01	2.806E-02	0.595
AM-246		798.80		-1.766E-01	1.339E-01	1.967E-01	1.996E-02	-0.898
		1036.00		-1.624E-01	2.473E-01	3.738E-01	3.451E-02	-0.435
		1062.04		-9.630E-02	2.099E-01	3.267E-01	2.954E-02	-0.295
		1078.86	*	6.454E-02	1.137E-01	1.967E-01	1.752E-02	0.328
CM-247		278.00		8.155E-01	6.613E-01	1.161E+00	1.155E-01	0.703
		287.40		1.768E+00	1.136E+00	1.967E+00	1.950E-01	0.899
		402.60	*	-3.066E-02	3.368E-02	5.168E-02	4.370E-03	-0.593
CF-249		252.85		-5.124E-01	7.519E-01	1.214E+00	1.186E-01	-0.422
		333.44		7.234E-02	2.394E-01	2.618E-01	2.471E-02	0.276
		387.95	*	-1.665E-02	3.674E-02	5.852E-02	4.938E-03	-0.285
CF-251		176.60	*	4.105E-03	1.177E-01	1.866E-01	1.656E-02	0.022
		227.00		2.989E-01	3.226E-01	5.636E-01	5.366E-02	0.530
		285.00		-6.192E-01	1.542E+00	2.513E+00	2.494E-01	-0.246

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     *
*                               GEL Laboratories LLC                          *
*                               2040 Savage Road                             *
*                               Charleston, SC 29414                        *
*                                     *
*****
*                               DETECTOR DATA                             *
*                                     *
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231006      *
* Acquisition date   : 21-JAN-2010 09:03:53 Detector SN#                   *
* Detector ID        : GAM20 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:33.49 Half life ratio : 8.000              *
*****
*                               SAMPLE DATA                               *
*                                     *
* Sample date       : 6-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID         : G244231006 Analyst initials: MXR1                  *
* Batch Number      : 941242 Sample Quantity : 1.3540E+02 GRAM           *
* Recovery          : 1.00000 Carrier Weight : 0.00000                   *
*****
*                               QC DATA                                   *
*                                     *
* Standard Weight   : 0.00000                                             *
* CALIB. DATE/TIME  : 26-AUG-2009 06:32:11 MS Isotope :                  *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.298E+01	3.292E+00	5.039E-01	0.000E+00
CD-109	3.406E+00	9.481E-01	1.034E+00	0.000E+00
SN-126	3.349E-01	9.322E-02	1.020E-01	0.000E+00
BA-137M	6.866E-01	1.095E-01	5.855E-02	0.000E+00
CS-137	7.258E-01	1.158E-01	6.190E-02	0.000E+00
TL-208	4.314E-01	8.903E-02	5.507E-02	0.000E+00
BI-210	2.806E+00	2.706E+00	3.282E+00	0.000E+00
PB-210	2.806E+00	2.706E+00	3.282E+00	0.000E+00
PO-210	2.806E+00	2.704E+00	3.282E+00	0.000E+00
BI-211	3.525E+00	5.113E-01	2.998E-01	0.000E+00
PB-212	1.527E+00	1.882E-01	8.211E-02	0.000E+00
PO-212	1.527E+00	1.882E-01	8.211E-02	0.000E+00
BI-214	1.137E+00	1.993E-01	1.121E-01	0.000E+00
PB-214	1.226E+00	1.886E-01	1.045E-01	0.000E+00
PO-214	1.226E+00	1.886E-01	1.045E-01	0.000E+00
PO-216	1.527E+00	1.882E-01	8.211E-02	0.000E+00
PO-218	1.226E+00	1.886E-01	1.045E-01	0.000E+00
RA-224	4.971E+00	1.342E+00	9.340E-01	0.000E+00
RA-226	1.137E+00	1.993E-01	1.121E-01	0.000E+00
AC-228	1.644E+00	3.079E-01	1.722E-01	0.000E+00
RA-228	1.644E+00	3.079E-01	1.722E-01	0.000E+00
TH-228	1.550E+00	1.910E-01	8.333E-02	0.000E+00
TH-230	1.137E+00	1.993E-01	1.121E-01	0.000E+00
TH-232	1.644E+00	3.079E-01	1.722E-01	0.000E+00
TH-234	3.504E+00	1.720E+00	1.692E+00	0.000E+00
U-234	1.137E+00	1.993E-01	1.121E-01	0.000E+00
NP-237	9.834E-01	3.384E-01	3.017E-01	0.000E+00
U-238	3.504E+00	1.720E+00	1.692E+00	0.000E+00
AM-243	3.556E-01	6.610E-02	7.364E-02	0.000E+00
ANH-511	1.115E-01	5.813E-02	4.200E-02	0.000E+00

---- Non-Identified Nuclides ----

Key-Line



Nuclide	Activity (pCi/GRAM	K.L. Act error ) Ided	MDA (pCi/GRAM	)	
BE-7	1.833E-01	2.794E-01	4.952E-01	0.000E+00	NOT IDENT.
NA-22	3.913E-02	4.255E-02	7.621E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	4.651E+05	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.468E-03	2.406E-02	4.113E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	4.760E-02	6.984E-02	0.000E+00	FAIL ABUN
SC-46	-4.291E-03	3.364E-02	5.670E-02	0.000E+00	FAIL ABUN
V-48	6.354E-02	6.330E-02	1.162E-01	0.000E+00	NOT IDENT.
CR-51	1.667E-01	3.162E-01	5.669E-01	0.000E+00	NOT IDENT.
MN-52	8.460E-02	1.649E-01	3.029E-01	0.000E+00	NOT IDENT.
MN-54	4.678E-03	3.662E-02	5.535E-02	0.000E+00	NOT IDENT.
CO-56	4.430E-03	3.994E-02	6.018E-02	0.000E+00	NOT IDENT.
CO-57	4.006E-03	2.345E-02	4.061E-02	0.000E+00	NOT IDENT.
CO-58	-1.994E-02	3.274E-02	5.307E-02	0.000E+00	NOT IDENT.
FE-59	1.148E-02	8.364E-02	1.419E-01	0.000E+00	NOT IDENT.
CO-60	1.458E-02	3.481E-02	6.018E-02	0.000E+00	NOT IDENT.
ZN-65	-2.798E-02	9.398E-02	1.304E-01	0.000E+00	NOT IDENT.
GE-68	4.044E-01	1.016E+00	1.775E+00	0.000E+00	NOT IDENT.
AS-73	3.266E-01	5.268E-01	9.637E-01	0.000E+00	NOT IDENT.
AS-74	-4.924E-02	8.137E-02	1.284E-01	0.000E+00	NOT IDENT.
SE-75	3.491E-03	3.913E-02	6.448E-02	0.000E+00	NOT IDENT.
BR-77	5.462E+00	8.771E+00	1.543E+01	0.000E+00	FAIL ABUN
SR-82	-2.065E-01	3.186E-01	5.179E-01	0.000E+00	NOT IDENT.
RB-83	3.739E-02	6.047E-02	1.065E-01	0.000E+00	NOT IDENT.
RB-84	-1.153E-02	5.757E-02	9.638E-02	0.000E+00	NOT IDENT.
KR-85	9.719E+00	6.842E+00	1.138E+01	0.000E+00	NOT IDENT.
SR-85	4.971E-02	3.499E-02	5.822E-02	0.000E+00	NOT IDENT.
RB-86	2.143E-01	6.349E-01	1.103E+00	0.000E+00	NOT IDENT.
Y-88	2.389E-03	2.439E-02	4.168E-02	0.000E+00	NOT IDENT.
ZR-88	8.360E-03	2.717E-02	4.759E-02	0.000E+00	NOT IDENT.
Y-91	1.563E+01	1.857E+01	3.309E+01	0.000E+00	NOT IDENT.
NB-94	9.251E-03	2.954E-02	5.248E-02	0.000E+00	NOT IDENT.
NB-95	-1.795E-02	3.887E-02	6.484E-02	0.000E+00	NOT IDENT.
NB-95M	5.210E-02	1.183E-01	1.901E-01	0.000E+00	NOT IDENT.
ZR-95	2.471E-02	6.792E-02	1.204E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	7.578E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	1.372E+06	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-4.044E+00	9.991E+00	1.673E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.864E+16	0.000E+00	0.000E+00	SHORT HLIF
RH-101	1.036E-02	2.886E-02	5.198E-02	0.000E+00	NOT IDENT.
RH-102	-1.679E-02	2.653E-02	4.284E-02	0.000E+00	NOT IDENT.
RU-103	2.118E-02	3.459E-02	6.097E-02	0.000E+00	FAIL ABUN
RH-106	-2.199E-01	2.904E-01	4.474E-01	0.000E+00	FAIL ABUN
RU-106	-2.199E-01	2.896E-01	4.474E-01	0.000E+00	FAIL ABUN
AG-108M	4.785E-03	3.145E-02	5.419E-02	0.000E+00	NOT IDENT.
AG-110M	2.102E-02	3.402E-02	5.503E-02	0.000E+00	NOT IDENT.
IN-111	-6.732E-01	9.075E-01	1.340E+00	0.000E+00	NOT IDENT.
IN-113M	-6.163E-03	3.940E-02	6.708E-02	0.000E+00	NOT IDENT.
SN-113	-6.163E-03	3.940E-02	6.708E-02	0.000E+00	NOT IDENT.
IN-114M	5.357E-03	1.734E-01	2.764E-01	0.000E+00	NOT IDENT.
CD-115	-7.570E+00	8.583E+00	1.330E+01	0.000E+00	NOT IDENT.
SN-117M	2.870E-02	4.808E-02	8.358E-02	0.000E+00	NOT IDENT.
SB-122	1.315E+00	1.778E+00	3.134E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.856E+06	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-7.297E-04	2.576E-02	4.357E-02	0.000E+00	NOT IDENT.
I-124	-6.435E-01	6.944E-01	9.001E-01	0.000E+00	FAIL ABUN
SB-124	2.596E-03	4.654E-02	7.949E-02	0.000E+00	FAIL ABUN
SB-125	3.429E-03	8.740E-02	1.488E-01	0.000E+00	FAIL ABUN
TE-125M	6.022E-01	8.303E+00	1.441E+01	0.000E+00	NOT IDENT.
I-126	2.612E-02	1.819E-01	2.807E-01	0.000E+00	NOT IDENT.
SB-126	8.084E-02	1.302E-01	2.247E-01	0.000E+00	NOT IDENT.
SB-127	-7.395E-02	1.162E+00	2.014E+00	0.000E+00	NOT IDENT.
XE-127	-4.020E-02	4.092E-02	7.030E-02	0.000E+00	NOT IDENT.
I-131	3.064E-02	1.001E-01	1.761E-01	0.000E+00	NOT IDENT.
TE-132	2.567E-01	5.477E-01	9.934E-01	0.000E+00	NOT IDENT.
BA-133	-1.068E-02	4.221E-02	6.270E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	4.168E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	6.072E-02	4.430E-02	8.307E-02	0.000E+00	NOT IDENT.
CS-135	1.653E-01	1.518E-01	2.511E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.763E+15	0.000E+00	0.000E+00	SHORT HLIF
CS-136	6.229E-02	9.758E-02	1.734E-01	0.000E+00	FAIL ABUN
CE-139	-2.415E-02	2.651E-02	4.270E-02	0.000E+00	NOT IDENT.
BA-140	1.943E-02	2.249E-01	3.801E-01	0.000E+00	NOT IDENT.
LA-140	3.603E-02	6.230E-02	1.046E-01	0.000E+00	FAIL ABUN
CE-141	1.636E-02	5.676E-02	9.780E-02	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.872E+02	0.000E+00	0.000E+00	SHORT HLIF

CE-144	9.905E-02	1.853E-01	3.232E-01	0.000E+00	NOT IDENT.
PM-144	-2.606E-02	3.077E-02	4.963E-02	0.000E+00	NOT IDENT.
PR-144	-1.766E+00	2.085E+00	3.363E+00	0.000E+00	NOT IDENT.
PM-146	1.086E-02	3.948E-02	6.840E-02	0.000E+00	NOT IDENT.
ND-147	-3.452E-01	4.989E-01	7.875E-01	0.000E+00	FAIL ABUN
PM-149	3.817E+01	7.380E+01	1.326E+02	0.000E+00	NOT IDENT.
EU-152	-2.256E-02	8.999E-02	1.420E-01	0.000E+00	FAIL ABUN
GD-153	-1.043E-02	7.674E-02	1.180E-01	0.000E+00	FAIL ABUN
EU-154	1.019E-01	1.195E-01	2.125E-01	0.000E+00	NOT IDENT.
EU-155	1.109E-01	9.629E-02	1.735E-01	0.000E+00	FAIL ABUN
TB-160	5.553E-02	1.128E-01	2.014E-01	0.000E+00	FAIL ABUN
HO-166M	-1.221E-02	4.962E-02	8.445E-02	0.000E+00	FAIL ABUN
TM-171	4.243E+00	2.331E+01	3.730E+01	0.000E+00	NOT IDENT.
LU-176	-6.474E-03	2.125E-02	3.653E-02	0.000E+00	FAIL ABUN
LU-177	1.614E+00	1.271E+00	1.881E+00	0.000E+00	FAIL ABUN
LU-177M	-1.006E-02	1.614E-01	2.753E-01	0.000E+00	FAIL ABUN
HF-181	-2.412E-03	3.845E-02	6.482E-02	0.000E+00	NOT IDENT.
W-181	-4.437E-02	3.084E-01	4.873E-01	0.000E+00	NOT IDENT.
TA-182	1.869E-02	1.818E-01	3.044E-01	0.000E+00	FAIL ABUN
RE-183	1.120E-01	1.010E-01	1.749E-01	0.000E+00	FAIL ABUN
RE-184	-1.364E-01	1.962E-01	3.346E-01	0.000E+00	NOT IDENT.
OS-185	3.127E-02	3.605E-02	6.685E-02	0.000E+00	NOT IDENT.
RE-188	8.681E-03	1.525E-01	2.594E-01	0.000E+00	NOT IDENT.
W-188	-6.714E+00	7.298E+00	1.046E+01	0.000E+00	FAIL ABUN
IR-192	-1.087E-02	2.984E-02	5.097E-02	0.000E+00	FAIL ABUN
AU-195	0.000E+00	2.170E-01	3.619E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	3.606E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-2.037E+00	5.833E+00	9.680E+00	0.000E+00	NOT IDENT.
TL-202	6.166E-03	6.331E-02	1.087E-01	0.000E+00	NOT IDENT.
HG-203	3.219E-02	3.456E-02	6.333E-02	0.000E+00	NOT IDENT.
BI-207	3.666E-02	4.552E-02	8.215E-02	0.000E+00	FAIL ABUN
TL-207	3.708E-01	6.389E-01	1.017E+00	0.000E+00	FAIL ABUN
PO-209	5.633E-01	6.454E+00	1.109E+01	0.000E+00	NOT IDENT.
PB-211	-3.101E-01	8.445E-01	1.377E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	3.767E-01	6.173E-01	0.000E+00	FAIL ABUN
PO-215	3.708E-01	6.389E-01	1.017E+00	0.000E+00	FAIL ABUN
RN-219	-1.280E-01	3.626E-01	6.074E-01	0.000E+00	FAIL ABUN
RN-220	6.939E+00	2.319E+01	3.978E+01	0.000E+00	NOT IDENT.
RA-223	3.708E-01	6.389E-01	1.017E+00	0.000E+00	FAIL ABUN
AC-227	-1.469E-01	3.262E-01	5.630E-01	0.000E+00	FAIL ABUN
TH-227	-1.469E-01	3.265E-01	5.630E-01	0.000E+00	FAIL ABUN
TH-229	6.246E-02	4.222E-01	7.641E-01	0.000E+00	FAIL ABUN
PA-231	-1.306E+00	1.305E+00	2.141E+00	0.000E+00	NOT IDENT.
TH-231	3.708E-01	6.389E-01	1.017E+00	0.000E+00	FAIL ABUN
U-231	-1.037E+00	9.950E-01	1.458E+00	0.000E+00	FAIL ABUN
PA-233	-4.288E-02	5.613E-02	9.360E-02	0.000E+00	FAIL ABUN
PA-234	-2.226E-01	2.938E-01	4.605E-01	0.000E+00	FAIL ABUN
PA-234M	2.685E+00	4.100E+00	7.311E+00	0.000E+00	NOT IDENT.
U-235	3.636E-02	1.994E-01	3.387E-01	0.000E+00	FAIL ABUN
NP-236	-5.594E-02	7.427E-02	1.212E-01	0.000E+00	NOT IDENT.
NP-239	-5.056E-02	1.766E-01	3.008E-01	0.000E+00	FAIL ABUN
AM-241	8.115E-02	1.148E-01	1.888E-01	0.000E+00	NOT IDENT.
CM-243	6.649E-02	8.365E-02	1.494E-01	0.000E+00	FAIL ABUN
AM-246	6.454E-02	1.114E-01	1.983E-01	0.000E+00	NOT IDENT.
CM-247	-3.066E-02	3.301E-02	5.307E-02	0.000E+00	NOT IDENT.
CF-249	-1.665E-02	3.600E-02	6.013E-02	0.000E+00	NOT IDENT.
CF-251	4.105E-03	1.154E-01	1.945E-01	0.000E+00	NOT IDENT.

## VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:06:50.88

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231006.CNF;1
Sample date        : 6-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:03:53
Sample ID          : G244231006      Sample quantity   : 1.35400E+02 GRAM
Detector name      : GAM20            Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00    Elapsed real time: 0 02:00:33.49  0.5%
Energy tolerance   : 1.50000 keV      Analyst Initials : MXR1
Abundance limit    : 75.00000          Sensitivity      : 5.00000
Batch ID           : 941242            Detector SN#     :
Matrix Spike ID    :                   LCS ID           : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1591	10.67*	1.253E+00	3.298E+01	3.298E+01	10.18
CD-109	88.03	310	3.72*	6.942E+00	3.331E+00	3.406E+00	28.40
SN-126	64.28	224	9.60	4.661E+00	1.387E+00	1.387E+00	49.15
	86.94	310	8.90	6.942E+00	1.392E+00	1.392E+00	49.43
	87.57	310	37.00*	6.942E+00	3.349E-01	3.349E-01	28.40
BA-137M	661.65	542	89.98*	2.435E+00	6.859E-01	6.866E-01	16.28
CS-137	661.65	542	85.12*	2.435E+00	7.251E-01	7.258E-01	16.28
TL-208	277.35	-----	6.80	4.722E+00	-----	Line Not Found	-----
	510.84	120	21.60	2.994E+00	5.161E-01	5.161E-01	53.86
	583.14	353	84.20*	2.696E+00	4.314E-01	4.314E-01	21.06
	860.37	49	12.46	1.954E+00	5.596E-01	5.596E-01	69.40
BI-210	46.50	74	4.05*	1.814E+00	2.802E+00	2.806E+00	98.41
PB-210	46.50	74	4.05*	1.814E+00	2.802E+00	2.806E+00	98.41
PO-210	46.50	74	4.05*	1.814E+00	2.802E+00	2.806E+00	98.33
BI-211	72.87	-----	1.27	5.845E+00	-----	Line Not Found	-----
	351.07	653	12.94*	3.971E+00	3.525E+00	3.525E+00	14.80
PB-212	74.81	512	10.70	6.051E+00	2.193E+00	2.193E+00	21.15
	77.11	739	18.00	6.258E+00	1.818E+00	1.818E+00	14.48
	87.30	310	8.00	6.942E+00	1.549E+00	1.549E+00	30.11
	238.63	1290	44.60*	5.250E+00	1.527E+00	1.527E+00	12.58
	300.09	89	3.41	4.465E+00	1.628E+00	1.628E+00	52.28
PO-212	74.81	512	10.70	6.051E+00	2.193E+00	2.193E+00	21.15
	77.11	739	18.00	6.258E+00	1.818E+00	1.818E+00	14.48
	87.30	310	8.00	6.942E+00	1.549E+00	1.549E+00	30.11
	115.19	-----	0.60	7.430E+00	-----	Line Not Found	-----
	238.63	1290	44.60*	5.250E+00	1.527E+00	1.527E+00	12.58
	300.09	89	3.41	4.465E+00	1.628E+00	1.628E+00	52.28
BI-214	609.31	494	46.30*	2.603E+00	1.137E+00	1.137E+00	17.89
	1120.29	122	15.10	1.558E+00	1.434E+00	1.435E+00	35.33
	1764.49	90	15.80	1.100E+00	1.435E+00	1.435E+00	22.63
PB-214	74.81	512	6.21	6.051E+00	3.779E+00	3.779E+00	20.37
	77.11	739	10.50	6.258E+00	3.117E+00	3.117E+00	16.36

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	87.30	310	4.67	6.942E+00	2.653E+00	2.653E+00	29.43
	241.98	369	7.49	5.204E+00	2.621E+00	2.621E+00	28.12
	295.21	376	19.20	4.517E+00	1.202E+00	1.202E+00	23.51
	351.92	653	37.20*	3.971E+00	1.226E+00	1.226E+00	15.70
	74.81	512	6.21	6.051E+00	3.779E+00	3.779E+00	20.37
	77.11	739	10.50	6.258E+00	3.117E+00	3.117E+00	16.36
	87.30	310	4.67	6.942E+00	2.653E+00	2.653E+00	29.43
PO-216	241.98	369	7.49	5.204E+00	2.621E+00	2.621E+00	28.12
	295.21	376	19.20	4.517E+00	1.202E+00	1.202E+00	23.51
	351.92	653	37.20*	3.971E+00	1.226E+00	1.226E+00	15.70
	74.81	512	10.70	6.051E+00	2.193E+00	2.193E+00	21.15
	77.11	739	18.00	6.258E+00	1.818E+00	1.818E+00	14.48
	87.30	310	8.00	6.942E+00	1.549E+00	1.549E+00	30.11
	238.63	1290	44.60*	5.250E+00	1.527E+00	1.527E+00	12.58
PO-218	300.09	89	3.41	4.465E+00	1.628E+00	1.628E+00	52.28
	74.81	512	6.21	6.051E+00	3.779E+00	3.779E+00	20.37
	77.11	739	10.50	6.258E+00	3.117E+00	3.117E+00	16.36
	87.30	310	4.67	6.942E+00	2.653E+00	2.653E+00	29.43
	241.98	369	7.49	5.204E+00	2.621E+00	2.621E+00	28.12
	295.21	376	19.20	4.517E+00	1.202E+00	1.202E+00	23.51
	351.92	653	37.20*	3.971E+00	1.226E+00	1.226E+00	15.70
RA-224	240.98	369	3.95*	5.204E+00	4.971E+00	4.971E+00	27.55
RA-226	609.31	494	46.30*	2.603E+00	1.137E+00	1.137E+00	17.89
	1120.29	122	15.10	1.558E+00	1.434E+00	1.435E+00	35.33
	1764.49	90	15.80	1.100E+00	1.435E+00	1.435E+00	22.63
AC-228	338.32	235	11.40	4.085E+00	1.400E+00	1.400E+00	49.97
	911.07	306	27.70*	1.861E+00	1.644E+00	1.644E+00	19.11
	969.11	152	16.60	1.765E+00	1.435E+00	1.435E+00	34.63
RA-228	338.32	235	11.40	4.085E+00	1.400E+00	1.400E+00	49.97
	911.07	306	27.70*	1.861E+00	1.644E+00	1.644E+00	19.11
	969.11	152	16.60	1.765E+00	1.435E+00	1.435E+00	34.63
TH-228	74.81	512	10.70	6.051E+00	2.193E+00	2.226E+00	19.00
	77.11	739	18.00	6.258E+00	1.818E+00	1.845E+00	14.48
	87.30	310	8.00	6.942E+00	1.549E+00	1.572E+00	28.40
	238.63	1290	44.60*	5.250E+00	1.527E+00	1.550E+00	12.58
TH-230	300.09	89	3.41	4.465E+00	1.628E+00	1.652E+00	78.35
	609.31	494	46.30*	2.603E+00	1.137E+00	1.137E+00	17.89
	1120.29	122	15.10	1.558E+00	1.434E+00	1.434E+00	35.33
	1764.49	90	15.80	1.100E+00	1.435E+00	1.435E+00	22.63
TH-232	338.32	235	11.40	4.085E+00	1.400E+00	1.400E+00	29.47
	911.07	306	27.70*	1.861E+00	1.644E+00	1.644E+00	19.11
	969.11	152	16.60	1.765E+00	1.435E+00	1.435E+00	34.63
TH-234	63.29	224	3.80*	4.661E+00	3.504E+00	3.504E+00	50.08
	92.38	555	5.41	7.162E+00	3.971E+00	3.971E+00	24.22
U-234	609.31	494	46.30*	2.603E+00	1.137E+00	1.137E+00	17.89
	1120.29	122	15.10	1.558E+00	1.434E+00	1.434E+00	35.33
	1764.49	90	15.80	1.100E+00	1.435E+00	1.435E+00	22.63
NP-237	86.50	310	12.60*	6.942E+00	9.834E-01	9.834E-01	35.11
	95.87	-----	2.60	7.260E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
U-238	63.29	224	3.80*	4.661E+00	3.504E+00	3.504E+00	50.08
	92.38	555	5.41	7.162E+00	3.971E+00	3.971E+00	18.27
AM-243	74.67	512	66.00*	6.051E+00	3.556E-01	3.556E-01	18.97
	86.72	310	0.34	6.942E+00	3.688E+01	3.688E+01	28.40
	117.66	-----	0.55	7.416E+00	-----	Line Not Found	-----
	142.18	-----	0.13	7.067E+00	-----	Line Not Found	-----
ANH-511	511.00	120	100.00*	2.994E+00	1.115E-01	1.115E-01	53.21

Flag: "\*" = Keyline

Total number of lines in spectrum 36  
Number of unidentified lines 4  
Number of lines tentatively identified by NID 32 88.89%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.298E+01	3.298E+01	0.336E+01	10.18	
CD-109	464.00D	1.02	3.331E+00	3.406E+00	0.967E+00	28.40	
SN-126	1.00E+05Y	1.00	3.349E-01	3.349E-01	0.951E-01	28.40	
BA-137M	30.17Y	1.00	6.859E-01	6.866E-01	1.117E-01	16.28	
CS-137	30.17Y	1.00	7.251E-01	7.258E-01	1.182E-01	16.28	
TL-208	1.41E+10Y	1.00	4.314E-01	4.314E-01	0.908E-01	21.06	
BI-210	22.26Y	1.00	2.802E+00	2.806E+00	2.761E+00	98.41	
PB-210	22.26Y	1.00	2.802E+00	2.806E+00	2.761E+00	98.41	
PO-210	22.26Y	1.00	2.802E+00	2.806E+00	2.759E+00	98.33	
BI-211	7.04E+08Y	1.00	3.525E+00	3.525E+00	0.522E+00	14.80	
PB-212	1.41E+10Y	1.00	1.527E+00	1.527E+00	0.192E+00	12.58	
PO-212	1.41E+10Y	1.00	1.527E+00	1.527E+00	0.192E+00	12.58	
BI-214	1600.00Y	1.00	1.137E+00	1.137E+00	0.203E+00	17.89	
PB-214	1600.00Y	1.00	1.226E+00	1.226E+00	0.192E+00	15.70	
PO-214	1600.00Y	1.00	1.226E+00	1.226E+00	0.192E+00	15.70	
PO-216	1.41E+10Y	1.00	1.527E+00	1.527E+00	0.192E+00	12.58	
PO-218	1600.00Y	1.00	1.226E+00	1.226E+00	0.192E+00	15.70	
RA-224	1.41E+10Y	1.00	4.971E+00	4.971E+00	1.370E+00	27.55	
RA-226	1600.00Y	1.00	1.137E+00	1.137E+00	0.203E+00	17.89	
AC-228	1.41E+10Y	1.00	1.644E+00	1.644E+00	0.314E+00	19.11	
RA-228	1.41E+10Y	1.00	1.644E+00	1.644E+00	0.314E+00	19.11	
TH-228	1.91Y	1.01	1.527E+00	1.550E+00	0.195E+00	12.58	
TH-230	4.47E+09Y	1.00	1.137E+00	1.137E+00	0.203E+00	17.89	
TH-232	1.41E+10Y	1.00	1.644E+00	1.644E+00	0.314E+00	19.11	
TH-234	4.47E+09Y	1.00	3.504E+00	3.504E+00	1.755E+00	50.08	
U-234	4.47E+09Y	1.00	1.137E+00	1.137E+00	0.203E+00	17.89	
NP-237	2.14E+06Y	1.00	9.834E-01	9.834E-01	3.453E-01	35.11	
U-238	4.47E+09Y	1.00	3.504E+00	3.504E+00	1.755E+00	50.08	
AM-243	7380.00Y	1.00	3.556E-01	3.556E-01	0.675E-01	18.97	
ANH-511	1.00E+09Y	1.00	1.115E-01	1.115E-01	0.593E-01	53.21	

Total Activity : 8.312E+01 8.323E+01

Grand Total Activity : 8.312E+01 8.323E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
2	84.35	123	512	1.26	168.62	163	30	1.70E-02	65.6	6.78E+00	T
2	89.98	207	342	1.08	179.87	163	30	2.87E-02	31.7	7.06E+00	T
0	185.70	326	280	1.02	371.03	367	9	4.53E-02	22.5	6.18E+00	T
0	208.72	79	305	0.82	417.01	414	8	1.09E-02	79.8	5.74E+00	T
0	270.10	152	193	1.22	539.61	535	11	2.11E-02	38.9	4.81E+00	T
0	328.18	74	158	1.18	655.64	652	10	1.02E-02	68.2	4.18E+00	T
0	463.66	61	187	1.46	926.34	919	14	8.52E-03	98.3	3.23E+00	T
0	727.20	124	39	1.12	1453.13	1448	12	1.72E-02	27.5	2.25E+00	T
0	841.80	25	102	5.73	1682.28	1673	16	3.51E-03	****	1.99E+00	
1	964.67	59	60	1.84	1928.01	1922	32	8.18E-03	55.2	1.77E+00	T
0	1377.40	36	10	1.45	2753.91	2747	13	5.04E-03	48.6	1.31E+00	T
4	1587.29	26	18	2.82	3174.14	3168	19	3.64E-03	69.9	1.18E+00	
4	1591.93	14	9	1.70	3183.44	3168	19	1.95E-03	90.2	1.18E+00	
0	1729.31	30	0	1.19	3458.60	3453	10	4.17E-03	36.5	1.11E+00	

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244231006.CNF;1
* Acquisition date   : 21-JAN-2010 09:03:53   Detector SN#      :
* Detector ID        : GAM20                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:33.49          Half life ratio  : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 6-JAN-2010 12:00:00.   Nuclide Library : SOLID
* Sample ID          : G244231006             Analyst initials: MXR1
* Batch Number       : 941242                 Sample Quantity : 1.35400E+02 GRAM
*****
*                                     QC DATA                              *
*
* CALIB. DATE/TIME   : 26-AUG-2009 06:32:11.7MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                    LCS Isotope    :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.298E+01	3.359E+00	5.027E-01	4.384E-02	65.613
CD-109	3.406E+00	9.674E-01	9.805E-01	9.271E-02	3.474
SN-126	3.349E-01	9.512E-02	9.668E-02	9.093E-03	3.464
BA-137M	6.866E-01	1.117E-01	5.755E-02	5.775E-03	11.930
CS-137	7.258E-01	1.182E-01	6.083E-02	6.114E-03	11.931
TL-208	4.314E-01	9.085E-02	5.399E-02	5.551E-03	7.989
BI-210	2.806E+00	2.761E+00	3.077E+00	2.853E-01	0.912
PB-210	2.806E+00	2.761E+00	3.077E+00	2.853E-01	0.912
PO-210	2.806E+00	2.759E+00	3.077E+00	2.581E-01	0.912
BI-211	3.525E+00	5.218E-01	2.912E-01	2.790E-02	12.103
PB-212	1.527E+00	1.921E-01	7.920E-02	8.423E-03	19.282
PO-212	1.527E+00	1.921E-01	7.920E-02	8.423E-03	19.282
BI-214	1.137E+00	2.034E-01	1.100E-01	1.225E-02	10.332
PB-214	1.226E+00	1.924E-01	1.015E-01	1.106E-02	12.078
PO-214	1.226E+00	1.924E-01	1.015E-01	1.106E-02	12.078
PO-216	1.527E+00	1.921E-01	7.920E-02	8.423E-03	19.282
PO-218	1.226E+00	1.924E-01	1.015E-01	1.106E-02	12.078
RA-224	4.971E+00	1.370E+00	9.012E-01	8.711E-02	5.516



---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-226	1.137E+00	2.034E-01	1.100E-01	1.225E-02	10.332
AC-228	1.644E+00	3.142E-01	1.703E-01	2.086E-02	9.653
RA-228	1.644E+00	3.142E-01	1.703E-01	2.086E-02	9.653
TH-228	1.550E+00	1.949E-01	8.039E-02	8.549E-03	19.282
TH-230	1.137E+00	2.034E-01	1.100E-01	1.224E-02	10.332
TH-232	1.644E+00	3.142E-01	1.703E-01	2.086E-02	9.653
TH-234	3.504E+00	1.755E+00	1.594E+00	2.770E-01	2.198
U-234	1.137E+00	2.034E-01	1.100E-01	1.224E-02	10.332
NP-237	9.834E-01	3.453E-01	2.859E-01	6.468E-02	3.440
U-238	3.504E+00	1.755E+00	1.594E+00	2.770E-01	2.198
AM-243	3.556E-01	6.745E-02	6.960E-02	5.602E-03	5.109
ANH-511	1.115E-01	5.932E-02	4.108E-02	3.828E-03	2.714

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.833E-01		2.851E-01	4.838E-01	4.702E-02	0.379
NA-22	3.913E-02		4.341E-02	7.583E-02	6.281E-03	0.516
NA-24	2.341E-02		2.373E-01	Half-Life too short		
AL-26	2.468E-03		2.455E-02	4.121E-02	3.347E-03	0.060
TI-44	3.355E-01	+	4.857E-02	6.606E-02	5.545E-03	5.078
SC-46	-4.291E-03		3.432E-02	5.604E-02	5.587E-03	-0.077
V-48	6.354E-02		6.459E-02	1.151E-01	1.100E-02	0.552
CR-51	1.667E-01		3.227E-01	5.498E-01	5.512E-02	0.303
MN-52	8.460E-02		1.682E-01	3.021E-01	2.557E-02	0.280
MN-54	4.678E-03		3.737E-02	5.463E-02	5.519E-03	0.086
CO-56	4.430E-03		4.075E-02	5.942E-02	5.988E-03	0.075
CO-57	4.006E-03		2.393E-02	3.871E-02	3.232E-03	0.103
CO-58	-1.994E-02		3.341E-02	5.235E-02	5.316E-03	-0.381
FE-59	1.148E-02		8.535E-02	1.408E-01	1.328E-02	0.082
CO-60	1.458E-02		3.552E-02	5.994E-02	5.021E-03	0.243
ZN-65	-2.798E-02		9.590E-02	1.295E-01	1.114E-02	-0.216
GE-68	4.044E-01		1.037E+00	1.761E+00	1.571E-01	0.230
AS-73	3.266E-01		5.376E-01	9.056E-01	6.723E-02	0.361
AS-74	-4.924E-02		8.303E-02	1.260E-01	1.233E-02	-0.391
SE-75	3.491E-03		3.993E-02	6.232E-02	6.170E-03	0.056
BR-77	5.462E+00		8.950E+00	1.510E+01	1.416E+00	0.362
SR-82	-2.065E-01		3.251E-01	5.105E-01	5.187E-02	-0.404
RB-83	3.739E-02		6.171E-02	1.042E-01	9.772E-03	0.359
RB-84	-1.153E-02		5.875E-02	9.523E-02	9.516E-03	-0.121
KR-85	9.719E+00		6.981E+00	1.113E+01	1.040E+00	0.873
SR-85	4.971E-02		3.571E-02	5.695E-02	5.318E-03	0.873
RB-86	2.143E-01		6.478E-01	1.094E+00	9.764E-02	0.196
Y-88	2.389E-03		2.489E-02	4.177E-02	3.370E-03	0.057
ZR-88	8.360E-03		2.772E-02	4.632E-02	3.874E-03	0.180
Y-91	1.563E+01		1.894E+01	3.290E+01	2.671E+00	0.475
NB-94	9.251E-03		3.014E-02	5.164E-02	5.224E-03	0.179

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95	-1.795E-02		3.967E-02	6.390E-02	6.494E-03	-0.281
NB-95M	5.210E-02		1.208E-01	1.833E-01	1.970E-02	0.284
ZR-95	2.471E-02		6.931E-02	1.186E-01	1.294E-02	0.208
NB-97	5.629E-02		3.866E-02	Half-Life	too short	
ZR-97	9.806E-01		6.998E-01	Half-Life	too short	
MO-99	-4.044E+00		1.019E+01	1.648E+01	2.654E+00	-0.245
TC-99M	-1.019E+10		9.512E+09	Half-Life	too short	
RH-101	1.036E-02		2.945E-02	4.998E-02	4.581E-03	0.207
RH-102	-1.679E-02		2.707E-02	4.185E-02	3.794E-03	-0.401
RU-103	2.118E-02		3.530E-02	5.961E-02	8.666E-03	0.355
RH-106	-2.199E-01		2.963E-01	4.392E-01	6.243E-02	-0.501
RU-106	-2.199E-01		2.955E-01	4.392E-01	4.347E-02	-0.501
AG-108M	4.785E-03		3.209E-02	5.284E-02	4.796E-03	0.091
AG-110M	2.102E-02		3.472E-02	5.408E-02	5.541E-03	0.389
IN-111	-6.732E-01		9.260E-01	1.294E+00	1.256E-01	-0.520
IN-113M	-6.163E-03		4.021E-02	6.530E-02	5.633E-03	-0.094
SN-113	-6.163E-03		4.021E-02	6.530E-02	5.633E-03	-0.094
IN-114M	5.357E-03		1.769E-01	2.656E-01	2.407E-02	0.020
CD-115	-7.570E+00		8.758E+00	1.302E+01	1.227E+00	-0.581
SN-117M	2.870E-02		4.906E-02	8.004E-02	6.907E-03	0.359
SB-122	1.315E+00		1.815E+00	3.071E+00	2.957E-01	0.428
I-123	-1.093E-01		1.968E+00	Half-Life	too short	
TE-123M	-7.297E-04		2.628E-02	4.173E-02	3.625E-03	-0.017
I-124	-6.435E-01		7.085E-01	8.831E-01	8.670E-02	-0.729
SB-124	2.596E-03		4.749E-02	7.953E-02	6.911E-03	0.033
SB-125	3.429E-03		8.919E-02	1.451E-01	1.284E-02	0.024
TE-125M	6.022E-01		8.472E+00	1.371E+01	1.401E+00	0.044
I-126	2.612E-02		1.856E-01	2.759E-01	2.772E-02	0.095
SB-126	8.084E-02		1.329E-01	2.212E-01	2.243E-02	0.365
SB-127	-7.395E-02		1.185E+00	1.981E+00	2.470E-01	-0.037
XE-127	-4.020E-02		4.176E-02	6.761E-02	6.240E-03	-0.595
I-131	3.064E-02		1.021E-01	1.712E-01	1.606E-02	0.179
TE-132	2.567E-01		5.589E-01	9.575E-01	1.550E-01	0.268
BA-133	-1.068E-02		4.307E-02	6.092E-02	8.230E-03	-0.175
I-133	1.265E-03		2.127E-03	Half-Life	too short	
CS-134	6.072E-02		4.520E-02	8.192E-02	8.359E-03	0.741
CS-135	1.653E-01		1.549E-01	2.428E-01	2.690E-02	0.681
I-135	2.245E+09		1.410E+09	Half-Life	too short	
CS-136	6.229E-02		9.957E-02	1.719E-01	1.631E-02	0.362
CE-139	-2.415E-02		2.705E-02	4.092E-02	3.572E-03	-0.590
BA-140	1.943E-02		2.295E-01	3.721E-01	1.242E-01	0.052
LA-140	3.603E-02		6.357E-02	1.045E-01	8.821E-03	0.345
CE-141	1.636E-02		5.791E-02	9.352E-02	8.074E-03	0.175
CE-143	6.035E-04		9.549E-05	Half-Life	too short	
CE-144	9.905E-02		1.891E-01	3.086E-01	4.761E-02	0.321
PM-144	-2.606E-02		3.140E-02	4.883E-02	4.936E-03	-0.534
PR-144	-1.766E+00		2.127E+00	3.308E+00	3.344E-01	-0.534
PM-146	1.086E-02		4.029E-02	6.676E-02	7.312E-03	0.163

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	-3.452E-01		5.091E-01	7.708E-01	1.190E-01	-0.448
PM-149	3.817E+01		7.530E+01	1.283E+02	2.092E+01	0.297
EU-152	-2.256E-02		9.182E-02	1.379E-01	1.345E-02	-0.164
GD-153	-1.043E-02		7.831E-02	1.120E-01	9.932E-03	-0.093
EU-154	1.019E-01		1.219E-01	2.114E-01	2.336E-02	0.482
EU-155	1.109E-01		9.825E-02	1.649E-01	1.434E-02	0.672
TB-160	5.553E-02		1.151E-01	1.990E-01	1.989E-02	0.279
HO-166M	-1.221E-02		5.063E-02	8.312E-02	8.419E-03	-0.147
TM-171	4.243E+00		2.378E+01	3.518E+01	2.621E+00	0.121
LU-176	-6.474E-03		2.169E-02	3.540E-02	3.453E-03	-0.183
LU-177	1.614E+00	+	1.297E+00	1.810E+00	1.683E-01	0.892
LU-177M	-1.006E-02		1.646E-01	2.682E-01	2.296E-02	-0.037
HF-181	-2.412E-03		3.923E-02	6.333E-02	5.775E-03	-0.038
W-181	-4.437E-02		3.147E-01	4.595E-01	3.381E-02	-0.097
TA-182	1.869E-02		1.855E-01	3.026E-01	2.469E-02	0.062
RE-183	1.120E-01		1.030E-01	1.676E-01	1.455E-02	0.668
RE-184	-1.364E-01		2.002E-01	3.232E-01	3.158E-02	-0.422
OS-185	3.127E-02		3.679E-02	6.568E-02	6.559E-03	0.476
RE-188	8.681E-03		1.556E-01	2.483E-01	2.132E-02	0.035
W-188	-6.714E+00		7.447E+00	1.013E+01	1.001E+00	-0.663
IR-192	-1.087E-02		3.045E-02	4.942E-02	4.779E-03	-0.220
AU-195	3.905E-01		2.214E-01	3.437E-01	3.026E-02	1.136
TL-200	-6.667E-05		1.840E-04	Half-Life too short		
TL-201	-2.037E+00		5.952E+00	9.279E+00	8.118E-01	-0.220
TL-202	6.166E-03		6.461E-02	1.060E-01	9.311E-03	0.058
HG-203	3.219E-02		3.527E-02	6.126E-02	6.230E-03	0.525
BI-207	3.666E-02		4.645E-02	8.146E-02	7.356E-03	0.450
TL-207	3.708E-01		6.519E-01	9.865E-01	1.794E-01	0.376
PO-209	5.633E-01		6.586E+00	1.096E+01	1.090E+00	0.051
PB-211	-3.101E-01		8.617E-01	1.342E+00	8.404E-01	-0.231
BI-212	1.294E+00	+	3.844E-01	6.077E-01	6.897E-02	2.129
PO-215	3.708E-01		6.519E-01	9.865E-01	1.794E-01	0.376
RN-219	-1.280E-01		3.700E-01	5.915E-01	8.830E-02	-0.216
RN-220	6.939E+00		2.366E+01	3.897E+01	3.723E+00	0.178
RA-223	3.708E-01		6.519E-01	9.865E-01	1.794E-01	0.376
AC-227	-1.469E-01		3.328E-01	5.438E-01	8.723E-02	-0.270
TH-227	-1.469E-01		3.331E-01	5.438E-01	1.014E-01	-0.270
TH-229	6.246E-02		4.308E-01	7.343E-01	6.687E-02	0.085
PA-231	-1.306E+00		1.331E+00	2.072E+00	3.308E-01	-0.630
TH-231	3.708E-01		6.519E-01	9.865E-01	1.794E-01	0.376
U-231	-1.037E+00		1.015E+00	1.384E+00	1.238E-01	-0.750
PA-233	-4.288E-02		5.728E-02	9.073E-02	9.002E-03	-0.473
PA-234	-2.226E-01		2.998E-01	4.556E-01	8.797E-02	-0.488
PA-234M	2.685E+00		4.184E+00	7.242E+00	7.746E-01	0.371
U-235	3.636E-02		2.035E-01	3.238E-01	5.643E-02	0.112
NP-236	-5.594E-02		7.578E-02	1.161E-01	1.005E-02	-0.482
NP-239	-5.056E-02		1.802E-01	2.865E-01	2.400E-02	-0.176
AM-241	8.115E-02		1.171E-01	1.778E-01	1.391E-02	0.456

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	6.649E-02		8.535E-02	1.420E-01	1.226E-02	0.468
AM-246	6.454E-02		1.137E-01	1.967E-01	1.752E-02	0.328
CM-247	-3.066E-02		3.368E-02	5.168E-02	4.370E-03	-0.593
CF-249	-1.665E-02		3.674E-02	5.852E-02	4.938E-03	-0.285
CF-251	4.105E-03		1.177E-01	1.866E-01	1.656E-02	0.022

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                                     DETECTOR DATA
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G244231006
* Acquisition date   : 21-JAN-2010 09:03:53 Detector SN#      :
* Detector ID        : GAM20                               Sensitivity   : 5.000
* Geometry           : CAN                                 Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00                      Abundance limit : 75.000
* Elapsed real time  : 0 02:00:33.49                      Half life ratio  : 8.000
*****
*
*                                     SAMPLE DATA
*
* Sample date        : 6-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G244231006           Analyst initials: MXR1
* Batch Number       : 941242              Sample Quantity : 1.3540E+02 GRAM
* Recovery           : 1.00000             Carrier Weight  : 0.00000
*****
*
*                                     QC DATA
*
* CALIB. DATE/TIME   : 26-AUG-2009 06:32:11 MS Isotope      :
* MSD DPM             : 0.000              MSD Isotope      :
* LCS DPM             : 0.000              LCS Isotope      :
* LCSD DPM            : 0.000              LCSD Isotope     :
*****
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.298E+01	3.292E+00	2.521E-01	1.680E+00
CD-109	3.406E+00	9.481E-01	5.175E-01	4.837E-01
SN-126	3.349E-01	9.322E-02	5.103E-02	4.756E-02
BA-137M	6.866E-01	1.095E-01	2.929E-02	5.587E-02
CS-137	7.258E-01	1.158E-01	3.097E-02	5.909E-02
TL-208	4.314E-01	8.903E-02	2.755E-02	4.542E-02
BI-210	2.806E+00	2.706E+00	1.642E+00	1.381E+00
PB-210	2.806E+00	2.706E+00	1.642E+00	1.381E+00
PO-210	2.806E+00	2.704E+00	1.642E+00	1.380E+00
BI-211	3.525E+00	5.113E-01	1.500E-01	2.609E-01
PB-212	1.527E+00	1.882E-01	4.108E-02	9.604E-02
PO-212	1.527E+00	1.882E-01	4.108E-02	9.604E-02
BI-214	1.137E+00	1.993E-01	5.610E-02	1.017E-01
PB-214	1.226E+00	1.886E-01	5.228E-02	9.622E-02
PO-214	1.226E+00	1.886E-01	5.228E-02	9.622E-02
PO-216	1.527E+00	1.882E-01	4.108E-02	9.604E-02
PO-218	1.226E+00	1.886E-01	5.228E-02	9.622E-02
RA-224	4.971E+00	1.342E+00	4.673E-01	6.848E-01
RA-226	1.137E+00	1.993E-01	5.610E-02	1.017E-01
AC-228	1.644E+00	3.079E-01	8.617E-02	1.571E-01
RA-228	1.644E+00	3.079E-01	8.617E-02	1.571E-01
TH-228	1.550E+00	1.910E-01	4.169E-02	9.747E-02
TH-230	1.137E+00	1.993E-01	5.610E-02	1.017E-01
TH-232	1.644E+00	3.079E-01	8.617E-02	1.571E-01
TH-234	3.504E+00	1.720E+00	8.463E-01	8.774E-01
U-234	1.137E+00	1.993E-01	5.610E-02	1.017E-01
NP-237	9.834E-01	3.384E-01	1.510E-01	1.726E-01
U-238	3.504E+00	1.720E+00	8.463E-01	8.774E-01
AM-243	3.556E-01	6.610E-02	3.684E-02	3.373E-02
ANH-511	1.115E-01	5.813E-02	2.101E-02	2.966E-02

---- Non-Identified Nuclides ----

Key-Line

Nuclide	Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	1.833E-01	2.794E-01	2.477E-01	1.426E-01 NOT IDENT.
NA-22	3.913E-02	4.255E-02	3.813E-02	2.171E-02 NOT IDENT.
NA-24	2.341E+04	4.651E+05	0.000E+00	2.373E+05 SHORT HLIF
AL-26	2.468E-03	2.406E-02	2.058E-02	1.228E-02 NOT IDENT.
TI-44	3.355E-01	4.760E-02	3.494E-02	2.429E-02 FAIL ABUN
SC-46	-4.291E-03	3.364E-02	2.837E-02	1.716E-02 FAIL ABUN
V-48	6.354E-02	6.330E-02	5.813E-02	3.230E-02 NOT IDENT.
CR-51	1.667E-01	3.162E-01	2.836E-01	1.613E-01 NOT IDENT.
MN-52	8.460E-02	1.649E-01	1.516E-01	8.412E-02 NOT IDENT.
MN-54	4.678E-03	3.662E-02	2.769E-02	1.869E-02 NOT IDENT.
CO-56	4.430E-03	3.994E-02	3.011E-02	2.038E-02 NOT IDENT.
CO-57	4.006E-03	2.345E-02	2.032E-02	1.197E-02 NOT IDENT.
CO-58	-1.994E-02	3.274E-02	2.655E-02	1.670E-02 NOT IDENT.
FE-59	1.148E-02	8.364E-02	7.098E-02	4.267E-02 NOT IDENT.
CO-60	1.458E-02	3.481E-02	3.011E-02	1.776E-02 NOT IDENT.
ZN-65	-2.798E-02	9.398E-02	6.525E-02	4.795E-02 NOT IDENT.
GE-68	4.044E-01	1.016E+00	8.880E-01	5.186E-01 NOT IDENT.
AS-73	3.266E-01	5.268E-01	4.821E-01	2.688E-01 NOT IDENT.
AS-74	-4.924E-02	8.137E-02	6.424E-02	4.152E-02 NOT IDENT.
SE-75	3.491E-03	3.913E-02	3.226E-02	1.996E-02 NOT IDENT.
BR-77	5.462E+00	8.771E+00	7.721E+00	4.475E+00 FAIL ABUN
SR-82	-2.065E-01	3.186E-01	2.591E-01	1.625E-01 NOT IDENT.
RB-83	3.739E-02	6.047E-02	5.328E-02	3.085E-02 NOT IDENT.
RB-84	-1.153E-02	5.757E-02	4.822E-02	2.937E-02 NOT IDENT.
KR-85	9.719E+00	6.842E+00	5.695E+00	3.491E+00 NOT IDENT.
SR-85	4.971E-02	3.499E-02	2.913E-02	1.785E-02 NOT IDENT.
RB-86	2.143E-01	6.349E-01	5.516E-01	3.239E-01 NOT IDENT.
Y-88	2.389E-03	2.439E-02	2.085E-02	1.244E-02 NOT IDENT.
ZR-88	8.360E-03	2.717E-02	2.381E-02	1.386E-02 NOT IDENT.
Y-91	1.563E+01	1.857E+01	1.656E+01	9.472E+00 NOT IDENT.
NB-94	9.251E-03	2.954E-02	2.626E-02	1.507E-02 NOT IDENT.
NB-95	-1.795E-02	3.887E-02	3.244E-02	1.983E-02 NOT IDENT.
NB-95M	5.210E-02	1.183E-01	9.510E-02	6.038E-02 NOT IDENT.
ZR-95	2.471E-02	6.792E-02	6.022E-02	3.465E-02 NOT IDENT.
NB-97	5.629E+04	7.578E+04	0.000E+00	3.866E+04 SHORT HLIF
ZR-97	9.806E+05	1.372E+06	0.000E+00	6.998E+05 SHORT HLIF
MO-99	-4.044E+00	9.991E+00	8.370E+00	5.097E+00 NOT IDENT.
TC-99M	-1.019E+16	1.864E+16	0.000E+00	9.512E+15 SHORT HLIF
RH-101	1.036E-02	2.886E-02	2.601E-02	1.472E-02 NOT IDENT.
RH-102	-1.679E-02	2.653E-02	2.143E-02	1.354E-02 NOT IDENT.
RU-103	2.118E-02	3.459E-02	3.050E-02	1.765E-02 FAIL ABUN
RH-106	-2.199E-01	2.904E-01	2.238E-01	1.482E-01 FAIL ABUN
RU-106	-2.199E-01	2.896E-01	2.238E-01	1.477E-01 FAIL ABUN
AG-108M	4.785E-03	3.145E-02	2.711E-02	1.604E-02 NOT IDENT.
AG-110M	2.102E-02	3.402E-02	2.753E-02	1.736E-02 NOT IDENT.
IN-111	-6.732E-01	9.075E-01	6.706E-01	4.630E-01 NOT IDENT.
IN-113M	-6.163E-03	3.940E-02	3.356E-02	2.010E-02 NOT IDENT.
SN-113	-6.163E-03	3.940E-02	3.356E-02	2.010E-02 NOT IDENT.
IN-114M	5.357E-03	1.734E-01	1.383E-01	8.847E-02 NOT IDENT.
CD-115	-7.570E+00	8.583E+00	6.655E+00	4.379E+00 NOT IDENT.
SN-117M	2.870E-02	4.808E-02	4.181E-02	2.453E-02 NOT IDENT.
SB-122	1.315E+00	1.778E+00	1.568E+00	9.073E-01 NOT IDENT.
I-123	-1.093E+05	3.856E+06	0.000E+00	1.968E+06 SHORT HLIF
TE-123M	-7.297E-04	2.576E-02	2.180E-02	1.314E-02 NOT IDENT.
I-124	-6.435E-01	6.944E-01	4.503E-01	3.543E-01 FAIL ABUN
SB-124	2.596E-03	4.654E-02	3.977E-02	2.374E-02 FAIL ABUN
SB-125	3.429E-03	8.740E-02	7.446E-02	4.459E-02 FAIL ABUN
TE-125M	6.022E-01	8.303E+00	7.208E+00	4.236E+00 NOT IDENT.
I-126	2.612E-02	1.819E-01	1.404E-01	9.282E-02 NOT IDENT.
SB-126	8.084E-02	1.302E-01	1.124E-01	6.644E-02 NOT IDENT.
SB-127	-7.395E-02	1.162E+00	1.008E+00	5.927E-01 NOT IDENT.
XE-127	-4.020E-02	4.092E-02	3.517E-02	2.088E-02 NOT IDENT.
I-131	3.064E-02	1.001E-01	8.813E-02	5.107E-02 NOT IDENT.
TE-132	2.567E-01	5.477E-01	4.970E-01	2.794E-01 NOT IDENT.
BA-133	-1.068E-02	4.221E-02	3.137E-02	2.153E-02 NOT IDENT.
I-133	1.265E+03	4.168E+03	0.000E+00	2.127E+03 SHORT HLIF
CS-134	6.072E-02	4.430E-02	4.156E-02	2.260E-02 NOT IDENT.
CS-135	1.653E-01	1.518E-01	1.256E-01	7.747E-02 NOT IDENT.
I-135	2.245E+15	2.763E+15	0.000E+00	1.410E+15 SHORT HLIF
CS-136	6.229E-02	9.758E-02	8.674E-02	4.979E-02 FAIL ABUN
CE-139	-2.415E-02	2.651E-02	2.136E-02	1.353E-02 NOT IDENT.
BA-140	1.943E-02	2.249E-01	1.902E-01	1.147E-01 NOT IDENT.
LA-140	3.603E-02	6.230E-02	5.231E-02	3.178E-02 FAIL ABUN
CE-141	1.636E-02	5.676E-02	4.893E-02	2.896E-02 NOT IDENT.
CE-143	6.035E+02	1.872E+02	0.000E+00	9.549E+01 SHORT HLIF

CE-144	9.905E-02	1.853E-01	1.617E-01	9.454E-02	NOT IDENT.
PM-144	-2.606E-02	3.077E-02	2.483E-02	1.570E-02	NOT IDENT.
PR-144	-1.766E+00	2.085E+00	1.682E+00	1.064E+00	NOT IDENT.
PM-146	1.086E-02	3.948E-02	3.422E-02	2.014E-02	NOT IDENT.
ND-147	-3.452E-01	4.989E-01	3.940E-01	2.546E-01	FAIL ABUN
PM-149	3.817E+01	7.380E+01	6.634E+01	3.765E+01	NOT IDENT.
EU-152	-2.256E-02	8.999E-02	7.102E-02	4.591E-02	FAIL ABUN
GD-153	-1.043E-02	7.674E-02	5.901E-02	3.915E-02	FAIL ABUN
EU-154	1.019E-01	1.195E-01	1.063E-01	6.097E-02	NOT IDENT.
EU-155	1.109E-01	9.629E-02	8.678E-02	4.913E-02	FAIL ABUN
TB-160	5.553E-02	1.128E-01	1.007E-01	5.753E-02	FAIL ABUN
HO-166M	-1.221E-02	4.962E-02	4.225E-02	2.532E-02	FAIL ABUN
TM-171	4.243E+00	2.331E+01	1.866E+01	1.189E+01	NOT IDENT.
LU-176	-6.474E-03	2.125E-02	1.827E-02	1.084E-02	FAIL ABUN
LU-177	1.614E+00	1.271E+00	9.410E-01	6.486E-01	FAIL ABUN
LU-177M	-1.006E-02	1.614E-01	1.377E-01	8.232E-02	FAIL ABUN
HF-181	-2.412E-03	3.845E-02	3.243E-02	1.962E-02	NOT IDENT.
W-181	-4.437E-02	3.084E-01	2.438E-01	1.574E-01	NOT IDENT.
TA-182	1.869E-02	1.818E-01	1.523E-01	9.277E-02	FAIL ABUN
RE-183	1.120E-01	1.010E-01	8.752E-02	5.151E-02	FAIL ABUN
RE-184	-1.364E-01	1.962E-01	1.674E-01	1.001E-01	NOT IDENT.
OS-185	3.127E-02	3.605E-02	3.345E-02	1.839E-02	NOT IDENT.
RE-188	8.681E-03	1.525E-01	1.298E-01	7.782E-02	NOT IDENT.
W-188	-6.714E+00	7.298E+00	5.233E+00	3.723E+00	FAIL ABUN
IR-192	-1.087E-02	2.984E-02	2.550E-02	1.522E-02	FAIL ABUN
AU-195	3.905E-01	2.170E-01	1.810E-01	1.107E-01	FAIL ABUN
TL-200	-6.667E+01	3.606E+02	0.000E+00	1.840E+02	SHORT HLIF
TL-201	-2.037E+00	5.833E+00	4.843E+00	2.976E+00	NOT IDENT.
TL-202	6.166E-03	6.331E-02	5.436E-02	3.230E-02	NOT IDENT.
HG-203	3.219E-02	3.456E-02	3.168E-02	1.763E-02	NOT IDENT.
BI-207	3.666E-02	4.552E-02	4.110E-02	2.323E-02	FAIL ABUN
TL-207	3.708E-01	6.389E-01	5.088E-01	3.260E-01	FAIL ABUN
PO-209	5.633E-01	6.454E+00	5.548E+00	3.293E+00	NOT IDENT.
PB-211	-3.101E-01	8.445E-01	6.891E-01	4.309E-01	NOT IDENT.
BI-212	1.294E+00	3.767E-01	3.088E-01	1.922E-01	FAIL ABUN
PO-215	3.708E-01	6.389E-01	5.088E-01	3.260E-01	FAIL ABUN
RN-219	-1.280E-01	3.626E-01	3.039E-01	1.850E-01	FAIL ABUN
RN-220	6.939E+00	2.319E+01	1.990E+01	1.183E+01	NOT IDENT.
RA-223	3.708E-01	6.389E-01	5.088E-01	3.260E-01	FAIL ABUN
AC-227	-1.469E-01	3.262E-01	2.817E-01	1.664E-01	FAIL ABUN
TH-227	-1.469E-01	3.265E-01	2.817E-01	1.666E-01	FAIL ABUN
TH-229	6.246E-02	4.222E-01	3.823E-01	2.154E-01	FAIL ABUN
PA-231	-1.306E+00	1.305E+00	1.071E+00	6.656E-01	NOT IDENT.
TH-231	3.708E-01	6.389E-01	5.088E-01	3.260E-01	FAIL ABUN
U-231	-1.037E+00	9.950E-01	7.295E-01	5.076E-01	FAIL ABUN
PA-233	-4.288E-02	5.613E-02	4.683E-02	2.864E-02	FAIL ABUN
PA-234	-2.226E-01	2.938E-01	2.304E-01	1.499E-01	FAIL ABUN
PA-234M	2.685E+00	4.100E+00	3.658E+00	2.092E+00	NOT IDENT.
U-235	3.636E-02	1.994E-01	1.694E-01	1.017E-01	FAIL ABUN
NP-236	-5.594E-02	7.427E-02	6.064E-02	3.789E-02	NOT IDENT.
NP-239	-5.056E-02	1.766E-01	1.505E-01	9.008E-02	FAIL ABUN
AM-241	8.115E-02	1.148E-01	9.447E-02	5.856E-02	NOT IDENT.
CM-243	6.649E-02	8.365E-02	7.473E-02	4.268E-02	FAIL ABUN
AM-246	6.454E-02	1.114E-01	9.920E-02	5.684E-02	NOT IDENT.
CM-247	-3.066E-02	3.301E-02	2.655E-02	1.684E-02	NOT IDENT.
CF-249	-1.665E-02	3.600E-02	3.008E-02	1.837E-02	NOT IDENT.
CF-251	4.105E-03	1.154E-01	9.731E-02	5.887E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON , SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	316.0695
46.50	316.0695
46.50	316.0695
48.70	325.3748
49.72	321.6638
51.35	373.3445
52.39	359.3637
52.97	346.9691
53.15	347.0935
53.44	339.4019
54.07	333.8990
56.28	378.0041
56.28	378.0060
57.37	0.0000
57.53	385.8746
57.53	385.8755
57.60	385.9259
57.98	407.1069
57.98	407.1069
59.32	360.7360
59.32	360.7360
59.40	360.7893
59.54	360.8840
59.72	361.0054
60.01	422.6482
61.10	406.9807
61.14	407.0096
61.30	398.1156
63.00	474.1936
63.29	474.4403
63.29	474.4403
63.58	474.6870
64.28	475.2818
65.12	482.5443
65.20	482.6125
65.20	482.6125
66.05	450.0002
66.72	441.4243
66.83	458.1980
66.91	458.2625
67.20	458.4929
67.20	458.4929
67.75	483.2425
67.85	480.2852
68.90	486.0231
68.90	486.0231
69.30	497.3247
69.67	497.6385
70.82	467.4396
70.82	467.4396
70.83	467.4466
72.80	488.9044
72.87	501.2227
72.87	501.2227
74.67	461.1923
74.81	461.2976
74.81	461.2976
74.81	461.2976
74.81	461.2976
74.81	461.2976
74.81	461.2976
74.81	461.2976
74.97	461.4166
75.28	461.6478
75.70	461.9591
77.11	463.0028
77.11	463.0028



77.11	463.0028
77.11	463.0028
77.11	463.0028
77.11	463.0028
77.11	463.0028
78.38	435.0673
79.62	368.7700
79.80	412.2704
79.80	412.2704
80.11	412.4693
80.18	412.5139
80.30	412.5910
80.30	412.5910
80.57	412.7635
81.00	413.0375
81.07	413.0822
81.07	413.0822
81.07	413.0822
81.07	413.0822
82.60	437.9199
83.37	369.8592
83.78	370.0909
83.78	370.0909
83.78	370.0909
83.78	370.0909
84.21	370.3300
84.90	370.7138
85.43	371.0090
86.29	371.4834
86.50	371.5992
86.54	371.6210
86.59	371.6481
86.72	371.7188
86.79	371.7568
86.94	371.8401
87.30	372.0374
87.30	372.0374
87.30	372.0374
87.30	372.0374
87.30	372.0374
87.30	372.0374
87.30	372.0374
87.57	372.1841
87.88	372.3543
88.03	372.4358
88.36	372.6151
88.47	372.6748
89.95	373.4770
91.11	374.0999
92.29	374.7300
92.38	374.7789
92.38	374.7789
93.35	375.2931
94.00	375.6371
94.67	375.9866
94.67	375.9902
94.90	340.7174
94.90	340.7174
94.90	340.7174
94.90	340.7174
95.87	411.0009
95.87	411.0009
96.73	389.2482
97.43	359.4064
98.44	293.0184
98.44	293.0184
98.88	288.4135
99.55	310.4728
99.55	310.4728
99.86	310.6035
100.00	335.1329
100.10	335.1794
103.18	360.0663
103.76	310.0868
105.00	320.2318
105.31	320.3611
108.00	381.6907
109.28	346.7779

111.00	339.9803
111.00	339.9803
111.76	367.3148
112.95	372.1907
115.19	361.2920
116.30	328.1067
117.00	350.1354
117.00	350.1354
117.66	358.0348
121.11	309.2592
121.62	319.2874
121.78	314.9736
122.06	323.8313
122.32	322.8363
122.32	322.8363
122.32	322.8363
122.32	322.8363
123.07	319.8384
127.23	323.5992
129.76	284.8015
131.20	361.5615
133.02	321.3116
133.54	297.1080
135.34	292.1535
136.00	277.9160
136.25	286.8880
136.48	286.9615
140.51	334.0330
140.51	0.0000
142.18	324.5655
142.65	314.6500
143.76	317.2667
144.24	323.0391
144.24	323.0391
144.24	323.0391
144.24	323.0391
145.22	305.4106
145.44	305.4826
147.16	309.4142
152.43	253.4173
152.70	248.9603
153.22	278.5317
154.21	298.0822
154.21	298.0822
154.21	298.0822
154.21	298.0822
155.03	284.7189
156.02	323.6111
158.56	257.2755
159.00	0.0000
159.00	283.5825
160.31	314.7451
161.27	286.5088
162.32	245.6696
162.64	246.8914
163.35	261.9323
163.89	272.3718
165.85	285.5050
167.43	265.2726
171.28	233.9815
171.86	243.3356
172.10	243.3914
176.55	264.1051
176.60	264.1190
181.06	251.2529
184.41	284.2248
185.71	267.2124
186.00	267.2822
190.27	260.3866
192.34	241.4767
193.63	241.7506
197.04	268.1325
198.01	242.6745
198.60	233.9346
200.40	265.3616
201.83	271.0170
202.84	290.8177
205.31	239.5579

208.36	281.6292
208.81	269.9365
209.75	210.3938
209.75	210.3938
210.97	219.2035
215.65	220.2275
216.55	197.9013
218.09	246.7844
222.10	213.2466
223.80	249.7291
226.40	198.5640
227.00	186.8651
227.08	186.8761
227.20	205.0401
228.16	200.6539
228.18	210.6447
228.18	210.6447
231.56	0.0000
235.69	235.2581
236.00	254.3136
236.00	254.3136
238.63	206.8626
238.63	206.8626
238.63	206.8626
238.63	206.8626
239.00	206.9212
240.98	207.2333
241.98	207.3885
241.98	207.3885
241.98	207.3885
244.69	188.3188
245.39	188.4172
247.94	156.3293
248.90	169.7233
249.79	180.9118
252.40	184.0331
252.85	193.3448
252.85	193.3448
254.15	0.0000
256.20	192.8902
256.20	192.8902
260.50	172.0938
260.90	174.9362
262.80	185.4238
264.65	164.2078
268.24	166.1233
268.79	166.1857
269.46	176.0004
269.46	176.0004
269.46	176.0004
269.46	176.0004
271.23	166.4702
273.65	205.8111
276.40	179.3610
277.35	169.4366
277.60	168.5254
277.60	168.5254
278.00	161.0379
278.60	158.2767
279.20	157.3983
279.53	174.4029
280.46	178.2877
281.68	181.2686
283.67	177.7302
284.30	180.6450
285.00	174.1060
285.90	158.1169
286.10	158.1373
286.10	158.1373
287.40	138.6429
288.45	0.0000
290.67	189.9658
290.80	189.9841
291.72	197.7041
293.26	0.0000
293.70	140.0956
295.21	140.2349
295.21	140.2349

295.21	140.2349
295.96	148.6923
296.50	148.7446
297.23	148.8160
298.57	148.9470
299.80	151.3593
299.80	151.3593
300.09	151.3883
300.09	151.3883
300.09	151.3883
300.09	151.3883
300.12	151.3907
301.29	151.5067
302.84	142.4676
303.76	133.3547
303.91	133.3674
304.40	148.7444
304.40	148.7444
304.84	148.2757
306.84	155.5063
308.46	126.8397
311.98	164.6830
316.51	152.5996
318.01	155.6420
319.02	131.5570
319.41	132.5557
320.08	133.5801
323.87	135.0582
323.87	135.0582
323.87	135.0582
323.87	135.0582
325.23	132.0634
328.77	164.4666
333.44	152.2462
334.20	156.2207
334.20	156.2207
334.30	156.2305
338.28	157.5828
338.28	157.5828
338.28	157.5828
338.28	157.5828
338.32	157.5877
338.32	157.5877
338.32	157.5877
340.50	127.0173
340.57	127.0233
344.27	138.8274
345.85	133.7131
350.59	0.0000
351.07	135.1102
351.92	135.1771
351.92	135.1771
351.92	135.1771
355.39	0.0000
356.01	132.9255
364.48	123.2356
366.43	137.3009
367.43	149.3248
367.94	0.0000
369.80	122.6096
374.96	122.9643
383.85	132.6103
387.95	136.9359
388.63	139.0002
391.69	126.1158
391.69	126.1158
392.90	118.1212
398.62	117.4709
400.65	104.4176
401.10	110.5268
401.81	125.7842
402.60	138.0150
404.84	128.0187
410.95	110.0814
411.60	118.2762
413.65	128.6090
414.70	134.8077
415.30	134.8500

415.76	134.8823
417.63	0.0000
418.52	106.4216
423.70	105.6781
427.08	117.1659
427.89	116.1864
432.53	138.1016
433.93	123.7592
439.47	114.7939
439.56	114.7990
439.89	113.7833
443.98	99.5039
444.90	104.7342
445.03	104.7403
445.03	104.7403
445.03	104.7403
445.03	104.7403
453.90	104.1534
463.38	100.4458
468.07	110.7369
473.00	92.4969
475.06	111.5251
475.35	107.3307
476.78	96.8726
477.59	85.3222
477.96	89.5512
482.03	101.3335
484.57	97.2250
487.03	105.7999
490.36	0.0000
492.35	90.1504
497.08	77.5903
507.63	0.0000
510.53	0.0000
510.84	90.9065
511.00	90.9124
511.85	90.9474
511.85	90.9474
513.99	78.8244
513.99	78.8244
520.41	78.4046
520.65	82.7078
527.90	90.5138
528.96	0.0000
529.64	73.3291
529.87	0.0000
531.02	97.1109
537.32	83.3094
543.00	86.7676
546.56	0.0000
549.76	80.4904
552.65	86.0326
555.20	69.7715
563.23	76.5689
563.90	82.0610
568.70	77.8383
569.32	85.5363
569.50	85.5410
569.67	87.7417
573.80	88.9893
574.00	88.9967
574.64	86.8209
578.91	102.1655
579.30	0.0000
583.14	90.4307
585.48	70.6465
591.81	84.1061
592.07	79.6882
593.00	79.7168
595.88	90.8937
600.56	78.8480
602.52	0.0000
602.71	110.2589
602.71	110.2589
603.60	78.2740
604.41	88.9771
604.70	80.0881
609.31	105.8632

609.31	105.8632
609.31	105.8632
609.31	105.8632
610.33	105.9067
612.46	87.4727
614.37	85.7531
618.01	78.2693
621.84	88.4651
621.84	88.4651
631.29	78.6710
633.02	74.2238
633.10	67.4780
634.78	72.9237
635.90	86.4656
636.97	83.7976
645.85	68.7080
646.12	62.3864
656.30	66.5568
657.75	69.6195
657.90	0.0000
661.65	95.4844
661.65	95.4844
664.57	0.0000
666.33	83.5048
666.33	83.5048
675.00	68.5382
677.61	81.4081
685.20	79.7974
692.80	68.9777
695.00	84.6800
696.49	87.4877
696.49	87.4877
697.00	93.0280
697.49	85.6753
698.33	77.4067
698.50	77.4108
699.00	83.8773
702.63	78.4465
706.10	72.9998
706.58	0.0000
706.67	78.5586
709.31	74.9309
711.68	69.4391
713.82	62.0780
717.42	76.9979
720.50	67.3298
721.93	0.0000
722.20	78.9840
722.78	82.0987
722.78	82.0987
722.89	82.1008
722.95	82.1030
723.30	86.7617
724.18	75.9384
727.18	67.9510
733.00	66.8428
735.90	74.6875
739.58	81.3246
742.81	69.2485
744.21	72.0897
747.13	81.5328
751.79	80.7216
752.31	79.7975
753.82	69.5051
755.35	72.3605
756.15	79.8992
756.87	78.0374
763.93	96.1280
765.79	94.3018
766.42	76.4002
766.84	83.0135
776.49	70.9753
778.00	85.2122
778.57	82.3866
778.89	80.5010
783.80	47.4292
785.46	75.9277
792.07	71.3342

795.84	62.8499
796.30	61.9071
798.80	89.5983
801.93	71.5594
805.60	47.7625
810.29	65.0532
810.76	64.1064
815.85	63.2511
817.79	62.3308
818.51	62.3451
819.60	58.5278
826.30	62.4974
828.27	0.0000
831.60	55.8590
831.96	58.7542
834.83	64.2692
836.80	0.0000
846.75	61.2815
848.13	62.9196
856.28	0.0000
856.80	66.3214
860.37	62.1828
867.32	55.6376
867.82	60.8627
871.10	48.7378
873.19	54.6205
874.81	53.6707
875.33	0.0000
876.40	65.4117
879.36	43.9728
880.27	49.8483
880.51	48.8745
881.50	52.8003
883.24	46.9582
884.67	57.7439
889.25	55.8617
896.60	55.0006
898.02	45.1970
899.00	56.0217
903.28	51.6630
911.07	46.3563
911.07	46.3563
911.07	46.3563
919.63	52.7331
920.93	65.2813
925.00	52.4837
925.24	52.4876
926.50	57.4591
935.52	62.5740
937.48	66.5829
944.10	65.7132
946.00	75.7087
949.00	49.8511
962.29	55.0403
964.01	50.0598
966.15	50.0891
968.20	50.1184
969.11	50.1306
969.11	50.1306
969.11	50.1306
977.42	60.2944
980.50	65.3745
983.50	45.2966
989.30	59.4825
996.32	73.7378
1001.03	51.5802
1001.68	42.4850
1004.76	65.8062
1021.30	0.0000
1024.50	0.0000
1034.80	46.9434
1036.00	50.0204
1037.82	52.0857
1038.57	46.9905
1038.76	0.0000
1045.16	67.5372
1046.59	58.3471
1048.07	50.1795

1050.47	60.4577
1050.47	60.4577
1062.04	59.6086
1063.62	43.1833
1076.63	41.2637
1077.35	41.2715
1078.86	36.1262
1085.78	40.3254
1099.22	57.0625
1112.02	67.6533
1112.84	64.1960
1115.52	65.9774
1120.29	55.2773
1120.29	55.2773
1120.29	55.2773
1120.29	55.2773
1120.51	55.2799
1121.28	55.2903
1124.00	0.0000
1129.67	54.3588
1131.51	0.0000
1147.95	0.0000
1167.94	61.1945
1173.22	50.7094
1175.09	61.2993
1177.93	67.6875
1189.05	74.2280
1204.90	63.8613
1205.75	0.0000
1213.00	66.1142
1221.42	68.3812
1230.97	104.9385
1235.34	90.0375
1236.41	0.0000
1238.25	64.3535
1246.25	56.9491
1260.41	0.0000
1271.85	61.6034
1274.45	47.5814
1274.54	46.5000
1291.56	51.0184
1298.22	0.0000
1312.09	39.2537
1325.50	36.0889
1325.50	36.0889
1332.49	31.7612
1333.61	31.7697
1360.21	26.6258
1362.66	0.0000
1365.15	32.1674
1368.21	25.0821
1368.53	0.0000
1376.25	22.1094
1384.27	16.6099
1394.10	18.4937
1395.20	18.4977
1407.95	22.2559
1434.06	15.8496
1436.60	13.9917
1457.56	0.0000
1460.81	27.1840
1489.15	11.3120
1509.49	17.0361
1596.49	9.8977
1620.62	18.3660
1678.03	0.0000
1691.02	7.8324
1691.02	7.8324
1706.46	0.0000
1750.46	0.0000
1764.49	10.2008
1764.49	10.2008
1764.49	10.2008
1764.49	10.2008
1770.23	48.6431
1771.40	6.9504
1791.20	0.0000
1808.65	10.9919



1836.01

9.0348

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244231006

Total Uranium Activity	1.0441E+01	ug/g
Total Uranium Counting Unc.	5.1171E+00	ug/g
Total Uranium Tpu	2.6108E-06	ug/g
Total Uranium Mda	2.5189E+00	ug/g

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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941242          SAMPLE ID   : G244231006
*  ANALYST       : MXR1            DETECTOR    : GAM20
*  SAMPLE DATE   : 6-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 21-JAN-2010 09:03:53.49  SAMPLE ALQT: 135.400 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 1.030E+01
GROSS GAMMA ERROR  (pCi/GRAM ) : 1.425E+00
GROSS GAMMA MDA    (pCi/GRAM ) : 3.843E+00
GROSS GAMMA DLC     (pCi/GRAM ) : 1.869E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 11:18:04.14

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244515001.CNF;1
Sample date        : 8-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:17:29
Sample ID          : G244515001      Sample quantity   : 1.28270E+02 GRAM
Detector name      : GAM15           Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00   Elapsed real time: 0 02:00:01.32  0.0%
Energy tolerance   : 1.50000 keV     Analyst Initials  : MXR1
Abundance limit    : 75.00000        Sensitivity       : 5.00000
Batch ID           : 941242          Detector SN#      :
Matrix Spike ID    :                 LCS ID            : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	2	74.23	301	453	1.58	148.96	142	16	4.17E-02	14.5	3.15E+00
2	2	76.55*	477	406	1.27	153.58	142	16	6.62E-02	9.0	
3	0	86.56*	164	288	1.36	173.60	171	6	2.28E-02	18.5	
4	0	92.61*	113	572	1.39	185.69	181	10	1.57E-02	43.5	
5	0	185.42*	155	453	1.18	371.22	365	12	2.16E-02	29.5	
6	0	209.16	76	405	1.44	418.69	413	11	1.06E-02	52.6	
7	3	238.04*	1103	218	1.38	476.42	468	20	1.53E-01	4.0	2.52E-01
8	3	241.00	231	276	1.84	482.35	468	20	3.21E-02	18.8	
9	0	270.16	54	211	0.98	540.64	536	8	7.56E-03	48.2	
10	1	294.50*	399	151	1.72	589.30	583	20	5.55E-02	7.9	2.84E+00
11	1	299.20	79	159	1.73	598.70	583	20	1.10E-02	28.2	
12	0	326.86	55	189	1.37	653.99	650	10	7.61E-03	48.7	
13	0	337.83	231	148	1.32	675.93	671	11	3.21E-02	12.1	
14	0	351.27*	570	209	1.69	702.79	696	14	7.91E-02	7.0	
15	0	462.85	52	135	1.51	925.87	920	11	7.16E-03	46.1	
16	0	510.22*	112	119	1.62	1020.58	1013	14	1.56E-02	26.7	
17	0	582.47*	314	129	1.53	1165.03	1159	15	4.36E-02	10.0	
18	0	608.75*	404	127	1.79	1217.58	1211	16	5.61E-02	8.3	
19	0	726.50*	97	39	1.71	1452.99	1448	10	1.34E-02	16.3	
20	0	860.74*	74	52	1.82	1721.41	1714	17	1.03E-02	26.6	
21	0	910.71*	257	70	1.78	1821.33	1814	14	3.57E-02	9.4	
22	1	963.86	92	22	2.04	1927.60	1922	25	1.28E-02	13.7	2.54E+00
23	1	968.22*	132	38	2.19	1936.32	1922	25	1.84E-02	13.3	
24	0	1119.62*	74	56	1.65	2239.06	2231	14	1.03E-02	24.9	
25	0	1376.87	27	12	0.76	2753.47	2746	13	3.74E-03	33.4	
26	0	1460.00*	1104	16	1.91	2919.72	2909	22	1.53E-01	3.2	
27	0	1620.06	23	0	1.25	3239.83	3232	14	3.19E-03	20.9	
28	0	1729.39	24	5	2.76	3458.47	3453	11	3.35E-03	27.6	
29	0	1764.16*	52	11	1.55	3528.01	3520	14	7.23E-03	20.6	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 11:18:07

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244515001.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 8-JAN-2010 12:00:00 Acquisition date : 21-JAN-2010 09:17:29  
 Sample ID : G244515001 Sample quantity : 128.27 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA15 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.32 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	3.030E+01	3.012E+00	4.960E-01	3.791E-02	61.085
CD-109	+	88.03	*	2.991E+00	1.157E+00	1.908E+00	2.207E-01	1.567
SN-126		64.28		7.591E-01	9.049E-01	1.514E+00	2.595E-01	0.501
	+	86.94		1.226E+00	6.864E-01	8.360E-01	3.516E-01	1.467
	+	87.57	*	2.950E-01	1.141E-01	1.787E-01	2.063E-02	1.650
TL-208		277.35		3.571E-01	4.707E-01	8.115E-01	9.092E-02	0.440
	+	510.84		6.179E-01	3.362E-01	2.564E-01	2.582E-02	2.410
	+	583.14	*	4.886E-01	1.025E-01	6.941E-02	4.419E-03	7.039
	+	860.37		1.078E+00	5.816E-01	4.980E-01	4.281E-02	2.166
BI-211	+	72.87		2.196E+01	6.839E+00	7.336E+00	8.180E-01	2.993
	+	351.07	*	4.017E+00	6.267E-01	4.078E-01	2.802E-02	9.850
BI-212	+	727.18	*	1.284E+00	4.306E-01	5.054E-01	3.935E-02	2.540
		785.46		1.178E+00	1.993E+00	3.473E+00	2.339E-01	0.339
	+	1620.62		2.643E+00	1.117E+00	1.392E+00	9.575E-02	1.899
PB-212	+	74.81		2.606E+00	8.475E-01	8.100E-01	1.176E-01	3.218
	+	77.11		2.267E+00	4.797E-01	4.168E-01	4.628E-02	5.440
	+	87.30		1.364E+00	5.452E-01	8.970E-01	1.368E-01	1.521
	+	238.63	*	1.714E+00	1.974E-01	1.132E-01	9.368E-03	15.149
	+	300.09		1.897E+00	1.081E+00	1.548E+00	1.388E-01	1.225
PO-212	+	74.81		2.606E+00	8.475E-01	8.100E-01	1.176E-01	3.218
	+	77.11		2.267E+00	4.797E-01	4.168E-01	4.628E-02	5.440
	+	87.30		1.364E+00	5.452E-01	8.970E-01	1.368E-01	1.521
		115.19		3.280E+00	4.449E+00	7.462E+00	5.709E-01	0.440
	+	238.63	*	1.714E+00	1.974E-01	1.132E-01	9.368E-03	15.149
	+	300.09		1.897E+00	1.081E+00	1.548E+00	1.388E-01	1.225
BI-214	+	609.31	*	1.185E+00	2.150E-01	1.364E-01	1.013E-02	8.685
	+	1120.29		1.140E+00	5.777E-01	4.737E-01	4.370E-02	2.407
	+	1764.49		1.094E+00	4.560E-01	2.878E-01	1.791E-02	3.801
PB-214	+	74.81		4.491E+00	1.438E+00	1.396E+00	1.864E-01	3.218
	+	77.11		3.887E+00	8.740E-01	7.145E-01	9.622E-02	5.440
	+	87.30		2.337E+00	9.221E-01	1.537E+00	2.130E-01	1.521
	+	241.98		2.161E+00	8.334E-01	6.633E-01	5.929E-02	3.259
	+	295.21		1.677E+00	3.068E-01	2.760E-01	2.552E-02	6.077
	+	351.92	*	1.397E+00	2.299E-01	1.421E-01	1.225E-02	9.831

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		4.491E+00	1.438E+00	1.396E+00	1.864E-01	3.218
	+	77.11		3.887E+00	8.740E-01	7.145E-01	9.622E-02	5.440
	+	87.30		2.337E+00	9.221E-01	1.537E+00	2.130E-01	1.521
	+	241.98		2.161E+00	8.334E-01	6.633E-01	5.929E-02	3.259
	+	295.21		1.677E+00	3.068E-01	2.760E-01	2.552E-02	6.077
PO-216	+	351.92	*	1.397E+00	2.299E-01	1.421E-01	1.225E-02	9.831
	+	74.81		2.606E+00	8.475E-01	8.100E-01	1.176E-01	3.218
	+	77.11		2.267E+00	4.797E-01	4.168E-01	4.628E-02	5.440
	+	87.30		1.364E+00	5.452E-01	8.970E-01	1.368E-01	1.521
	+	238.63	*	1.714E+00	1.974E-01	1.132E-01	9.368E-03	15.149
PO-218	+	300.09		1.897E+00	1.081E+00	1.548E+00	1.388E-01	1.225
	+	74.81		4.491E+00	1.438E+00	1.396E+00	1.864E-01	3.218
	+	77.11		3.887E+00	8.740E-01	7.145E-01	9.622E-02	5.440
	+	87.30		2.337E+00	9.221E-01	1.537E+00	2.130E-01	1.521
	+	241.98		2.161E+00	8.334E-01	6.633E-01	5.929E-02	3.259
RA-224	+	295.21		1.677E+00	3.068E-01	2.760E-01	2.552E-02	6.077
	+	351.92	*	1.397E+00	2.299E-01	1.421E-01	1.225E-02	9.831
	+	240.98	*	4.098E+00	1.563E+00	1.288E+00	8.962E-02	3.183
	+	609.31	*	1.185E+00	2.150E-01	1.364E-01	1.013E-02	8.685
	+	1120.29		1.140E+00	5.777E-01	4.737E-01	4.370E-02	2.407
AC-228	+	1764.49		1.094E+00	4.560E-01	2.878E-01	1.791E-02	3.801
	+	338.32		1.800E+00	8.556E-01	4.702E-01	1.921E-01	3.828
	+	911.07	*	1.774E+00	3.879E-01	2.078E-01	2.310E-02	8.538
	+	969.11		1.609E+00	5.683E-01	4.301E-01	9.946E-02	3.742
	+	338.32		1.800E+00	8.556E-01	4.702E-01	1.921E-01	3.828
RA-228	+	911.07	*	1.774E+00	3.879E-01	2.078E-01	2.310E-02	8.538
	+	969.11		1.609E+00	5.683E-01	4.301E-01	9.946E-02	3.742
	+	74.81		2.640E+00	8.228E-01	8.205E-01	9.163E-02	3.218
	+	77.11		2.297E+00	4.859E-01	4.222E-01	4.688E-02	5.440
	+	87.30		1.382E+00	5.347E-01	9.086E-01	1.047E-01	1.521
TH-228	+	238.63	*	1.737E+00	1.999E-01	1.146E-01	9.489E-03	15.149
	+	300.09		1.921E+00	1.567E+00	1.568E+00	9.257E-01	1.225
	+	609.31	*	1.185E+00	2.149E-01	1.364E-01	1.013E-02	8.685
	+	1120.29		1.140E+00	5.777E-01	4.737E-01	4.370E-02	2.407
	+	1764.49		1.094E+00	4.560E-01	2.878E-01	1.791E-02	3.801
TH-232	+	338.32		1.800E+00	4.522E-01	4.702E-01	3.027E-02	3.828
	+	911.07	*	1.774E+00	3.879E-01	2.078E-01	2.310E-02	8.538
	+	969.11		1.609E+00	5.683E-01	4.301E-01	9.946E-02	3.742
	+	609.31	*	1.185E+00	2.149E-01	1.364E-01	1.013E-02	8.685
	+	1120.29		1.140E+00	5.777E-01	4.737E-01	4.370E-02	2.407
U-234	+	1764.49		1.094E+00	4.560E-01	2.878E-01	1.791E-02	3.801
	+	86.50	*	8.662E-01	3.799E-01	5.844E-01	1.379E-01	1.482
	+	95.87		1.560E-01	1.373E+00	1.987E+00	4.986E-01	0.079
	+	74.67	*	4.226E-01	1.316E-01	1.320E-01	1.467E-02	3.202
	+	86.72		3.248E+01	1.257E+01	2.223E+01	2.552E+00	1.461
AM-243	+	117.66		-1.052E+01	4.953E+00	7.276E+00	5.435E-01	-1.446
	+	142.18		-1.524E+01	2.295E+01	3.567E+01	2.430E+00	-0.427
	+	511.00	*	1.335E-01	7.175E-02	5.541E-02	3.129E-03	2.409

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	1.762E-01	3.715E-01	6.270E-01	4.178E-02	0.281

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NA-22	1274.54	*		-1.642E-02	5.242E-02	8.197E-02	5.626E-03	-0.200
NA-24	1368.53	*		3.195E-02	5.242E-02	Half-Life too short		
AL-26	1129.67			2.132E+00	1.989E+00	3.559E+00	2.242E-01	0.599
	1808.65	*		-2.691E-02	3.562E-02	4.945E-02	2.959E-03	-0.544
TI-44	67.85			1.683E-03	8.805E-02	1.282E-01	1.463E-02	0.013
	78.38	*		2.070E-01	6.507E-02	9.934E-02	1.105E-02	2.084
SC-46	889.25	*		2.637E-02	4.228E-02	7.395E-02	6.203E-03	0.357
	1120.51	+		1.916E-01	9.626E-02	1.311E-01	8.418E-03	1.462
V-48	944.10			-2.824E-01	9.580E-01	1.536E+00	1.263E-01	-0.184
	983.50	*		-7.854E-03	7.980E-02	1.301E-01	1.028E-02	-0.060
	1312.09			2.254E-02	8.244E-02	1.377E-01	1.005E-02	0.164
CR-51	320.08	*		2.597E-01	4.641E-01	7.743E-01	5.584E-02	0.335
MN-52	744.21			-3.280E-02	2.095E-01	3.458E-01	2.121E-02	-0.095
	848.13			-3.165E+00	5.795E+00	9.128E+00	7.036E-01	-0.347
	935.52			2.279E-01	2.262E-01	4.044E-01	3.350E-02	0.564
	1246.25			-3.098E+00	6.671E+00	1.032E+01	6.730E-01	-0.300
	1333.61			4.224E+00	4.225E+00	7.670E+00	5.789E-01	0.551
	1434.06	*		-1.052E-01	2.010E-01	3.110E-01	2.306E-02	-0.338
MN-54	834.83	*		2.236E-02	4.614E-02	7.934E-02	5.947E-03	0.282
CO-56	846.75	*		4.307E-03	4.202E-02	7.039E-02	5.410E-03	0.061
	977.42			1.228E-03	3.673E+00	5.409E+00	4.301E-01	0.000
	1037.82			1.045E-01	3.672E-01	6.182E-01	4.892E-02	0.169
	1175.09			1.224E+00	2.725E+00	4.585E+00	2.621E-01	0.267
	1238.25			1.190E-01	1.107E-01	1.942E-01	1.312E-02	0.613
	1360.21			1.801E+00	1.175E+00	2.236E+00	1.682E-01	0.806
	1771.40			-3.802E-01	2.798E-01	3.352E-01	2.074E-02	-1.134
CO-57	122.06	*		4.513E-03	3.186E-02	5.222E-02	3.754E-03	0.086
	136.48			1.089E-01	2.592E-01	4.279E-01	3.284E-02	0.254
CO-58	810.76	*		-2.220E-02	4.454E-02	7.088E-02	5.064E-03	-0.313
FE-59	142.65			-1.176E+00	3.407E+00	5.368E+00	3.655E-01	-0.219
	192.34			-1.758E-01	1.201E+00	1.885E+00	2.324E-01	-0.093
	1099.22	*		-6.662E-03	1.045E-01	1.697E-01	1.285E-02	-0.039
	1291.56			4.198E-02	1.359E-01	2.276E-01	1.920E-02	0.184
CO-60	1173.22			1.214E-02	5.583E-02	9.208E-02	5.245E-03	0.132
	1332.49	*		1.273E-02	4.391E-02	7.356E-02	5.552E-03	0.173
ZN-65	1115.52	*		1.142E-01	1.267E-01	1.969E-01	1.279E-02	0.580
GE-68	1077.35	*		-1.504E+00	1.446E+00	2.103E+00	1.461E-01	-0.715
AS-73	53.44	*		1.570E+00	2.068E+00	3.527E+00	4.820E-01	0.445
AS-74	595.88	*		-5.195E-02	1.003E-01	1.512E-01	8.126E-03	-0.344
	634.78			-1.852E-01	3.810E-01	5.873E-01	3.046E-02	-0.315
SE-75	66.05			-7.600E+00	8.463E+00	1.338E+01	1.735E+00	-0.568
	96.73			3.167E-01	1.083E+00	1.581E+00	2.267E-01	0.200
	121.11			1.052E-01	1.690E-01	2.818E-01	2.874E-02	0.373
	136.00			-1.758E-02	4.912E-02	7.860E-02	5.473E-03	-0.224
	198.60			-2.075E-01	2.365E+00	3.714E+00	2.964E-01	-0.056
	264.65	*		-8.058E-03	6.351E-02	9.192E-02	6.429E-03	-0.088
	279.53			-2.216E-03	1.308E-01	2.187E-01	1.596E-02	-0.010
	303.91			1.455E+00	2.822E+00	4.240E+00	4.305E-01	0.343
	400.65			1.051E-01	3.176E-01	5.161E-01	4.661E-02	0.204

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	87.88		3.384E+02	1.309E+02	2.339E+02	2.704E+01	1.447
		200.40		-1.876E+01	1.120E+02	1.782E+02	1.218E+01	-0.105
	+	239.00		1.437E+02	1.523E+01	2.407E+01	1.675E+00	5.968
		249.79		-1.672E+01	4.337E+01	7.159E+01	4.985E+00	-0.234
		281.68		-7.347E+01	5.814E+01	9.083E+01	6.256E+00	-0.809
		297.23		1.187E+02	3.970E+01	7.255E+01	4.936E+00	1.637
		303.76		7.553E+01	1.275E+02	1.927E+02	1.302E+01	0.392
		439.47		2.578E+01	8.798E+01	1.472E+02	8.411E+00	0.175
		484.57		2.613E+01	1.416E+02	2.343E+02	1.333E+01	0.112
		520.65	*	2.289E+00	6.453E+00	1.078E+01	6.063E-01	0.212
		574.64		-2.217E+02	1.474E+02	1.928E+02	1.053E+01	-1.150
		578.91		8.162E+01	6.295E+01	9.923E+01	5.404E+00	0.823
		585.48		4.564E+02	1.332E+02	2.373E+02	1.286E+01	1.923
		755.35		2.446E+01	1.041E+02	1.769E+02	1.113E+01	0.138
		817.79		-3.126E+01	7.876E+01	1.263E+02	9.125E+00	-0.248
SR-82		698.33		-1.133E+01	3.783E+01	6.208E+01	3.418E+00	-0.182
		776.49	*	-4.012E-01	4.200E-01	6.439E-01	4.250E-02	-0.623
		1395.20		2.911E+00	1.258E+01	2.161E+01	1.616E+00	0.135
RB-83		520.41	*	3.454E-02	7.984E-02	1.341E-01	7.545E-03	0.258
		529.64		1.709E-02	1.239E-01	2.036E-01	1.141E-02	0.084
		552.65		9.891E-03	2.252E-01	3.667E-01	2.031E-02	0.027
RB-84		881.50	*	-3.682E-02	7.230E-02	1.136E-01	9.378E-03	-0.324
KR-85		513.99	*	1.153E+01	9.459E+00	1.483E+01	8.364E-01	0.778
SR-85		513.99	*	5.776E-02	4.738E-02	7.427E-02	4.189E-03	0.778
RB-86		1076.63	*	-5.191E-01	8.329E-01	1.273E+00	8.860E-02	-0.408
Y-88		898.02		2.061E-03	4.664E-02	7.746E-02	6.646E-03	0.027
		1836.01	*	1.768E-02	3.538E-02	6.390E-02	3.733E-03	0.277
ZR-88		392.90	*	-7.500E-03	3.711E-02	6.045E-02	3.428E-03	-0.124
Y-91		1204.90	*	-1.096E+01	2.471E+01	3.865E+01	2.337E+00	-0.283
NB-94		702.63	*	3.998E-03	4.028E-02	6.799E-02	3.782E-03	0.059
		871.10		1.714E-02	3.915E-02	6.612E-02	5.345E-03	0.259
NB-95		765.79	*	5.272E-02	5.145E-02	9.156E-02	5.900E-03	0.576
NB-95M		235.69	*	1.718E+00	2.647E-01	4.199E-01	3.548E-02	4.091
ZR-95		724.18		2.929E-01	1.258E-01	2.194E-01	1.515E-02	1.335
		756.15	*	1.094E-02	8.369E-02	1.411E-01	1.052E-02	0.078
NB-97		657.90	*	-1.668E-02	8.369E-02	Half-Life	too short	
		1024.50		7.209E-01	8.369E-02	Half-Life	too short	
ZR-97		254.15		-8.159E-02	8.369E-02	Half-Life	too short	
		355.39		4.068E-01	8.369E-02	Half-Life	too short	
		507.63	*	9.888E-01	8.369E-02	Half-Life	too short	
		602.52		1.052E-02	8.369E-02	Half-Life	too short	
		1021.30		-3.100E-01	8.369E-02	Half-Life	too short	
		1147.95		-1.040E+00	8.369E-02	Half-Life	too short	
		1362.66		5.262E-01	8.369E-02	Half-Life	too short	
		1750.46		-2.271E-01	8.369E-02	Half-Life	too short	
MO-99		140.51		3.255E+00	1.872E+01	3.054E+01	8.304E+00	0.107
		181.06		5.454E+00	1.466E+01	2.097E+01	3.664E+00	0.260
		366.43		1.146E+01	6.168E+01	1.031E+02	6.261E+00	0.111
		739.58	*	5.464E+00	7.957E+00	1.392E+01	1.934E+00	0.392



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	778.00			-1.584E+01	2.207E+01	3.453E+01	2.287E+00	-0.459
TC-99M	140.51	*		1.749E+07	2.207E+01	Half-Life too short		
RH-101	127.23			4.791E-02	4.159E-02	7.037E-02	4.958E-03	0.681
	198.01	*		6.158E-03	4.361E-02	6.915E-02	4.717E-03	0.089
	325.23			1.098E-01	3.440E-01	5.074E-01	3.337E-02	0.216
RH-102	418.52			3.070E-01	3.569E-01	6.167E-01	3.518E-02	0.498
	475.06	*		-1.010E-02	3.514E-02	5.628E-02	3.208E-03	-0.180
	631.29			-8.856E-03	6.386E-02	1.016E-01	5.291E-03	-0.087
	697.49			-2.310E-02	9.109E-02	1.500E-01	8.241E-03	-0.154
	766.84			1.201E-01	1.346E-01	2.376E-01	1.534E-02	0.506
	1046.59			3.110E-03	1.304E-01	2.142E-01	1.562E-02	0.015
	1112.84			-1.100E-01	3.414E-01	4.579E-01	2.985E-02	-0.240
RU-103	497.08	*		-6.694E-03	4.647E-02	7.497E-02	9.437E-03	-0.089
	610.33			1.193E+01	2.352E+00	3.143E+00	4.790E-01	3.795
RH-106	511.85			1.467E+00	2.830E-01	5.140E-01	2.901E-02	2.855
	621.84	*		2.580E-01	3.525E-01	6.020E-01	6.909E-02	0.429
	1050.47			-2.363E-01	2.611E+00	4.240E+00	3.073E-01	-0.056
RU-106	511.85			1.467E+00	2.830E-01	5.140E-01	2.901E-02	2.855
	621.84	*		2.580E-01	3.515E-01	6.020E-01	3.163E-02	0.429
	1050.47			-2.363E-01	2.611E+00	4.240E+00	3.073E-01	-0.056
AG-108M	433.93	*		-3.662E-02	3.838E-02	5.867E-02	3.648E-03	-0.624
	614.37			1.565E-02	4.777E-02	6.909E-02	4.026E-03	0.227
	722.95			2.574E-02	5.313E-02	8.081E-02	5.112E-03	0.319
AG-110M	657.75	*		-5.290E-02	4.225E-02	6.036E-02	3.308E-03	-0.876
	677.61			1.566E-01	3.795E-01	6.293E-01	3.539E-02	0.249
	706.67			1.491E-01	2.660E-01	4.617E-01	2.759E-02	0.323
	763.93			-1.337E-01	2.070E-01	3.294E-01	2.220E-02	-0.406
	884.67			-1.065E-02	5.402E-02	8.772E-02	7.542E-03	-0.121
	937.48			-1.979E-02	1.313E-01	2.137E-01	1.837E-02	-0.093
	1384.27			2.427E-02	1.792E-01	2.811E-01	2.184E-02	0.086
IN-111	171.28			-4.015E-02	7.568E-01	1.217E+00	8.121E-02	-0.033
	245.39	*		1.989E-01	8.337E-01	1.240E+00	8.632E-02	0.160
IN-113M	391.69	*		6.952E-03	5.457E-02	9.069E-02	5.502E-03	0.077
SN-113	391.69	*		6.952E-03	5.457E-02	9.069E-02	5.502E-03	0.077
IN-114M	190.27	*		7.411E-02	2.561E-01	3.649E-01	2.474E-02	0.203
CD-115	260.90			-6.702E+01	8.350E+01	1.348E+02	9.370E+00	-0.497
	492.35			6.826E+00	2.115E+01	3.533E+01	2.006E+00	0.193
	527.90	*		2.797E+00	6.510E+00	1.092E+01	6.124E-01	0.256
SN-117M	156.02			-1.927E+00	2.681E+00	4.206E+00	2.819E-01	-0.458
	158.56	*		7.496E-02	6.405E-02	1.080E-01	7.220E-03	0.694
SB-122	563.90	*		4.763E-01	1.437E+00	2.384E+00	1.312E-01	0.200
	692.80			1.624E+00	3.017E+01	5.080E+01	2.759E+00	0.032
I-123	159.00	*		6.043E-01	3.017E+01	Half-Life too short		
	528.96			6.150E+00	3.017E+01	Half-Life too short		
TE-123M	159.00	*		4.969E-02	3.640E-02	6.177E-02	4.170E-03	0.805
I-124	602.71	*		8.253E-02	6.202E-01	8.764E-01	4.685E-02	0.094
	722.78			1.298E+00	3.793E+00	5.688E+00	3.319E-01	0.228
	1325.50			-1.991E+01	2.848E+01	4.175E+01	3.116E+00	-0.477
+	1376.25			3.962E+01	2.667E+01	4.241E+01	3.182E+00	0.934

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124	1509.49			1.040E+01	1.303E+01	2.289E+01	1.658E+00	0.454
	1691.02			-7.700E-03	2.793E+00	4.812E+00	3.167E-01	-0.002
	602.71			6.767E-03	5.085E-02	7.186E-02	3.843E-03	0.094
	645.85			-2.895E-01	5.954E-01	9.179E-01	5.465E-02	-0.315
	709.31			-1.439E+00	3.538E+00	5.766E+00	3.259E-01	-0.250
	713.82			-4.558E-01	2.017E+00	3.325E+00	3.378E-01	-0.137
	722.78			1.542E-01	4.509E-01	6.760E-01	4.129E-02	0.228
	968.20		+	1.615E+01	4.500E+00	7.696E+00	6.179E-01	2.098
	1045.16			-2.066E+00	2.875E+00	4.318E+00	3.155E-01	-0.478
	1325.50			-2.527E+00	3.616E+00	5.300E+00	3.955E-01	-0.477
SB-125	1368.21			1.122E+00	2.126E+00	3.348E+00	4.284E-01	0.335
	1436.60			-3.486E-01	3.919E+00	6.461E+00	4.787E-01	-0.054
	1691.02		*	-2.159E-04	7.829E-02	1.349E-01	9.474E-03	-0.002
	427.89		*	5.199E-02	1.078E-01	1.826E-01	1.088E-02	0.285
	463.38		+	5.564E-01	5.148E-01	6.799E-01	4.545E-02	0.818
	600.56			6.092E-02	2.183E-01	3.403E-01	2.153E-02	0.179
TE-125M	635.90			-3.980E-01	3.333E-01	4.800E-01	3.010E-02	-0.829
	109.28		*	1.202E+01	1.164E+01	1.967E+01	1.954E+00	0.611
	388.63			8.740E-02	2.296E-01	3.870E-01	2.214E-02	0.226
I-126	666.33		*	-1.632E-03	1.902E-01	3.053E-01	1.554E-02	-0.005
	753.82			2.902E-01	1.598E+00	2.705E+00	1.696E-01	0.107
SB-126	223.80			1.009E+00	4.745E+00	7.644E+00	5.296E-01	0.132
	278.60			1.708E+00	2.679E+00	4.609E+00	3.180E-01	0.371
	296.50			1.018E+01	2.029E+00	3.753E+00	2.555E-01	2.712
	414.70			-9.968E-02	8.339E-02	1.265E-01	7.213E-03	-0.788
	415.30			-5.516E+00	6.937E+00	1.083E+01	6.177E-01	-0.509
	555.20			-4.527E-02	4.256E+00	6.898E+00	3.815E-01	-0.007
	573.80			-1.113E+00	1.117E+00	1.663E+00	9.088E-02	-0.670
	593.00			4.889E-02	9.323E-01	1.514E+00	8.156E-02	0.032
	656.30			-2.686E-01	3.527E+00	5.632E+00	2.852E-01	-0.048
	666.33			-6.785E-04	7.909E-02	1.269E-01	6.461E-03	-0.005
SB-127	675.00			1.877E+00	2.115E+00	3.639E+00	1.892E-01	0.516
	695.00			7.656E-02	8.474E-02	1.504E-01	8.216E-03	0.509
	697.00			5.041E-02	2.783E-01	4.727E-01	2.594E-02	0.107
	720.50		*	-4.211E-03	1.655E-01	2.383E-01	1.383E-02	-0.018
	856.80			2.266E-01	5.642E-01	8.439E-01	6.623E-02	0.269
	989.30			1.273E-01	1.344E+00	2.230E+00	1.750E-01	0.057
	1034.80			1.788E+00	9.607E+00	1.603E+01	1.188E+00	0.112
	1213.00			-9.481E-01	6.077E+00	9.697E+00	5.953E-01	-0.098
	61.10			1.581E+01	7.483E+01	1.251E+02	1.691E+01	0.126
	252.40			1.236E+00	3.720E+00	6.279E+00	2.610E+00	0.197
SB-127	290.80			-3.612E+00	1.981E+01	2.839E+01	2.593E+00	-0.127
	411.60			6.244E+00	1.014E+01	1.724E+01	2.387E+00	0.362
	444.90			-5.530E+00	7.884E+00	1.227E+01	1.237E+00	-0.451
	473.00			1.726E-01	1.319E+00	2.177E+00	2.283E-01	0.079
	543.00			-2.793E-01	1.321E+01	2.141E+01	2.624E+00	-0.013
	603.60			2.129E+00	1.051E+01	1.496E+01	1.473E+00	0.142
	685.20		*	-1.029E+00	1.048E+00	1.618E+00	1.354E-01	-0.636
	698.50			-8.646E+00	1.241E+01	1.969E+01	2.732E+00	-0.439

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127	722.20			-6.971E+00	2.548E+01	3.562E+01	2.991E+00	-0.196
	783.80			2.475E+00	2.761E+00	4.901E+00	5.168E-01	0.505
	57.60			-5.680E+00	1.251E+01	2.039E+01	2.597E+00	-0.279
	145.22			-8.987E-02	8.429E-01	1.360E+00	9.226E-02	-0.066
	172.10			7.703E-03	1.500E-01	2.423E-01	1.618E-02	0.032
I-131	202.84	*		-9.525E-03	6.545E-02	9.394E-02	6.431E-03	-0.101
	374.96			-9.134E-03	2.332E-01	3.845E-01	2.285E-02	-0.024
	80.18			-1.438E+01	6.424E+00	8.000E+00	8.951E-01	-1.797
	284.30			-1.704E-01	1.493E+00	2.481E+00	1.840E-01	-0.069
	364.48	*		8.100E-02	1.230E-01	2.108E-01	1.418E-02	0.384
TE-132	636.97			-5.966E-01	1.565E+00	2.439E+00	1.444E-01	-0.245
	722.89			3.197E+00	7.356E+00	1.113E+01	6.564E-01	0.287
	49.72			-1.669E+01	3.718E+01	6.074E+01	8.866E+00	-0.275
	111.76			-2.630E+01	2.459E+01	3.805E+01	3.699E+00	-0.691
	116.30			-6.386E+00	2.139E+01	3.447E+01	3.251E+00	-0.185
BA-133	228.16	*		-3.399E-01	5.393E-01	8.821E-01	1.275E-01	-0.385
	53.15			3.921E+00	9.270E+00	1.566E+01	2.147E+00	0.250
	79.62			-4.757E+00	2.258E+00	2.723E+00	4.570E-01	-1.747
	81.00			-3.620E-01	1.705E-01	2.039E-01	3.548E-02	-1.775
	276.40			3.499E-01	4.767E-01	8.009E-01	1.081E-01	0.437
I-133	302.84			1.100E-01	1.991E-01	2.995E-01	3.644E-02	0.367
	356.01	*		4.263E-02	6.077E-02	9.195E-02	1.083E-02	0.464
	383.85			-6.162E-02	3.841E-01	6.283E-01	6.831E-02	-0.098
	510.53	+		2.282E-01	3.841E-01	Half-Life	too short	
	529.87	*		-1.392E-04	3.841E-01	Half-Life	too short	
CS-134	706.58			4.926E-02	3.841E-01	Half-Life	too short	
	856.28			4.079E-02	3.841E-01	Half-Life	too short	
	875.33			-1.320E-02	3.841E-01	Half-Life	too short	
	1236.41			7.369E-02	3.841E-01	Half-Life	too short	
	1298.22			2.016E-03	3.841E-01	Half-Life	too short	
I-135	475.35			-2.358E-01	2.291E+00	3.719E+00	2.120E-01	-0.063
	563.23			4.368E-01	4.330E-01	7.523E-01	4.237E-02	0.581
	569.32			8.524E-02	2.353E-01	3.915E-01	2.218E-02	0.218
	604.70			5.951E-02	4.501E-02	7.115E-02	3.822E-03	0.836
	795.84	*		7.079E-02	5.874E-02	1.057E-01	7.363E-03	0.670
CS-135	801.93			-1.147E-01	4.937E-01	8.079E-01	5.689E-02	-0.142
	1038.57			1.470E+00	4.629E+00	7.816E+00	5.764E-01	0.188
	1167.94			-1.937E+00	3.087E+00	4.727E+00	2.728E-01	-0.410
	1365.15			-2.564E+00	1.641E+00	2.057E+00	1.638E-01	-1.247
	268.24	*		2.845E-01	2.391E-01	3.714E-01	3.175E-02	0.766
I-135	288.45			1.542E+08	2.391E-01	Half-Life	too short	
	417.63			6.743E+07	2.391E-01	Half-Life	too short	
	546.56			8.086E+06	2.391E-01	Half-Life	too short	
	836.80			7.134E+07	2.391E-01	Half-Life	too short	
	1038.76			2.482E+07	2.391E-01	Half-Life	too short	
I-135	1124.00			-1.826E+08	2.391E-01	Half-Life	too short	
	1131.51			1.458E+07	2.391E-01	Half-Life	too short	
	1260.41	*		-6.648E+06	2.391E-01	Half-Life	too short	
	1457.56			4.187E+09	2.391E-01	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136		1678.03		4.313E+07	2.391E-01	Half-Life	too short	
		1706.46		1.033E+07	2.391E-01	Half-Life	too short	
		1791.20		-9.209E+06	2.391E-01	Half-Life	too short	
		66.91		-1.413E+00	1.269E+00	1.894E+00	3.257E-01	-0.746
	+	86.29		3.423E+00	1.364E+00	2.314E+00	3.447E-01	1.479
		153.22		3.338E-01	7.522E-01	1.237E+00	9.872E-02	0.270
		163.89		-5.945E-01	1.253E+00	1.982E+00	1.576E-01	-0.300
		176.55		-1.958E-01	4.364E-01	6.890E-01	5.050E-02	-0.284
		273.65		-6.505E-01	6.036E-01	8.163E-01	6.214E-02	-0.797
		340.57		3.558E-01	1.480E-01	2.480E-01	1.672E-02	1.435
		818.51		-6.248E-03	7.222E-02	1.191E-01	8.631E-03	-0.052
		1048.07	*	1.805E-02	1.064E-01	1.774E-01	1.367E-02	0.102
		1235.34		1.513E-01	6.601E-01	1.090E+00	1.128E-01	0.139
BA-137M		661.65	*	6.829E-03	4.080E-02	6.649E-02	3.345E-03	0.103
CS-137		661.65	*	7.219E-03	4.313E-02	7.029E-02	3.556E-03	0.103
CE-139		165.85	*	3.974E-02	3.834E-02	6.429E-02	4.276E-03	0.618
BA-140		162.64		-1.097E+00	8.761E-01	1.335E+00	9.747E-02	-0.822
		304.84		-1.711E+00	1.646E+00	2.222E+00	6.112E-01	-0.770
		423.70		-9.942E-01	2.076E+00	3.267E+00	1.038E+00	-0.304
LA-140		537.32	*	-2.510E-02	2.780E-01	4.484E-01	1.456E-01	-0.056
		328.77		4.687E-01	3.912E-01	6.082E-01	4.358E-02	0.771
		432.53		-3.190E+00	2.146E+00	3.131E+00	1.981E-01	-1.019
		487.03		2.215E-02	1.470E-01	2.426E-01	1.568E-02	0.091
		751.79		8.985E-01	1.864E+00	3.222E+00	2.404E-01	0.279
		815.85		-1.989E-01	3.242E-01	5.087E-01	4.253E-02	-0.391
		867.82		8.262E-02	1.562E+00	2.244E+00	1.911E-01	0.037
		919.63		9.654E-01	2.790E+00	4.664E+00	4.882E-01	0.207
		925.24		-3.402E-01	1.180E+00	1.895E+00	1.689E-01	-0.180
		1596.49	*	-6.894E-02	8.249E-02	1.176E-01	8.194E-03	-0.586
CE-141		145.44	*	-1.373E-02	7.543E-02	1.213E-01	8.469E-03	-0.113
CE-143		57.37		-1.612E-04	7.543E-02	Half-Life	too short	
		231.56		7.134E-05	7.543E-02	Half-Life	too short	
	+	293.26	*	5.189E-04	7.543E-02	Half-Life	too short	
	+	350.59		1.035E-02	7.543E-02	Half-Life	too short	
		490.36		-2.911E-05	7.543E-02	Half-Life	too short	
		664.57		-6.774E-05	7.543E-02	Half-Life	too short	
		721.93		-3.001E-04	7.543E-02	Half-Life	too short	
CE-144		80.11		-8.117E+00	3.567E+00	4.427E+00	4.939E-01	-1.833
		133.54	*	-1.445E-02	2.563E-01	4.156E-01	6.108E-02	-0.035
PM-144		476.78		-1.298E-02	8.213E-02	1.328E-01	9.103E-03	-0.098
		618.01		-3.671E-02	3.916E-02	5.607E-02	3.170E-03	-0.655
		696.49	*	1.799E-02	4.095E-02	7.075E-02	3.880E-03	0.254
		778.57		-2.149E+00	2.536E+00	3.908E+00	2.593E-01	-0.550
PR-144		696.49	*	1.218E+00	2.772E+00	4.789E+00	2.625E-01	0.254
		1489.15		-3.240E+00	1.398E+01	2.253E+01	1.644E+00	-0.144
PM-146		453.90	*	-6.652E-03	5.321E-02	8.644E-02	7.403E-03	-0.077
		633.02		-2.597E-02	1.605E+00	2.581E+00	9.481E-01	-0.010
		735.90		-7.635E-02	1.824E-01	2.933E-01	8.192E-02	-0.260
		747.13		-4.181E-02	1.101E-01	1.784E-01	2.263E-02	-0.234

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	+	91.11		5.502E-01	4.824E-01	6.285E-01	7.148E-02	0.875
		319.41		1.619E+00	3.623E+00	6.164E+00	4.089E-01	0.263
		439.89		-1.534E-01	6.000E+00	9.828E+00	5.618E-01	-0.016
		531.02	*	-1.245E-02	6.015E-01	9.763E-01	1.312E-01	-0.013
PM-149		285.90	*	-7.735E+00	5.584E+01	9.269E+01	1.357E+01	-0.083
EU-152		121.78		3.456E-02	9.253E-02	1.530E-01	1.334E-02	0.226
		244.69		4.144E-01	4.347E-01	6.743E-01	4.695E-02	0.615
		344.27	*	-1.862E-01	1.894E-01	1.880E-01	1.325E-02	-0.990
		443.98		-5.958E-01	1.153E+00	1.824E+00	1.042E-01	-0.327
		778.89		-2.064E-01	2.996E-01	4.698E-01	3.117E-02	-0.439
		867.32		7.225E-02	1.036E+00	1.491E+00	1.196E-01	0.048
		964.01	+	1.290E+00	3.690E-01	6.728E-01	5.426E-02	1.917
		1085.78		3.207E-01	4.845E-01	8.401E-01	5.754E-02	0.382
		1112.02		3.880E-02	4.549E-01	6.439E-01	4.204E-02	0.060
		1407.95		2.166E-01	2.122E-01	3.953E-01	2.949E-02	0.548
		69.67		2.130E+00	2.945E+00	4.412E+00	4.981E-01	0.483
		83.37		3.344E+01	2.224E+01	3.370E+01	3.802E+00	0.992
GD-153		97.43	*	4.102E-02	1.134E-01	1.661E-01	1.594E-02	0.247
		103.18		2.780E-02	1.322E-01	2.182E-01	1.920E-02	0.127
		123.07		-4.147E-02	6.602E-02	1.046E-01	1.077E-02	-0.396
		247.94		-1.606E-01	4.547E-01	7.314E-01	7.525E-02	-0.220
		591.81		9.362E-02	7.292E-01	1.159E+00	1.106E-01	0.081
		723.30		2.221E-01	2.328E-01	3.686E-01	2.623E-02	0.602
		756.87		1.571E-01	9.246E-01	1.564E+00	1.632E-01	0.100
		873.19		-1.005E-01	3.397E-01	5.470E-01	6.507E-02	-0.184
EU-154		996.32		4.093E-02	4.278E-01	7.096E-01	1.233E-01	0.058
		1004.76		-8.384E-02	2.539E-01	4.041E-01	4.437E-02	-0.207
		1274.45	*	-4.459E-02	1.468E-01	2.297E-01	2.303E-02	-0.194
		48.70		-5.708E+00	8.003E+00	1.291E+01	1.661E+00	-0.442
		60.01		-5.914E+00	9.898E+00	1.603E+01	1.960E+00	-0.369
		86.54	+	3.549E-01	1.374E-01	2.383E-01	2.748E-02	1.490
		105.31	*	7.446E-02	1.394E-01	2.325E-01	2.013E-02	0.320
		86.79	+	9.289E-01	3.594E-01	6.237E-01	7.162E-02	1.489
		197.04		3.150E-01	7.244E-01	1.163E+00	7.928E-02	0.271
		215.65		3.536E-01	1.000E+00	1.568E+00	1.082E-01	0.226
		298.57	+	2.701E-01	1.532E-01	2.544E-01	1.729E-02	1.062
		879.36	*	1.752E-02	1.484E-01	2.485E-01	2.043E-02	0.071
TB-160		962.29		1.145E+00	7.151E-01	1.184E+00	9.561E-02	0.967
		966.15		1.408E+00	3.268E-01	6.309E-01	5.076E-02	2.231
		1177.93		-1.708E-01	4.410E-01	6.920E-01	3.977E-02	-0.247
		1271.85		1.419E-01	8.221E-01	1.356E+00	9.247E-02	0.105
		80.57		-5.922E-01	4.318E-01	5.756E-01	6.430E-02	-1.029
		184.41	+	1.268E-01	7.537E-02	8.933E-02	6.028E-03	1.419
		280.46		-9.694E-02	1.042E-01	1.661E-01	1.145E-02	-0.584
		410.95		3.020E-01	3.056E-01	5.309E-01	3.025E-02	0.569
		711.68	*	2.061E-02	7.752E-02	1.322E-01	7.514E-03	0.156
		752.31		4.657E-02	3.388E-01	5.716E-01	3.572E-02	0.081
		810.29		-4.210E-02	6.982E-02	1.101E-01	7.830E-03	-0.382
		51.35		7.137E+00	8.604E+01	1.438E+02	1.986E+01	0.050
HO-166M								
TM-171								

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176		52.39		5.296E+01	4.220E+01	7.267E+01	1.002E+01	0.729
		59.40		-2.299E+01	5.338E+01	8.710E+01	1.072E+01	-0.264
		66.72	*	-5.856E+01	5.145E+01	7.755E+01	8.917E+00	-0.755
		88.36		2.840E-01	4.333E-01	4.716E-01	5.411E-02	0.602
		201.83		-3.865E-02	3.815E-02	5.822E-02	3.983E-03	-0.664
		306.84	*	-3.479E-03	3.017E-02	4.999E-02	3.368E-03	-0.070
		401.10		2.117E+00	8.423E+00	1.363E+01	7.746E-01	0.155
LU-177		112.95		6.227E-01	1.687E+00	2.772E+00	2.170E-01	0.225
LU-177M	+	208.36	*	1.671E+00	1.762E+00	2.052E+00	1.410E-01	0.814
		52.97		2.190E+00	4.182E+00	7.088E+00	9.735E-01	0.309
HF-181		54.07		2.833E-01	2.086E+00	3.489E+00	4.729E-01	0.081
		61.30		-9.806E-01	2.910E+00	4.731E+00	5.711E-01	-0.207
		121.62		1.933E-01	4.708E-01	7.796E-01	5.617E-02	0.248
		147.16		-2.133E-01	8.157E-01	1.307E+00	8.845E-02	-0.163
		171.86		1.903E-01	6.194E-01	1.011E+00	6.749E-02	0.188
		218.09		-2.534E-01	1.126E+00	1.779E+00	1.230E-01	-0.142
	+	268.79		1.283E+00	1.241E+00	1.892E+00	1.312E-01	0.678
		319.02		7.344E-03	3.259E-01	5.430E-01	3.603E-02	0.014
		367.43		5.915E-02	1.158E+00	1.921E+00	1.164E-01	0.031
		413.65	*	-4.216E-01	2.253E-01	3.254E-01	1.855E-02	-1.296
W-181		56.28		-1.781E+00	2.044E+00	3.259E+00	4.256E-01	-0.547
		57.53		-2.081E-01	1.046E+00	1.724E+00	2.199E-01	-0.121
		65.20		-1.347E+00	1.646E+00	2.617E+00	3.046E-01	-0.515
		133.02		-4.322E-02	8.190E-02	1.303E-01	9.034E-03	-0.332
		136.25		1.841E-02	5.555E-01	9.034E-01	6.220E-02	0.020
		345.85		-2.746E-01	2.700E-01	3.559E-01	2.260E-02	-0.771
		482.03	*	-2.941E-02	4.974E-02	7.776E-02	4.427E-03	-0.378
TA-182		56.28		-7.158E-01	8.192E-01	1.306E+00	1.705E-01	-0.548
		57.53		-8.418E-02	4.195E-01	6.915E-01	8.819E-02	-0.122
		65.20	*	-5.361E-01	6.551E-01	1.041E+00	1.212E-01	-0.515
RE-183		67.75		-4.325E-03	2.076E-01	3.017E-01	3.444E-02	-0.014
		100.10		-7.896E-02	2.250E-01	3.635E-01	3.344E-02	-0.217
		152.43		2.647E-01	4.268E-01	7.069E-01	4.754E-02	0.374
		222.10		1.467E-01	4.586E-01	7.423E-01	5.139E-02	0.198
		1001.68		-1.395E-01	2.505E+00	4.129E+00	3.195E-01	-0.034
		1121.28		4.068E-01	2.140E-01	3.550E-01	2.275E-02	1.146
		1189.05		-1.442E-01	3.880E-01	6.101E-01	3.581E-02	-0.236
RE-184		1221.42	*	1.261E-01	2.645E-01	4.452E-01	2.776E-02	0.283
		1230.97		-3.698E-01	6.088E-01	9.282E-01	5.889E-02	-0.398
		57.98		-3.009E-02	4.087E-01	6.772E-01	8.563E-02	-0.044
		59.32		-9.499E-02	2.158E-01	3.520E-01	4.338E-02	-0.270
		67.20		-6.328E-02	3.503E-01	5.334E-01	6.112E-02	-0.119
		162.32	*	-1.725E-01	1.420E-01	2.171E-01	1.447E-02	-0.795
	+	208.81		1.850E+00	1.951E+00	2.278E+00	1.566E-01	0.812
RE-184		291.72		1.893E+00	1.333E+00	2.105E+00	1.439E-01	0.899
		57.98		-1.123E-01	1.526E+00	2.528E+00	3.196E-01	-0.044
		59.32		-3.543E-01	8.050E-01	1.313E+00	1.618E-01	-0.270
		67.20		-2.361E-01	1.307E+00	1.991E+00	2.281E-01	-0.119
		161.27		-3.108E-01	4.645E-01	7.289E-01	4.862E-02	-0.426

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185		216.55		2.770E-02	3.525E-01	5.650E-01	3.901E-02	0.049
		252.85	*	4.630E-02	2.925E-01	4.947E-01	3.444E-02	0.094
		318.01		-1.759E-01	5.618E-01	9.198E-01	6.111E-02	-0.191
		792.07		8.880E-01	1.239E+00	2.166E+00	1.480E-01	0.410
		903.28		2.043E-01	1.290E+00	1.872E+00	1.592E-01	0.109
		920.93		3.899E-01	4.903E-01	8.691E-01	7.289E-02	0.449
		59.72		-2.709E-01	5.770E-01	9.398E-01	1.152E-01	-0.288
		61.14		6.276E-02	3.122E-01	5.217E-01	6.308E-02	0.120
		69.30		3.056E-01	5.249E-01	7.826E-01	8.851E-02	0.391
		592.07		4.585E-02	2.856E+00	4.623E+00	2.493E-01	0.010
		646.12	*	-5.652E-03	4.915E-02	7.828E-02	4.011E-03	-0.072
		717.42		-6.614E-01	1.062E+00	1.694E+00	9.763E-02	-0.390
		874.81		1.844E-02	6.485E-01	1.077E+00	8.774E-02	0.017
		880.27		-1.704E-02	8.199E-01	1.355E+00	1.116E-01	-0.013
		155.03	*	-5.051E-02	2.175E-01	3.484E-01	2.337E-02	-0.145
RE-188		477.96		2.409E+00	3.545E+00	6.064E+00	3.455E-01	0.397
		633.10		9.014E-02	3.186E+00	5.143E+00	2.672E-01	0.018
W-188		63.58		6.931E+01	9.435E+01	1.585E+02	1.872E+01	0.437
		227.08		-3.870E+00	1.559E+01	2.602E+01	1.805E+00	-0.149
IR-192		290.67	*	-2.343E+00	9.998E+00	1.428E+01	9.770E-01	-0.164
	+	295.96		1.252E+00	2.157E-01	3.375E-01	2.326E-02	3.710
		308.46		-1.876E-02	1.175E-01	1.942E-01	1.317E-02	-0.097
		316.51	*	-2.301E-02	4.250E-02	6.870E-02	4.591E-03	-0.335
AU-195		468.07		-1.627E-02	8.672E-02	1.203E-01	7.947E-03	-0.135
		604.41		6.185E-01	5.890E-01	9.070E-01	1.009E-01	0.682
		612.46		8.576E-01	8.957E-01	1.374E+00	9.890E-02	0.624
		65.12		-2.575E-01	3.053E-01	4.847E-01	5.645E-02	-0.531
		66.83		-1.906E-01	1.686E-01	2.542E-01	2.921E-02	-0.750
	+	75.70		1.984E+00	4.198E-01	6.700E-01	7.440E-02	2.961
		98.88	*	3.214E-01	2.875E-01	4.746E-01	4.449E-02	0.677
TL-200		129.76		4.576E+00	3.660E+00	6.206E+00	4.340E-01	0.737
		367.94	*	-7.565E-05	3.660E+00	Half-Life	too short	
		579.30		3.408E-03	3.660E+00	Half-Life	too short	
		828.27		4.177E-04	3.660E+00	Half-Life	too short	
TL-201		1205.75		-5.405E-06	3.660E+00	Half-Life	too short	
		68.90		1.460E+00	5.255E+00	7.738E+00	8.771E-01	0.189
		70.82		3.544E+00	2.881E+00	4.384E+00	4.922E-01	0.808
		80.30		-1.109E+01	5.098E+00	6.388E+00	7.130E-01	-1.736
TL-202		135.34		-4.811E+00	1.942E+01	3.122E+01	2.154E+00	-0.154
		167.43	*	4.168E+00	5.510E+00	9.148E+00	6.088E-01	0.456
		68.90		1.923E-01	6.920E-01	1.019E+00	1.155E-01	0.189
		70.82		4.655E-01	3.784E-01	5.757E-01	6.464E-02	0.808
		80.30		-1.457E+00	6.697E-01	8.392E-01	9.366E-02	-1.736
HG-203		439.56	*	1.714E-02	7.164E-02	1.195E-01	6.826E-03	0.144
		70.83		2.230E+00	1.816E+00	2.740E+00	4.217E-01	0.814
	+	72.87		4.225E+00	1.382E+00	1.820E+00	2.727E-01	2.321
		82.60		1.345E+00	1.657E+00	2.450E+00	3.804E-01	0.549
BI-207		279.20	*	3.193E-02	4.796E-02	8.265E-02	5.953E-03	0.386
	+	72.80		1.280E+00	3.987E-01	5.488E-01	6.120E-02	2.333

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207	+	74.97		7.584E-01	2.362E-01	3.744E-01	4.160E-02	2.025
		84.90		8.393E-01	3.060E-01	4.727E-01	5.372E-02	1.775
		569.67		1.069E-02	3.678E-02	6.088E-02	3.337E-03	0.176
		1063.62	*	1.631E-02	6.520E-02	1.092E-01	7.758E-03	0.149
		1770.23		-1.666E-01	4.876E-01	5.985E-01	3.706E-02	-0.278
		81.07		-5.343E-01	3.709E-01	4.523E-01	5.059E-02	-1.181
		83.78		3.365E-01	1.901E-01	2.898E-01	3.276E-02	1.161
		94.90		4.049E-01	3.313E-01	5.022E-01	5.036E-02	0.806
		122.32		-3.834E-01	2.223E+00	3.597E+00	2.848E-01	-0.107
		144.24		4.036E-01	8.688E-01	1.412E+00	1.136E-01	0.286
		154.21		-3.518E-02	5.147E-01	8.302E-01	6.463E-02	-0.042
	+	269.46		3.034E-01	2.935E-01	4.480E-01	3.205E-02	0.677
		323.87	*	8.446E-01	9.616E-01	1.462E+00	2.457E-01	0.578
	+	338.28		7.516E+00	2.001E+00	2.867E+00	3.124E-01	2.622
PO-209		445.03		-2.116E+00	2.733E+00	4.226E+00	4.319E-01	-0.501
		260.50		-4.723E+00	1.231E+01	2.029E+01	1.410E+00	-0.233
		262.80		-3.431E+01	3.505E+01	5.436E+01	3.777E+00	-0.631
		896.60	*	4.896E+00	8.137E+00	1.420E+01	1.209E+00	0.345
BI-210		46.50	*	1.111E+01	1.341E+01	2.242E+01	2.329E+00	0.496
PB-210		46.50	*	1.111E+01	1.341E+01	2.242E+01	2.329E+00	0.496
PO-210		46.50	*	1.111E+01	1.340E+01	2.242E+01	2.154E+00	0.496
PB-211		404.84	*	-1.888E+00	1.663E+00	1.744E+00	1.087E+00	-1.083
PO-215		427.08		-1.558E-01	2.416E+00	3.950E+00	2.441E+00	-0.039
		831.96		-4.779E-02	1.466E+00	2.428E+00	1.518E+00	-0.020
		81.07		-5.343E-01	3.709E-01	4.523E-01	5.059E-02	-1.181
		83.78		3.365E-01	1.901E-01	2.898E-01	3.276E-02	1.161
		94.90		4.049E-01	3.313E-01	5.022E-01	5.036E-02	0.806
		122.32		-3.834E-01	2.223E+00	3.597E+00	2.848E-01	-0.107
		144.24		4.036E-01	8.688E-01	1.412E+00	1.136E-01	0.286
		154.21		-3.518E-02	5.147E-01	8.302E-01	6.463E-02	-0.042
	+	269.46		3.034E-01	2.935E-01	4.480E-01	3.205E-02	0.677
		323.87	*	8.446E-01	9.616E-01	1.462E+00	2.457E-01	0.578
RN-219	+	338.28		7.516E+00	2.001E+00	2.867E+00	3.124E-01	2.622
		445.03		-2.116E+00	2.733E+00	4.226E+00	4.319E-01	-0.501
	+	271.23		3.893E-01	3.771E-01	5.819E-01	5.206E-02	0.669
		401.81	*	3.392E-01	4.908E-01	8.394E-01	1.138E-01	0.404
RN-220		549.76	*	-9.165E+00	3.082E+01	4.883E+01	2.709E+00	-0.188
RA-223		81.07		-5.343E-01	3.709E-01	4.523E-01	5.059E-02	-1.181
AC-227		83.78		3.365E-01	1.901E-01	2.898E-01	3.276E-02	1.161
		94.90		4.049E-01	3.313E-01	5.022E-01	5.036E-02	0.806
		122.32		-3.834E-01	2.223E+00	3.597E+00	2.848E-01	-0.107
		144.24		4.036E-01	8.688E-01	1.412E+00	1.136E-01	0.286
		154.21		-3.518E-02	5.147E-01	8.302E-01	6.463E-02	-0.042
	+	269.46		3.034E-01	2.935E-01	4.480E-01	3.205E-02	0.677
		323.87	*	8.446E-01	9.616E-01	1.462E+00	2.457E-01	0.578
	+	338.28		7.516E+00	2.001E+00	2.867E+00	3.124E-01	2.622
		445.03		-2.116E+00	2.733E+00	4.226E+00	4.319E-01	-0.501
		79.80		-6.064E+00	3.004E+00	3.442E+00	7.791E-01	-1.762
		236.00		4.798E+00	6.835E-01	9.006E-01	1.003E-01	5.328



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		256.20	*	2.875E-01	4.931E-01	8.455E-01	1.224E-01	0.340
		286.10		-2.017E-01	1.885E+00	3.135E+00	3.803E-01	-0.064
	+	299.80		3.515E+00	2.064E+00	3.410E+00	5.682E-01	1.031
		304.40		-2.031E+00	2.771E+00	3.771E+00	6.652E-01	-0.539
		334.20		-1.455E+00	3.500E+00	4.580E+00	8.500E-01	-0.318
		79.80		-6.064E+00	3.012E+00	3.442E+00	7.881E-01	-1.762
	+	94.00		4.865E+00	4.371E+00	4.665E+00	1.047E+00	1.043
		236.00		4.798E+00	6.360E-01	9.006E-01	8.859E-02	5.328
		256.20	*	2.875E-01	4.938E-01	8.455E-01	1.465E-01	0.340
		286.10		-2.017E-01	1.896E+00	3.135E+00	3.142E+00	-0.064
TH-229	+	299.80		3.515E+00	2.064E+00	3.410E+00	5.682E-01	1.031
		304.40		-2.031E+00	2.771E+00	3.771E+00	6.652E-01	-0.539
		334.20		-1.455E+00	3.500E+00	4.580E+00	8.500E-01	-0.318
	+	85.43		6.614E-01	2.560E-01	4.641E-01	5.288E-02	1.425
		88.47		1.460E-01	2.485E-01	2.694E-01	3.083E-02	0.542
		100.00		-4.573E-02	2.364E-01	3.845E-01	3.542E-02	-0.119
		193.63	*	-3.677E-01	6.685E-01	1.029E+00	6.995E-02	-0.357
		210.97		1.368E+00	1.139E+00	1.696E+00	1.167E-01	0.807
	PA-231	283.67	*	-3.476E-01	1.832E+00	3.033E+00	4.327E-01	-0.115
	TH-231	301.29		1.189E+00	8.435E-01	1.319E+00	1.454E-01	0.901
U-231		81.07		-5.343E-01	3.709E-01	4.523E-01	5.059E-02	-1.181
		83.78		3.365E-01	1.901E-01	2.898E-01	3.276E-02	1.161
		94.90		4.049E-01	3.313E-01	5.022E-01	5.036E-02	0.806
		122.32		-3.834E-01	2.223E+00	3.597E+00	2.848E-01	-0.107
		144.24		4.036E-01	8.688E-01	1.412E+00	1.136E-01	0.286
		154.21		-3.518E-02	5.147E-01	8.302E-01	6.463E-02	-0.042
	+	269.46		3.034E-01	2.935E-01	4.480E-01	3.205E-02	0.677
		323.87	*	8.446E-01	9.616E-01	1.462E+00	2.457E-01	0.578
	+	338.28		7.516E+00	2.001E+00	2.867E+00	3.124E-01	2.622
		445.03		-2.116E+00	2.733E+00	4.226E+00	4.319E-01	-0.501
PA-233	U-231	84.21		1.060E+01	5.771E+00	8.796E+00	9.962E-01	1.205
	+	92.29		3.325E+00	2.913E+00	3.622E+00	3.817E-01	0.918
		95.87	*	1.224E-01	1.077E+00	1.558E+00	1.536E-01	0.079
		108.00		-9.128E-01	1.883E+00	3.022E+00	2.500E-01	-0.302
	+	75.28		2.213E+01	7.445E+00	1.108E+01	1.869E+00	1.998
	+	86.59		5.774E+00	2.673E+00	3.876E+00	1.080E+00	1.490
	+	300.12		9.799E-01	5.683E-01	9.492E-01	1.319E-01	1.032
		311.98	*	-5.962E-03	7.987E-02	1.325E-01	9.289E-03	-0.045
		340.50		2.067E+00	9.341E-01	1.372E+00	3.174E-01	1.506
		398.62		8.508E-01	2.623E+00	4.247E+00	1.097E+00	0.200
PA-234		415.76		-2.495E-01	2.041E+00	3.331E+00	6.849E-01	-0.075
		63.00		2.059E+00	2.907E+00	4.863E+00	8.521E-01	0.423
		94.67		3.738E-01	2.431E-01	3.686E-01	4.958E-02	1.014
		98.44		2.047E-01	1.669E-01	1.990E-01	1.113E-01	1.029
		99.86		1.612E-01	5.899E-01	9.770E-01	9.019E-02	0.165
		111.00		-1.738E-01	2.437E-01	3.861E-01	4.498E-02	-0.450
		131.20		-6.928E-02	1.379E-01	2.198E-01	1.531E-02	-0.315
		152.70		1.565E-01	4.177E-01	6.846E-01	1.107E-01	0.229
	+	186.00		4.565E+00	3.039E+00	3.270E+00	1.006E+00	1.396

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	226.40			1.157E-01	4.984E-01	8.480E-01	1.032E-01	0.136
	227.20			-1.676E-01	5.370E-01	8.939E-01	6.201E-02	-0.188
	248.90			-2.045E-01	1.021E+00	1.699E+00	3.708E-01	-0.120
+	293.70			8.050E+00	1.837E+00	2.174E+00	3.583E-01	3.702
	369.80			-9.422E-03	1.076E+00	1.779E+00	3.715E-01	-0.005
	568.70			6.312E-01	1.182E+00	1.992E+00	1.092E-01	0.317
	569.50			1.222E-01	3.247E-01	5.408E-01	2.965E-02	0.226
	574.00			-2.358E+00	1.840E+00	2.670E+00	1.459E-01	-0.883
	699.00			-1.041E+00	8.784E-01	1.313E+00	2.349E-01	-0.793
	706.10			1.181E+00	1.411E+00	2.328E+00	1.027E+00	0.507
	733.00			2.496E-01	4.771E-01	7.504E-01	1.599E-01	0.333
	742.81			1.982E-01	1.591E+00	2.676E+00	1.792E+00	0.074
	796.30			1.443E+00	1.184E+00	2.035E+00	5.405E-01	0.709
	805.60			1.093E+00	1.239E+00	2.128E+00	6.434E-01	0.514
	819.60			1.057E-01	1.384E+00	2.316E+00	8.742E-01	0.046
	826.30			2.567E-01	9.432E-01	1.593E+00	7.090E-01	0.161
	831.60			-2.109E-01	7.844E-01	1.272E+00	3.755E-01	-0.166
	876.40			2.735E-01	9.659E-01	1.573E+00	1.617E+00	0.174
	880.51			-6.872E-02	3.010E-01	4.871E-01	4.014E-02	-0.141
	883.24			-1.115E-01	3.216E-01	4.998E-01	3.357E-01	-0.223
	899.00			-7.994E-01	1.026E+00	1.471E+00	6.430E-01	-0.543
	925.00			-3.990E-01	1.383E+00	2.222E+00	1.857E-01	-0.180
	926.50			-2.217E-02	2.040E-01	3.333E-01	8.396E-02	-0.067
	946.00	*		8.182E-02	3.567E-01	6.000E-01	1.115E-01	0.136
	949.00			8.608E-01	5.060E-01	9.526E-01	7.795E-02	0.904
	980.50			-3.128E-01	8.723E-01	1.386E+00	1.099E-01	-0.226
PA-234M	1394.10			1.675E+00	1.779E+00	2.670E+00	1.734E+00	0.627
	766.42			1.289E+01	1.553E+01	2.496E+01	1.258E+01	0.517
TH-234	1001.03	*		-1.036E+00	5.743E+00	9.363E+00	8.629E-01	-0.111
	63.29	*		1.922E+00	2.460E+00	4.108E+00	8.107E-01	0.468
+	92.38			1.259E+00	1.121E+00	1.368E+00	2.608E-01	0.920
U-235	89.95			1.589E+00	2.488E+00	2.657E+00	8.403E-01	0.598
+	93.35			1.514E+00	1.386E+00	1.578E+00	4.512E-01	0.959
	105.00			8.132E-01	1.376E+00	2.269E+00	6.768E-01	0.358
	143.76	*		3.679E-02	2.696E-01	4.326E-01	7.219E-02	0.085
	163.35			-5.505E-01	6.276E-01	9.634E-01	1.761E-01	-0.571
+	185.71			1.691E-01	1.005E-01	1.209E-01	8.167E-03	1.398
	205.31			-3.876E-01	8.279E-01	1.101E+00	2.021E-01	-0.352
NP-236	94.67			2.849E-01	1.827E-01	2.797E-01	2.817E-02	1.019
	98.44			1.547E-01	9.291E-02	1.504E-01	1.420E-02	1.029
	111.00			-1.315E-01	1.840E-01	2.920E-01	2.335E-02	-0.450
	160.31	*		1.115E-02	1.035E-01	1.679E-01	1.121E-02	0.066
U-238	63.29	*		1.922E+00	2.460E+00	4.108E+00	8.107E-01	0.468
+	92.38			1.259E+00	1.103E+00	1.368E+00	1.439E-01	0.920
NP-239	99.55			7.039E-02	1.978E-01	3.286E-01	3.048E-02	0.214
	117.00	*		-3.147E-01	2.405E-01	3.694E-01	2.777E-02	-0.852
+	209.75			1.492E+00	1.574E+00	1.831E+00	1.260E-01	0.815
	228.18			-1.807E-01	2.825E-01	4.633E-01	3.215E-02	-0.390
	277.60			2.609E-01	2.223E-01	3.904E-01	2.695E-02	0.668

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		334.30		-6.478E-01	1.986E+00	2.627E+00	1.703E-01	-0.247
AM-241		59.54	*	-1.583E-01	3.105E-01	5.048E-01	6.424E-02	-0.314
CM-243		99.55		7.243E-02	2.035E-01	3.380E-01	3.136E-02	0.214
		103.76	*	8.227E-02	1.231E-01	2.065E-01	1.802E-02	0.398
		117.00		-3.237E-01	2.473E-01	3.800E-01	2.856E-02	-0.852
	+	209.75		1.470E+00	1.551E+00	1.805E+00	1.241E-01	0.815
		228.18		-1.825E-01	2.854E-01	4.681E-01	3.248E-02	-0.390
		277.60		2.630E-01	2.241E-01	3.935E-01	2.717E-02	0.668
AM-246		798.80		-3.092E-01	1.817E-01	2.606E-01	1.807E-02	-1.186
		1036.00		-5.867E-02	3.590E-01	5.796E-01	4.290E-02	-0.101
		1062.04		2.491E-01	2.824E-01	4.981E-01	3.548E-02	0.500
		1078.86	*	-1.232E-01	1.643E-01	2.476E-01	1.716E-02	-0.498
CM-247		278.00		9.347E-01	9.249E-01	1.614E+00	1.114E-01	0.579
		287.40		4.996E-01	1.657E+00	2.568E+00	1.761E-01	0.195
		402.60	*	3.871E-02	4.319E-02	7.501E-02	4.266E-03	0.516
CF-249		252.85		1.753E-01	1.108E+00	1.873E+00	1.304E-01	0.094
		333.44		-1.277E-01	3.121E-01	3.369E-01	2.187E-02	-0.379
		387.95	*	2.673E-02	5.100E-02	8.661E-02	4.966E-03	0.309
CF-251		176.60	*	-7.076E-02	1.694E-01	2.679E-01	1.796E-02	-0.264
		227.00		-9.777E-02	4.793E-01	8.015E-01	5.559E-02	-0.122
		285.00		5.348E-01	2.119E+00	3.586E+00	2.464E-01	0.149

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244515001      *
* Acquisition date   : 21-JAN-2010 09:17:29 Detector SN#                   *
* Detector ID        : GAM15 Sensitivity : 5.000                          *
* Geometry           : CAN Energy tolerance: 1.500                        *
* Elapsed live time   : 0 02:00:00.00 Abundance limit : 75.000            *
* Elapsed real time   : 0 02:00:01.32 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 8-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G244515001 Analyst initials: MXR1                 *
* Batch Number       : 941242 Sample Quantity : 1.2827E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000                                             *
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12 MS Isotope                    *
* MSD DPM             : 0.000 MSD Isotope :                               *
* LCS DPM             : 0.000 LCS Isotope :                               *
* LCSD DPM            : 0.000 LCSD Isotope :                              *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	3.030E+01	2.952E+00	4.961E-01	0.000E+00
CD-109	2.991E+00	1.134E+00	1.992E+00	0.000E+00
SN-126	2.950E-01	1.119E-01	1.866E-01	0.000E+00
TL-208	4.886E-01	1.004E-01	7.043E-02	0.000E+00
BI-211	4.017E+00	6.142E-01	4.171E-01	0.000E+00
BI-212	1.284E+00	4.220E-01	5.111E-01	0.000E+00
PB-212	1.714E+00	1.934E-01	1.164E-01	0.000E+00
PO-212	1.714E+00	1.934E-01	1.164E-01	0.000E+00
BI-214	1.185E+00	2.107E-01	1.383E-01	0.000E+00
PB-214	1.397E+00	2.253E-01	1.453E-01	0.000E+00
PO-214	1.397E+00	2.253E-01	1.453E-01	0.000E+00
PO-216	1.714E+00	1.934E-01	1.164E-01	0.000E+00
PO-218	1.397E+00	2.253E-01	1.453E-01	0.000E+00
RA-224	4.098E+00	1.532E+00	1.324E+00	0.000E+00
RA-226	1.185E+00	2.107E-01	1.383E-01	0.000E+00
AC-228	1.774E+00	3.802E-01	2.094E-01	0.000E+00
RA-228	1.774E+00	3.802E-01	2.094E-01	0.000E+00
TH-228	1.737E+00	1.959E-01	1.179E-01	0.000E+00
TH-230	1.185E+00	2.107E-01	1.383E-01	0.000E+00
TH-232	1.774E+00	3.802E-01	2.094E-01	0.000E+00
U-234	1.185E+00	2.107E-01	1.383E-01	0.000E+00
NP-237	8.662E-01	3.723E-01	6.102E-01	0.000E+00
AM-243	4.226E-01	1.290E-01	1.381E-01	0.000E+00
ANH-511	1.335E-01	7.032E-02	5.633E-02	0.000E+00

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	1.762E-01	3.641E-01	6.381E-01	0.000E+00 NOT IDENT.
NA-22	-1.642E-02	5.137E-02	8.216E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	7.486E+04	0.000E+00	0.000E+00 SHORT HLIF

AL-26	-2.691E-02	3.491E-02	4.929E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	6.377E-02	1.039E-01	0.000E+00	NOT IDENT.
SC-46	2.637E-02	4.143E-02	7.454E-02	0.000E+00	FAIL ABUN
V-48	-7.854E-03	7.820E-02	1.310E-01	0.000E+00	NOT IDENT.
CR-51	2.597E-01	4.548E-01	7.929E-01	0.000E+00	NOT IDENT.
MN-52	-1.052E-01	1.970E-01	3.112E-01	0.000E+00	NOT IDENT.
MN-54	2.236E-02	4.522E-02	8.006E-02	0.000E+00	NOT IDENT.
CO-56	4.307E-03	4.118E-02	7.101E-02	0.000E+00	NOT IDENT.
CO-57	4.513E-03	3.122E-02	5.425E-02	0.000E+00	NOT IDENT.
CO-58	-2.220E-02	4.365E-02	7.156E-02	0.000E+00	NOT IDENT.
FE-59	-6.662E-03	1.024E-01	1.705E-01	0.000E+00	NOT IDENT.
CO-60	1.273E-02	4.303E-02	7.368E-02	0.000E+00	NOT IDENT.
ZN-65	1.142E-01	1.242E-01	1.977E-01	0.000E+00	NOT IDENT.
GE-68	-1.504E+00	1.417E+00	2.113E+00	0.000E+00	NOT IDENT.
AS-73	1.570E+00	2.027E+00	3.708E+00	0.000E+00	NOT IDENT.
AS-74	-5.195E-02	9.833E-02	1.533E-01	0.000E+00	NOT IDENT.
SE-75	-8.058E-03	6.224E-02	9.440E-02	0.000E+00	NOT IDENT.
BR-77	2.289E+00	6.324E+00	1.095E+01	0.000E+00	FAIL ABUN
SR-82	-4.012E-01	4.116E-01	6.504E-01	0.000E+00	NOT IDENT.
RB-83	3.454E-02	7.825E-02	1.363E-01	0.000E+00	NOT IDENT.
RB-84	-3.682E-02	7.086E-02	1.145E-01	0.000E+00	NOT IDENT.
KR-85	1.153E+01	9.270E+00	1.508E+01	0.000E+00	NOT IDENT.
SR-85	5.776E-02	4.643E-02	7.550E-02	0.000E+00	NOT IDENT.
RB-86	-5.191E-01	8.163E-01	1.280E+00	0.000E+00	NOT IDENT.
Y-88	1.768E-02	3.467E-02	6.368E-02	0.000E+00	NOT IDENT.
ZR-88	-7.500E-03	3.637E-02	6.171E-02	0.000E+00	NOT IDENT.
Y-91	-1.096E+01	2.421E+01	3.878E+01	0.000E+00	NOT IDENT.
NB-94	3.998E-03	3.948E-02	6.879E-02	0.000E+00	NOT IDENT.
NB-95	5.272E-02	5.042E-02	9.251E-02	0.000E+00	NOT IDENT.
NB-95M	0.000E+00	2.594E-01	4.320E-01	0.000E+00	NOT IDENT.
ZR-95	1.094E-02	8.201E-02	1.426E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.292E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	3.163E+05	0.000E+00	0.000E+00	SHORT HLIF
MO-99	5.464E+00	7.798E+00	1.407E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	9.858E+13	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.158E-03	4.274E-02	7.132E-02	0.000E+00	NOT IDENT.
RH-102	-1.010E-02	3.444E-02	5.729E-02	0.000E+00	NOT IDENT.
RU-103	-6.694E-03	4.554E-02	7.626E-02	0.000E+00	NOT IDENT.
RH-106	2.580E-01	3.454E-01	6.102E-01	0.000E+00	NOT IDENT.
RU-106	2.580E-01	3.444E-01	6.102E-01	0.000E+00	NOT IDENT.
AG-108M	-3.662E-02	3.761E-02	5.980E-02	0.000E+00	NOT IDENT.
AG-110M	-5.290E-02	4.141E-02	6.113E-02	0.000E+00	NOT IDENT.
IN-111	1.989E-01	8.170E-01	1.275E+00	0.000E+00	NOT IDENT.
IN-113M	6.952E-03	5.348E-02	9.259E-02	0.000E+00	NOT IDENT.
SN-113	6.952E-03	5.348E-02	9.259E-02	0.000E+00	NOT IDENT.
IN-114M	7.411E-02	2.509E-01	3.766E-01	0.000E+00	NOT IDENT.
CD-115	2.797E+00	6.379E+00	1.110E+01	0.000E+00	NOT IDENT.
SN-117M	7.496E-02	6.277E-02	1.117E-01	0.000E+00	NOT IDENT.
SB-122	4.763E-01	1.408E+00	2.421E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	4.338E+05	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	4.969E-02	3.567E-02	6.392E-02	0.000E+00	NOT IDENT.
I-124	8.253E-02	6.078E-01	8.888E-01	0.000E+00	FAIL ABUN
SB-124	-2.159E-04	7.673E-02	1.346E-01	0.000E+00	FAIL ABUN
SB-125	5.199E-02	1.056E-01	1.862E-01	0.000E+00	FAIL ABUN
TE-125M	1.202E+01	1.141E+01	2.047E+01	0.000E+00	NOT IDENT.
I-126	-1.632E-03	1.864E-01	3.092E-01	0.000E+00	NOT IDENT.
SB-126	-4.211E-03	1.622E-01	2.410E-01	0.000E+00	NOT IDENT.
SB-127	-1.029E+00	1.027E+00	1.638E+00	0.000E+00	NOT IDENT.
XE-127	-9.525E-03	6.414E-02	9.686E-02	0.000E+00	NOT IDENT.
I-131	8.100E-02	1.206E-01	2.154E-01	0.000E+00	NOT IDENT.
TE-132	-3.399E-01	5.285E-01	9.079E-01	0.000E+00	NOT IDENT.
BA-133	4.263E-02	5.955E-02	9.400E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.208E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	7.079E-02	5.757E-02	1.067E-01	0.000E+00	NOT IDENT.
CS-135	2.845E-01	2.343E-01	3.813E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	2.302E+13	0.000E+00	0.000E+00	SHORT HLIF
CS-136	1.805E-02	1.043E-01	1.784E-01	0.000E+00	FAIL ABUN
BA-137M	6.829E-03	3.998E-02	6.733E-02	0.000E+00	NOT IDENT.
CS-137	7.219E-03	4.226E-02	7.118E-02	0.000E+00	NOT IDENT.
CE-139	3.974E-02	3.757E-02	6.649E-02	0.000E+00	NOT IDENT.
BA-140	-2.510E-02	2.724E-01	4.555E-01	0.000E+00	NOT IDENT.
LA-140	-6.894E-02	8.084E-02	1.174E-01	0.000E+00	NOT IDENT.
CE-141	-1.373E-02	7.392E-02	1.257E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	1.365E+02	0.000E+00	0.000E+00	SHORT HLIF
CE-144	-1.445E-02	2.512E-01	4.312E-01	0.000E+00	NOT IDENT.
PM-144	1.799E-02	4.013E-02	7.159E-02	0.000E+00	NOT IDENT.
PR-144	1.218E+00	2.716E+00	4.845E+00	0.000E+00	NOT IDENT.
PM-146	-6.652E-03	5.215E-02	8.805E-02	0.000E+00	NOT IDENT.

ND-147	-1.245E-02	5.895E-01	9.921E-01	0.000E+00	FAIL ABUN
PM-149	-7.735E+00	5.472E+01	9.508E+01	0.000E+00	NOT IDENT.
EU-152	-1.862E-01	1.856E-01	1.923E-01	0.000E+00	FAIL ABUN
GD-153	4.102E-02	1.111E-01	1.731E-01	0.000E+00	NOT IDENT.
EU-154	-4.459E-02	1.438E-01	2.302E-01	0.000E+00	NOT IDENT.
EU-155	7.446E-02	1.366E-01	2.421E-01	0.000E+00	FAIL ABUN
TB-160	1.752E-02	1.454E-01	2.505E-01	0.000E+00	FAIL ABUN
HO-166M	2.061E-02	7.597E-02	1.337E-01	0.000E+00	FAIL ABUN
TM-171	-5.856E+01	5.042E+01	8.128E+01	0.000E+00	NOT IDENT.
LU-176	-3.479E-03	2.957E-02	5.123E-02	0.000E+00	NOT IDENT.
LU-177	1.671E+00	1.727E+00	2.115E+00	0.000E+00	FAIL ABUN
LU-177M	-4.216E-01	2.208E-01	3.319E-01	0.000E+00	FAIL ABUN
HF-181	-2.941E-02	4.875E-02	7.914E-02	0.000E+00	NOT IDENT.
W-181	-5.361E-01	6.420E-01	1.092E+00	0.000E+00	NOT IDENT.
TA-182	1.261E-01	2.592E-01	4.465E-01	0.000E+00	NOT IDENT.
RE-183	-1.725E-01	1.392E-01	2.246E-01	0.000E+00	FAIL ABUN
RE-184	4.630E-02	2.867E-01	5.084E-01	0.000E+00	NOT IDENT.
OS-185	-5.652E-03	4.816E-02	7.930E-02	0.000E+00	NOT IDENT.
RE-188	-5.051E-02	2.131E-01	3.607E-01	0.000E+00	NOT IDENT.
W-188	-2.343E+00	9.798E+00	1.464E+01	0.000E+00	NOT IDENT.
IR-192	-2.301E-02	4.165E-02	7.037E-02	0.000E+00	FAIL ABUN
AU-195	3.214E-01	2.817E-01	4.946E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.403E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	4.168E+00	5.400E+00	9.460E+00	0.000E+00	NOT IDENT.
TL-202	1.714E-02	7.021E-02	1.217E-01	0.000E+00	NOT IDENT.
HG-203	3.193E-02	4.701E-02	8.481E-02	0.000E+00	FAIL ABUN
BI-207	1.631E-02	6.390E-02	1.098E-01	0.000E+00	FAIL ABUN
TL-207	8.446E-01	9.423E-01	1.497E+00	0.000E+00	FAIL ABUN
PO-209	4.896E+00	7.974E+00	1.431E+01	0.000E+00	NOT IDENT.
BI-210	1.111E+01	1.314E+01	2.362E+01	0.000E+00	NOT IDENT.
PB-210	1.111E+01	1.314E+01	2.362E+01	0.000E+00	NOT IDENT.
PO-210	1.111E+01	1.314E+01	2.362E+01	0.000E+00	NOT IDENT.
PB-211	-1.888E+00	1.630E+00	1.779E+00	0.000E+00	NOT IDENT.
PO-215	8.446E-01	9.423E-01	1.497E+00	0.000E+00	FAIL ABUN
RN-219	3.392E-01	4.810E-01	8.566E-01	0.000E+00	FAIL ABUN
RN-220	-9.165E+00	3.020E+01	4.959E+01	0.000E+00	NOT IDENT.
RA-223	8.446E-01	9.423E-01	1.497E+00	0.000E+00	FAIL ABUN
AC-227	2.875E-01	4.832E-01	8.687E-01	0.000E+00	FAIL ABUN
TH-227	2.875E-01	4.840E-01	8.687E-01	0.000E+00	FAIL ABUN
TH-229	-3.677E-01	6.551E-01	1.062E+00	0.000E+00	FAIL ABUN
PA-231	-3.476E-01	1.795E+00	3.111E+00	0.000E+00	NOT IDENT.
TH-231	8.446E-01	9.423E-01	1.497E+00	0.000E+00	FAIL ABUN
U-231	1.224E-01	1.055E+00	1.625E+00	0.000E+00	FAIL ABUN
PA-233	-5.962E-03	7.827E-02	1.358E-01	0.000E+00	FAIL ABUN
PA-234	8.182E-02	3.496E-01	6.042E-01	0.000E+00	FAIL ABUN
PA-234M	-1.036E+00	5.628E+00	9.420E+00	0.000E+00	NOT IDENT.
TH-234	1.922E+00	2.411E+00	4.309E+00	0.000E+00	FAIL ABUN
U-235	3.679E-02	2.642E-01	4.484E-01	0.000E+00	FAIL ABUN
NP-236	1.115E-02	1.014E-01	1.737E-01	0.000E+00	NOT IDENT.
U-238	1.922E+00	2.411E+00	4.309E+00	0.000E+00	FAIL ABUN
NP-239	-3.147E-01	2.356E-01	3.840E-01	0.000E+00	FAIL ABUN
AM-241	-1.583E-01	3.043E-01	5.300E-01	0.000E+00	NOT IDENT.
CM-243	8.227E-02	1.207E-01	2.150E-01	0.000E+00	FAIL ABUN
AM-246	-1.232E-01	1.610E-01	2.488E-01	0.000E+00	NOT IDENT.
CM-247	3.871E-02	4.233E-02	7.655E-02	0.000E+00	NOT IDENT.
CF-249	2.673E-02	4.998E-02	8.843E-02	0.000E+00	NOT IDENT.
CF-251	-7.076E-02	1.660E-01	2.768E-01	0.000E+00	NOT IDENT.

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244515001.CNF;1
Sample date        : 8-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 09:17:29
Sample ID          : G244515001          Sample quantity   : 1.28270E+02 GRAM
Detector name      : GAM15              Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00      Elapsed real time  : 0 02:00:01.32  0.0%
Energy tolerance   : 1.50000 keV        Analyst Initials  : MXR1
Abundance limit    : 75.00000           Sensitivity        : 5.00000
Batch ID           : 941242             Detector SN#       :
Matrix Spike ID    :                   LCS ID              : 1032-A
*****

```

## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	1104	10.67*	9.992E-01	3.030E+01	3.030E+01	9.94
CD-109	88.03	164	3.72*	4.400E+00	2.934E+00	2.991E+00	38.70
SN-126	64.28	-----	9.60	1.930E+00	-----	Line Not Found	-----
	86.94	164	8.90	4.400E+00	1.226E+00	1.226E+00	55.98
	87.57	164	37.00*	4.400E+00	2.950E-01	2.950E-01	38.70
TL-208	277.35	-----	6.80	3.788E+00	-----	Line Not Found	-----
	510.84	112	21.60	2.462E+00	6.179E-01	6.179E-01	54.40
	583.14	314	84.20*	2.231E+00	4.886E-01	4.886E-01	20.97
	860.37	74	12.46	1.612E+00	1.078E+00	1.078E+00	53.92
BI-211	72.87	301	1.27	3.154E+00	2.196E+01	2.196E+01	31.14
	351.07	570	12.94*	3.207E+00	4.017E+00	4.017E+00	15.60
BI-212	727.18	97	11.80*	1.869E+00	1.284E+00	1.284E+00	33.55
	785.46	-----	1.97	1.748E+00	-----	Line Not Found	-----
	1620.62	23	2.75	9.262E-01	2.643E+00	2.643E+00	42.27
PB-212	74.81	301	10.70	3.154E+00	2.606E+00	2.606E+00	32.52
	77.11	477	18.00	3.419E+00	2.267E+00	2.267E+00	21.16
	87.30	164	8.00	4.400E+00	1.364E+00	1.364E+00	39.97
	238.63	1103	44.60*	4.221E+00	1.714E+00	1.714E+00	11.51
	300.09	79	3.41	3.590E+00	1.897E+00	1.897E+00	57.02
PO-212	74.81	301	10.70	3.154E+00	2.606E+00	2.606E+00	32.52
	77.11	477	18.00	3.419E+00	2.267E+00	2.267E+00	21.16
	87.30	164	8.00	4.400E+00	1.364E+00	1.364E+00	39.97
	115.19	-----	0.60	5.666E+00	-----	Line Not Found	-----
	238.63	1103	44.60*	4.221E+00	1.714E+00	1.714E+00	11.51
	300.09	79	3.41	3.590E+00	1.897E+00	1.897E+00	57.02
BI-214	609.31	404	46.30*	2.156E+00	1.185E+00	1.185E+00	18.14
	1120.29	74	15.10	1.264E+00	1.140E+00	1.140E+00	50.66
	1764.49	52	15.80	8.816E-01	1.094E+00	1.094E+00	41.68
PB-214	74.81	301	6.21	3.154E+00	4.491E+00	4.491E+00	32.01
	77.11	477	10.50	3.419E+00	3.887E+00	3.887E+00	22.49
	87.30	164	4.67	4.400E+00	2.337E+00	2.337E+00	39.46
	241.98	231	7.49	4.184E+00	2.161E+00	2.161E+00	38.56

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	399	19.20	3.631E+00	1.677E+00	1.677E+00	18.29
	351.92	570	37.20*	3.207E+00	1.397E+00	1.397E+00	16.45
	74.81	301	6.21	3.154E+00	4.491E+00	4.491E+00	32.01
	77.11	477	10.50	3.419E+00	3.887E+00	3.887E+00	22.49
	87.30	164	4.67	4.400E+00	2.337E+00	2.337E+00	39.46
	241.98	231	7.49	4.184E+00	2.161E+00	2.161E+00	38.56
	295.21	399	19.20	3.631E+00	1.677E+00	1.677E+00	18.29
PO-216	351.92	570	37.20*	3.207E+00	1.397E+00	1.397E+00	16.45
	74.81	301	10.70	3.154E+00	2.606E+00	2.606E+00	32.52
	77.11	477	18.00	3.419E+00	2.267E+00	2.267E+00	21.16
	87.30	164	8.00	4.400E+00	1.364E+00	1.364E+00	39.97
	238.63	1103	44.60*	4.221E+00	1.714E+00	1.714E+00	11.51
	300.09	79	3.41	3.590E+00	1.897E+00	1.897E+00	57.02
	74.81	301	6.21	3.154E+00	4.491E+00	4.491E+00	32.01
PO-218	77.11	477	10.50	3.419E+00	3.887E+00	3.887E+00	22.49
	87.30	164	4.67	4.400E+00	2.337E+00	2.337E+00	39.46
	241.98	231	7.49	4.184E+00	2.161E+00	2.161E+00	38.56
	295.21	399	19.20	3.631E+00	1.677E+00	1.677E+00	18.29
	351.92	570	37.20*	3.207E+00	1.397E+00	1.397E+00	16.45
	240.98	231	3.95*	4.184E+00	4.098E+00	4.098E+00	38.15
	609.31	404	46.30*	2.156E+00	1.185E+00	1.185E+00	18.14
RA-224	1120.29	74	15.10	1.264E+00	1.140E+00	1.140E+00	50.66
	1764.49	52	15.80	8.816E-01	1.094E+00	1.094E+00	41.68
	338.32	231	11.40	3.296E+00	1.800E+00	1.800E+00	47.53
	911.07	257	27.70*	1.532E+00	1.774E+00	1.774E+00	21.87
	969.11	132	16.60	1.448E+00	1.609E+00	1.609E+00	35.31
	338.32	231	11.40	3.296E+00	1.800E+00	1.800E+00	47.53
	911.07	257	27.70*	1.532E+00	1.774E+00	1.774E+00	21.87
RA-228	969.11	132	16.60	1.448E+00	1.609E+00	1.609E+00	35.31
	74.81	301	10.70	3.154E+00	2.606E+00	2.640E+00	31.17
	77.11	477	18.00	3.419E+00	2.267E+00	2.297E+00	21.16
	87.30	164	8.00	4.400E+00	1.364E+00	1.382E+00	38.70
	238.63	1103	44.60*	4.221E+00	1.714E+00	1.737E+00	11.51
	300.09	79	3.41	3.590E+00	1.897E+00	1.921E+00	81.59
	609.31	404	46.30*	2.156E+00	1.185E+00	1.185E+00	18.14
TH-230	1120.29	74	15.10	1.264E+00	1.140E+00	1.140E+00	50.66
	1764.49	52	15.80	8.816E-01	1.094E+00	1.094E+00	41.68
	338.32	231	11.40	3.296E+00	1.800E+00	1.800E+00	25.13
	911.07	257	27.70*	1.532E+00	1.774E+00	1.774E+00	21.87
	969.11	132	16.60	1.448E+00	1.609E+00	1.609E+00	35.31
	609.31	404	46.30*	2.156E+00	1.185E+00	1.185E+00	18.14
	1120.29	74	15.10	1.264E+00	1.140E+00	1.140E+00	50.66
TH-232	1764.49	52	15.80	8.816E-01	1.094E+00	1.094E+00	41.68
	338.32	231	11.40	3.296E+00	1.800E+00	1.800E+00	25.13
	911.07	257	27.70*	1.532E+00	1.774E+00	1.774E+00	21.87
	969.11	132	16.60	1.448E+00	1.609E+00	1.609E+00	35.31
	609.31	404	46.30*	2.156E+00	1.185E+00	1.185E+00	18.14
	1120.29	74	15.10	1.264E+00	1.140E+00	1.140E+00	50.66
	1764.49	52	15.80	8.816E-01	1.094E+00	1.094E+00	41.68
U-234	86.50	164	12.60*	4.400E+00	8.662E-01	8.662E-01	43.86
	95.87	-----	2.60	5.041E+00	-----	Line Not Found	-----
	74.67	301	66.00*	3.154E+00	4.226E-01	4.226E-01	31.14
	86.72	164	0.34	4.400E+00	3.248E+01	3.248E+01	38.70
	117.66	-----	0.55	5.694E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.637E+00	-----	Line Not Found	-----



Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
ANH-511	511.00	112	100.00*	2.462E+00	1.335E-01	1.335E-01	53.76

Flag: "\*" = Keyline

Total number of lines in spectrum 29  
Number of unidentified lines 2  
Number of lines tentatively identified by NID 27 93.10%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	3.030E+01	3.030E+01	0.301E+01	9.94	
CD-109	464.00D	1.02	2.934E+00	2.991E+00	1.157E+00	38.70	
SN-126	1.00E+05Y	1.00	2.950E-01	2.950E-01	1.141E-01	38.70	
TL-208	1.41E+10Y	1.00	4.886E-01	4.886E-01	1.025E-01	20.97	
BI-211	7.04E+08Y	1.00	4.017E+00	4.017E+00	0.627E+00	15.60	
BI-212	1.41E+10Y	1.00	1.284E+00	1.284E+00	0.431E+00	33.55	
PB-212	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.197E+00	11.51	
PO-212	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.197E+00	11.51	
BI-214	1600.00Y	1.00	1.185E+00	1.185E+00	0.215E+00	18.14	
PB-214	1600.00Y	1.00	1.397E+00	1.397E+00	0.230E+00	16.45	
PO-214	1600.00Y	1.00	1.397E+00	1.397E+00	0.230E+00	16.45	
PO-216	1.41E+10Y	1.00	1.714E+00	1.714E+00	0.197E+00	11.51	
PO-218	1600.00Y	1.00	1.397E+00	1.397E+00	0.230E+00	16.45	
RA-224	1.41E+10Y	1.00	4.098E+00	4.098E+00	1.563E+00	38.15	
RA-226	1600.00Y	1.00	1.185E+00	1.185E+00	0.215E+00	18.14	
AC-228	1.41E+10Y	1.00	1.774E+00	1.774E+00	0.388E+00	21.87	
RA-228	1.41E+10Y	1.00	1.774E+00	1.774E+00	0.388E+00	21.87	
TH-228	1.91Y	1.01	1.714E+00	1.737E+00	0.200E+00	11.51	
TH-230	4.47E+09Y	1.00	1.185E+00	1.185E+00	0.215E+00	18.14	
TH-232	1.41E+10Y	1.00	1.774E+00	1.774E+00	0.388E+00	21.87	
U-234	4.47E+09Y	1.00	1.185E+00	1.185E+00	0.215E+00	18.14	
NP-237	2.14E+06Y	1.00	8.662E-01	8.662E-01	3.799E-01	43.86	
AM-243	7380.00Y	1.00	4.226E-01	4.226E-01	1.316E-01	31.14	
ANH-511	1.00E+09Y	1.00	1.335E-01	1.335E-01	0.718E-01	53.76	

Total Activity : 6.595E+01 6.603E+01

Grand Total Activity : 6.595E+01 6.603E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G244515001

Page : 5  
Acquisition date : 21-JAN-2010 09:17:29

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	92.61	113	572	1.39	185.69	181	10	1.57E-02	87.0	4.85E+00	T
0	185.42	155	453	1.18	371.22	365	12	2.16E-02	59.1	4.98E+00	T
0	209.16	76	405	1.44	418.69	413	11	1.06E-02	****	4.61E+00	T
0	270.16	54	211	0.98	540.64	536	8	7.56E-03	96.5	3.86E+00	T
0	326.86	55	189	1.37	653.99	650	10	7.61E-03	97.4	3.37E+00	
0	462.85	52	135	1.51	925.87	920	11	7.16E-03	92.3	2.64E+00	T
1	963.86	92	22	2.04	1927.60	1922	25	1.28E-02	27.4	1.45E+00	T
0	1376.87	27	12	0.76	2753.47	2746	13	3.74E-03	66.9	1.05E+00	T
0	1729.39	24	5	2.76	3458.47	3453	11	3.35E-03	55.1	8.91E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G244515001.CNF;1
* Acquisition date   : 21-JAN-2010 09:17:29  Detector SN#      :
* Detector ID        : GAM15                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.32          Half life ratio : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 8-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G244515001           Analyst initials: MXR1
* Batch Number       : 941242               Sample Quantity : 1.28270E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12.9MS Isotope      :
* MSD ID             :                          MSD Isotope   :
* LCS ID             : 1032-A                  LCS Isotope    :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	3.030E+01	3.012E+00	4.960E-01	3.791E-02	61.085
CD-109	2.991E+00	1.157E+00	1.908E+00	2.207E-01	1.567
SN-126	2.950E-01	1.141E-01	1.787E-01	2.063E-02	1.650
TL-208	4.886E-01	1.025E-01	6.941E-02	4.419E-03	7.039
BI-211	4.017E+00	6.267E-01	4.078E-01	2.802E-02	9.850
BI-212	1.284E+00	4.306E-01	5.054E-01	3.935E-02	2.540
PB-212	1.714E+00	1.974E-01	1.132E-01	9.368E-03	15.149
PO-212	1.714E+00	1.974E-01	1.132E-01	9.368E-03	15.149
BI-214	1.185E+00	2.150E-01	1.364E-01	1.013E-02	8.685
PB-214	1.397E+00	2.299E-01	1.421E-01	1.225E-02	9.831
PO-214	1.397E+00	2.299E-01	1.421E-01	1.225E-02	9.831
PO-216	1.714E+00	1.974E-01	1.132E-01	9.368E-03	15.149
PO-218	1.397E+00	2.299E-01	1.421E-01	1.225E-02	9.831
RA-224	4.098E+00	1.563E+00	1.288E+00	8.962E-02	3.183
RA-226	1.185E+00	2.150E-01	1.364E-01	1.013E-02	8.685
AC-228	1.774E+00	3.879E-01	2.078E-01	2.310E-02	8.538
RA-228	1.774E+00	3.879E-01	2.078E-01	2.310E-02	8.538
TH-228	1.737E+00	1.999E-01	1.146E-01	9.489E-03	15.149

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	1.185E+00	2.149E-01	1.364E-01	1.013E-02	8.685
TH-232	1.774E+00	3.879E-01	2.078E-01	2.310E-02	8.538
U-234	1.185E+00	2.149E-01	1.364E-01	1.013E-02	8.685
NP-237	8.662E-01	3.799E-01	5.844E-01	1.379E-01	1.482
AM-243	4.226E-01	1.316E-01	1.320E-01	1.467E-02	3.202
ANH-511	1.335E-01	7.175E-02	5.541E-02	3.129E-03	2.409

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	1.762E-01		3.715E-01	6.270E-01	4.178E-02	0.281
NA-22	-1.642E-02		5.242E-02	8.197E-02	5.626E-03	-0.200
NA-24	3.195E-02		3.819E-02	Half-Life	too short	
AL-26	-2.691E-02		3.562E-02	4.945E-02	2.959E-03	-0.544
TI-44	2.070E-01		6.507E-02	9.934E-02	1.105E-02	2.084
SC-46	2.637E-02		4.228E-02	7.395E-02	6.203E-03	0.357
V-48	-7.854E-03		7.980E-02	1.301E-01	1.028E-02	-0.060
CR-51	2.597E-01		4.641E-01	7.743E-01	5.584E-02	0.335
MN-52	-1.052E-01		2.010E-01	3.110E-01	2.306E-02	-0.338
MN-54	2.236E-02		4.614E-02	7.934E-02	5.947E-03	0.282
CO-56	4.307E-03		4.202E-02	7.039E-02	5.410E-03	0.061
CO-57	4.513E-03		3.186E-02	5.222E-02	3.754E-03	0.086
CO-58	-2.220E-02		4.454E-02	7.088E-02	5.064E-03	-0.313
FE-59	-6.662E-03		1.045E-01	1.697E-01	1.285E-02	-0.039
CO-60	1.273E-02		4.391E-02	7.356E-02	5.552E-03	0.173
ZN-65	1.142E-01		1.267E-01	1.969E-01	1.279E-02	0.580
GE-68	-1.504E+00		1.446E+00	2.103E+00	1.461E-01	-0.715
AS-73	1.570E+00		2.068E+00	3.527E+00	4.820E-01	0.445
AS-74	-5.195E-02		1.003E-01	1.512E-01	8.126E-03	-0.344
SE-75	-8.058E-03		6.351E-02	9.192E-02	6.429E-03	-0.088
BR-77	2.289E+00		6.453E+00	1.078E+01	6.063E-01	0.212
SR-82	-4.012E-01		4.200E-01	6.439E-01	4.250E-02	-0.623
RB-83	3.454E-02		7.984E-02	1.341E-01	7.545E-03	0.258
RB-84	-3.682E-02		7.230E-02	1.136E-01	9.378E-03	-0.324
KR-85	1.153E+01		9.459E+00	1.483E+01	8.364E-01	0.778
SR-85	5.776E-02		4.738E-02	7.427E-02	4.189E-03	0.778
RB-86	-5.191E-01		8.329E-01	1.273E+00	8.860E-02	-0.408
Y-88	1.768E-02		3.538E-02	6.390E-02	3.733E-03	0.277
ZR-88	-7.500E-03		3.711E-02	6.045E-02	3.428E-03	-0.124
Y-91	-1.096E+01		2.471E+01	3.865E+01	2.337E+00	-0.283
NB-94	3.998E-03		4.028E-02	6.799E-02	3.782E-03	0.059
NB-95	5.272E-02		5.145E-02	9.156E-02	5.900E-03	0.576
NB-95M	1.718E+00		2.647E-01	4.199E-01	3.548E-02	4.091
ZR-95	1.094E-02		8.369E-02	1.411E-01	1.052E-02	0.078
NB-97	-1.668E-02		6.593E-03	Half-Life	too short	
ZR-97	9.888E-01		1.614E-01	Half-Life	too short	
MO-99	5.464E+00		7.957E+00	1.392E+01	1.934E+00	0.392

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TC-99M	1.749E+07		5.029E+07	Half-Life too short		
RH-101	6.158E-03		4.361E-02	6.915E-02	4.717E-03	0.089
RH-102	-1.010E-02		3.514E-02	5.628E-02	3.208E-03	-0.180
RU-103	-6.694E-03		4.647E-02	7.497E-02	9.437E-03	-0.089
RH-106	2.580E-01		3.525E-01	6.020E-01	6.909E-02	0.429
RU-106	2.580E-01		3.515E-01	6.020E-01	3.163E-02	0.429
AG-108M	-3.662E-02		3.838E-02	5.867E-02	3.648E-03	-0.624
AG-110M	-5.290E-02		4.225E-02	6.036E-02	3.308E-03	-0.876
IN-111	1.989E-01		8.337E-01	1.240E+00	8.632E-02	0.160
IN-113M	6.952E-03		5.457E-02	9.069E-02	5.502E-03	0.077
SN-113	6.952E-03		5.457E-02	9.069E-02	5.502E-03	0.077
IN-114M	7.411E-02		2.561E-01	3.649E-01	2.474E-02	0.203
CD-115	2.797E+00		6.510E+00	1.092E+01	6.124E-01	0.256
SN-117M	7.496E-02		6.405E-02	1.080E-01	7.220E-03	0.694
SB-122	4.763E-01		1.437E+00	2.384E+00	1.312E-01	0.200
I-123	6.043E-01		2.213E-01	Half-Life too short		
TE-123M	4.969E-02		3.640E-02	6.177E-02	4.170E-03	0.805
I-124	8.253E-02		6.202E-01	8.764E-01	4.685E-02	0.094
SB-124	-2.159E-04		7.829E-02	1.349E-01	9.474E-03	-0.002
SB-125	5.199E-02		1.078E-01	1.826E-01	1.088E-02	0.285
TE-125M	1.202E+01		1.164E+01	1.967E+01	1.954E+00	0.611
I-126	-1.632E-03		1.902E-01	3.053E-01	1.554E-02	-0.005
SB-126	-4.211E-03		1.655E-01	2.383E-01	1.383E-02	-0.018
SB-127	-1.029E+00		1.048E+00	1.618E+00	1.354E-01	-0.636
XE-127	-9.525E-03		6.545E-02	9.394E-02	6.431E-03	-0.101
I-131	8.100E-02		1.230E-01	2.108E-01	1.418E-02	0.384
TE-132	-3.399E-01		5.393E-01	8.821E-01	1.275E-01	-0.385
BA-133	4.263E-02		6.077E-02	9.195E-02	1.083E-02	0.464
I-133	-1.392E-04		6.162E-04	Half-Life too short		
CS-134	7.079E-02		5.874E-02	1.057E-01	7.363E-03	0.670
CS-135	2.845E-01		2.391E-01	3.714E-01	3.175E-02	0.766
I-135	-6.648E+06		1.175E+07	Half-Life too short		
CS-136	1.805E-02		1.064E-01	1.774E-01	1.367E-02	0.102
BA-137M	6.829E-03		4.080E-02	6.649E-02	3.345E-03	0.103
CS-137	7.219E-03		4.313E-02	7.029E-02	3.556E-03	0.103
CE-139	3.974E-02		3.834E-02	6.429E-02	4.276E-03	0.618
BA-140	-2.510E-02		2.780E-01	4.484E-01	1.456E-01	-0.056
LA-140	-6.894E-02		8.249E-02	1.176E-01	8.194E-03	-0.586
CE-141	-1.373E-02		7.543E-02	1.213E-01	8.469E-03	-0.113
CE-143	5.189E-04	+	6.966E-05	Half-Life too short		
CE-144	-1.445E-02		2.563E-01	4.156E-01	6.108E-02	-0.035
PM-144	1.799E-02		4.095E-02	7.075E-02	3.880E-03	0.254
PR-144	1.218E+00		2.772E+00	4.789E+00	2.625E-01	0.254
PM-146	-6.652E-03		5.321E-02	8.644E-02	7.403E-03	-0.077
ND-147	-1.245E-02		6.015E-01	9.763E-01	1.312E-01	-0.013
PM-149	-7.735E+00		5.584E+01	9.269E+01	1.357E+01	-0.083
EU-152	-1.862E-01		1.894E-01	1.880E-01	1.325E-02	-0.990
GD-153	4.102E-02		1.134E-01	1.661E-01	1.594E-02	0.247

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-154	-4.459E-02		1.468E-01	2.297E-01	2.303E-02	-0.194
EU-155	7.446E-02		1.394E-01	2.325E-01	2.013E-02	0.320
TB-160	1.752E-02		1.484E-01	2.485E-01	2.043E-02	0.071
HO-166M	2.061E-02		7.752E-02	1.322E-01	7.514E-03	0.156
TM-171	-5.856E+01		5.145E+01	7.755E+01	8.917E+00	-0.755
LU-176	-3.479E-03		3.017E-02	4.999E-02	3.368E-03	-0.070
LU-177	1.671E+00	+	1.762E+00	2.052E+00	1.410E-01	0.814
LU-177M	-4.216E-01		2.253E-01	3.254E-01	1.855E-02	-1.296
HF-181	-2.941E-02		4.974E-02	7.776E-02	4.427E-03	-0.378
W-181	-5.361E-01		6.551E-01	1.041E+00	1.212E-01	-0.515
TA-182	1.261E-01		2.645E-01	4.452E-01	2.776E-02	0.283
RE-183	-1.725E-01		1.420E-01	2.171E-01	1.447E-02	-0.795
RE-184	4.630E-02		2.925E-01	4.947E-01	3.444E-02	0.094
OS-185	-5.652E-03		4.915E-02	7.828E-02	4.011E-03	-0.072
RE-188	-5.051E-02		2.175E-01	3.484E-01	2.337E-02	-0.145
W-188	-2.343E+00		9.998E+00	1.428E+01	9.770E-01	-0.164
IR-192	-2.301E-02		4.250E-02	6.870E-02	4.591E-03	-0.335
AU-195	3.214E-01		2.875E-01	4.746E-01	4.449E-02	0.677
TL-200	-7.565E-05		7.156E-05	Half-Life too short		
TL-201	4.168E+00		5.510E+00	9.148E+00	6.088E-01	0.456
TL-202	1.714E-02		7.164E-02	1.195E-01	6.826E-03	0.144
HG-203	3.193E-02		4.796E-02	8.265E-02	5.953E-03	0.386
BI-207	1.631E-02		6.520E-02	1.092E-01	7.758E-03	0.149
TL-207	8.446E-01		9.616E-01	1.462E+00	2.457E-01	0.578
PO-209	4.896E+00		8.137E+00	1.420E+01	1.209E+00	0.345
BI-210	1.111E+01		1.341E+01	2.242E+01	2.329E+00	0.496
PB-210	1.111E+01		1.341E+01	2.242E+01	2.329E+00	0.496
PO-210	1.111E+01		1.340E+01	2.242E+01	2.154E+00	0.496
PB-211	-1.888E+00		1.663E+00	1.744E+00	1.087E+00	-1.083
PO-215	8.446E-01		9.616E-01	1.462E+00	2.457E-01	0.578
RN-219	3.392E-01		4.908E-01	8.394E-01	1.138E-01	0.404
RN-220	-9.165E+00		3.082E+01	4.883E+01	2.709E+00	-0.188
RA-223	8.446E-01		9.616E-01	1.462E+00	2.457E-01	0.578
AC-227	2.875E-01		4.931E-01	8.455E-01	1.224E-01	0.340
TH-227	2.875E-01		4.938E-01	8.455E-01	1.465E-01	0.340
TH-229	-3.677E-01		6.685E-01	1.029E+00	6.995E-02	-0.357
PA-231	-3.476E-01		1.832E+00	3.033E+00	4.327E-01	-0.115
TH-231	8.446E-01		9.616E-01	1.462E+00	2.457E-01	0.578
U-231	1.224E-01		1.077E+00	1.558E+00	1.536E-01	0.079
PA-233	-5.962E-03		7.987E-02	1.325E-01	9.289E-03	-0.045
PA-234	8.182E-02		3.567E-01	6.000E-01	1.115E-01	0.136
PA-234M	-1.036E+00		5.743E+00	9.363E+00	8.629E-01	-0.111
TH-234	1.922E+00		2.460E+00	4.108E+00	8.107E-01	0.468
U-235	3.679E-02		2.696E-01	4.326E-01	7.219E-02	0.085
NP-236	1.115E-02		1.035E-01	1.679E-01	1.121E-02	0.066
U-238	1.922E+00		2.460E+00	4.108E+00	8.107E-01	0.468
NP-239	-3.147E-01		2.405E-01	3.694E-01	2.777E-02	-0.852
AM-241	-1.583E-01		3.105E-01	5.048E-01	6.424E-02	-0.314

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	8.227E-02		1.231E-01	2.065E-01	1.802E-02	0.398
AM-246	-1.232E-01		1.643E-01	2.476E-01	1.716E-02	-0.498
CM-247	3.871E-02		4.319E-02	7.501E-02	4.266E-03	0.516
CF-249	2.673E-02		5.100E-02	8.661E-02	4.966E-03	0.309
CF-251	-7.076E-02		1.694E-01	2.679E-01	1.796E-02	-0.264



# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G244515001             *
* Acquisition date   : 21-JAN-2010 09:17:29 Detector SN#      :              *
* Detector ID        : GAM15                      Sensitivity   : 5.000         *
* Geometry           : CAN                        Energy tolerance: 1.500         *
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.000         *
* Elapsed real time  : 0 02:00:01.32             Half life ratio : 8.000         *
*****
*                                     SAMPLE DATA                             *
*
* Sample date        : 8-JAN-2010 12:00:00 Nuclide Library : SOLID             *
* Sample ID          : G244515001              Analyst initials: MXR1          *
* Batch Number       : 941242                  Sample Quantity : 1.2827E+02 GRAM  *
* Recovery           : 1.00000                 Carrier Weight  : 0.00000         *
*****
*                                     QC DATA                                *
*
* CALIB. DATE/TIME   : 16-FEB-2009 10:54:12 MS Isotope       :              *
* MSD DPM             : 0.000                   MSD Isotope    :              *
* LCS DPM             : 0.000                   LCS Isotope     :              *
* LCSD DPM            : 0.000                   LCSD Isotope    :              *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	3.030E+01	2.952E+00	2.482E-01	1.506E+00
CD-109	2.991E+00	1.134E+00	9.967E-01	5.787E-01
SN-126	2.950E-01	1.119E-01	9.336E-02	5.707E-02
TL-208	4.886E-01	1.004E-01	3.524E-02	5.124E-02
BI-211	4.017E+00	6.142E-01	2.087E-01	3.134E-01
BI-212	1.284E+00	4.220E-01	2.557E-01	2.153E-01
PB-212	1.714E+00	1.934E-01	5.824E-02	9.868E-02
PO-212	1.714E+00	1.934E-01	5.824E-02	9.868E-02
BI-214	1.185E+00	2.107E-01	6.920E-02	1.075E-01
PB-214	1.397E+00	2.253E-01	7.272E-02	1.149E-01
PO-214	1.397E+00	2.253E-01	7.272E-02	1.149E-01
PO-216	1.714E+00	1.934E-01	5.824E-02	9.868E-02
PO-218	1.397E+00	2.253E-01	7.272E-02	1.149E-01
RA-224	4.098E+00	1.532E+00	6.625E-01	7.817E-01
RA-226	1.185E+00	2.107E-01	6.920E-02	1.075E-01
AC-228	1.774E+00	3.802E-01	1.048E-01	1.940E-01
RA-228	1.774E+00	3.802E-01	1.048E-01	1.940E-01
TH-228	1.737E+00	1.959E-01	5.899E-02	9.996E-02
TH-230	1.185E+00	2.107E-01	6.920E-02	1.075E-01
TH-232	1.774E+00	3.802E-01	1.048E-01	1.940E-01
U-234	1.185E+00	2.107E-01	6.920E-02	1.075E-01
NP-237	8.662E-01	3.723E-01	3.053E-01	1.899E-01
AM-243	4.226E-01	1.290E-01	6.909E-02	6.580E-02
ANH-511	1.335E-01	7.032E-02	2.818E-02	3.588E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
BE-7	1.762E-01	3.641E-01	3.192E-01	1.858E-01 NOT IDENT.
NA-22	-1.642E-02	5.137E-02	4.110E-02	2.621E-02 NOT IDENT.
NA-24	3.195E+04	7.486E+04	0.000E+00	3.819E+04 SHORT HLIF

AL-26	-2.691E-02	3.491E-02	2.466E-02	1.781E-02	NOT IDENT.
TI-44	2.070E-01	6.377E-02	5.197E-02	3.254E-02	NOT IDENT.
SC-46	2.637E-02	4.143E-02	3.729E-02	2.114E-02	FAIL ABUN
V-48	-7.854E-03	7.820E-02	6.552E-02	3.990E-02	NOT IDENT.
CR-51	2.597E-01	4.548E-01	3.967E-01	2.320E-01	NOT IDENT.
MN-52	-1.052E-01	1.970E-01	1.557E-01	1.005E-01	NOT IDENT.
MN-54	2.236E-02	4.522E-02	4.005E-02	2.307E-02	NOT IDENT.
CO-56	4.307E-03	4.118E-02	3.553E-02	2.101E-02	NOT IDENT.
CO-57	4.513E-03	3.122E-02	2.714E-02	1.593E-02	NOT IDENT.
CO-58	-2.220E-02	4.365E-02	3.580E-02	2.227E-02	NOT IDENT.
FE-59	-6.662E-03	1.024E-01	8.531E-02	5.225E-02	NOT IDENT.
CO-60	1.273E-02	4.303E-02	3.686E-02	2.196E-02	NOT IDENT.
ZN-65	1.142E-01	1.242E-01	9.893E-02	6.336E-02	NOT IDENT.
GE-68	-1.504E+00	1.417E+00	1.057E+00	7.230E-01	NOT IDENT.
AS-73	1.570E+00	2.027E+00	1.855E+00	1.034E+00	NOT IDENT.
AS-74	-5.195E-02	9.833E-02	7.670E-02	5.017E-02	NOT IDENT.
SE-75	-8.058E-03	6.224E-02	4.723E-02	3.176E-02	NOT IDENT.
BR-77	2.289E+00	6.324E+00	5.480E+00	3.227E+00	FAIL ABUN
SR-82	-4.012E-01	4.116E-01	3.254E-01	2.100E-01	NOT IDENT.
RB-83	3.454E-02	7.825E-02	6.819E-02	3.992E-02	NOT IDENT.
RB-84	-3.682E-02	7.086E-02	5.728E-02	3.615E-02	NOT IDENT.
KR-85	1.153E+01	9.270E+00	7.542E+00	4.730E+00	NOT IDENT.
SR-85	5.776E-02	4.643E-02	3.777E-02	2.369E-02	NOT IDENT.
RB-86	-5.191E-01	8.163E-01	6.403E-01	4.165E-01	NOT IDENT.
Y-88	1.768E-02	3.467E-02	3.186E-02	1.769E-02	NOT IDENT.
ZR-88	-7.500E-03	3.637E-02	3.087E-02	1.855E-02	NOT IDENT.
Y-91	-1.096E+01	2.421E+01	1.940E+01	1.235E+01	NOT IDENT.
NB-94	3.998E-03	3.948E-02	3.442E-02	2.014E-02	NOT IDENT.
NB-95	5.272E-02	5.042E-02	4.628E-02	2.573E-02	NOT IDENT.
NB-95M	1.718E+00	2.594E-01	2.161E-01	1.324E-01	NOT IDENT.
ZR-95	1.094E-02	8.201E-02	7.135E-02	4.184E-02	NOT IDENT.
NB-97	-1.668E+04	1.292E+04	0.000E+00	6.593E+03	SHORT HLIF
ZR-97	9.888E+05	3.163E+05	0.000E+00	1.614E+05	SHORT HLIF
MO-99	5.464E+00	7.798E+00	7.041E+00	3.979E+00	NOT IDENT.
TC-99M	1.749E+13	9.858E+13	0.000E+00	5.029E+13	SHORT HLIF
RH-101	6.158E-03	4.274E-02	3.568E-02	2.180E-02	NOT IDENT.
RH-102	-1.010E-02	3.444E-02	2.866E-02	1.757E-02	NOT IDENT.
RU-103	-6.694E-03	4.554E-02	3.815E-02	2.323E-02	NOT IDENT.
RH-106	2.580E-01	3.454E-01	3.053E-01	1.762E-01	NOT IDENT.
RU-106	2.580E-01	3.444E-01	3.053E-01	1.757E-01	NOT IDENT.
AG-108M	-3.662E-02	3.761E-02	2.992E-02	1.919E-02	NOT IDENT.
AG-110M	-5.290E-02	4.141E-02	3.058E-02	2.113E-02	NOT IDENT.
IN-111	1.989E-01	8.170E-01	6.377E-01	4.169E-01	NOT IDENT.
IN-113M	6.952E-03	5.348E-02	4.632E-02	2.729E-02	NOT IDENT.
SN-113	6.952E-03	5.348E-02	4.632E-02	2.729E-02	NOT IDENT.
IN-114M	7.411E-02	2.509E-01	1.884E-01	1.280E-01	NOT IDENT.
CD-115	2.797E+00	6.379E+00	5.551E+00	3.255E+00	NOT IDENT.
SN-117M	7.496E-02	6.277E-02	5.591E-02	3.203E-02	NOT IDENT.
SB-122	4.763E-01	1.408E+00	1.211E+00	7.184E-01	NOT IDENT.
I-123	6.043E+05	4.338E+05	0.000E+00	2.213E+05	SHORT HLIF
TE-123M	4.969E-02	3.567E-02	3.198E-02	1.820E-02	NOT IDENT.
I-124	8.253E-02	6.078E-01	4.447E-01	3.101E-01	FAIL ABUN
SB-124	-2.159E-04	7.673E-02	6.734E-02	3.915E-02	FAIL ABUN
SB-125	5.199E-02	1.056E-01	9.315E-02	5.388E-02	FAIL ABUN
TE-125M	1.202E+01	1.141E+01	1.024E+01	5.819E+00	NOT IDENT.
I-126	-1.632E-03	1.864E-01	1.547E-01	9.512E-02	NOT IDENT.
SB-126	-4.211E-03	1.622E-01	1.206E-01	8.275E-02	NOT IDENT.
SB-127	-1.029E+00	1.027E+00	8.195E-01	5.242E-01	NOT IDENT.
XE-127	-9.525E-03	6.414E-02	4.846E-02	3.273E-02	NOT IDENT.
I-131	8.100E-02	1.206E-01	1.078E-01	6.152E-02	NOT IDENT.
TE-132	-3.399E-01	5.285E-01	4.542E-01	2.696E-01	NOT IDENT.
BA-133	4.263E-02	5.955E-02	4.703E-02	3.038E-02	NOT IDENT.
I-133	-1.392E+02	1.208E+03	0.000E+00	6.162E+02	SHORT HLIF
CS-134	7.079E-02	5.757E-02	5.338E-02	2.937E-02	NOT IDENT.
CS-135	2.845E-01	2.343E-01	1.908E-01	1.195E-01	NOT IDENT.
I-135	-6.648E+12	2.302E+13	0.000E+00	1.175E+13	SHORT HLIF
CS-136	1.805E-02	1.043E-01	8.926E-02	5.321E-02	FAIL ABUN
BA-137M	6.829E-03	3.998E-02	3.369E-02	2.040E-02	NOT IDENT.
CS-137	7.219E-03	4.226E-02	3.561E-02	2.156E-02	NOT IDENT.
CE-139	3.974E-02	3.757E-02	3.327E-02	1.917E-02	NOT IDENT.
BA-140	-2.510E-02	2.724E-01	2.279E-01	1.390E-01	NOT IDENT.
LA-140	-6.894E-02	8.084E-02	5.874E-02	4.125E-02	NOT IDENT.
CE-141	-1.373E-02	7.392E-02	6.290E-02	3.771E-02	NOT IDENT.
CE-143	5.189E+02	1.365E+02	0.000E+00	6.966E+01	SHORT HLIF
CE-144	-1.445E-02	2.512E-01	2.157E-01	1.282E-01	NOT IDENT.
PM-144	1.799E-02	4.013E-02	3.582E-02	2.048E-02	NOT IDENT.
PR-144	1.218E+00	2.716E+00	2.424E+00	1.386E+00	NOT IDENT.
PM-146	-6.652E-03	5.215E-02	4.405E-02	2.661E-02	NOT IDENT.

ND-147	-1.245E-02	5.895E-01	4.963E-01	3.007E-01	FAIL ABUN
PM-149	-7.735E+00	5.472E+01	4.757E+01	2.792E+01	NOT IDENT.
EU-152	-1.862E-01	1.856E-01	9.622E-02	9.470E-02	FAIL ABUN
GD-153	4.102E-02	1.111E-01	8.661E-02	5.668E-02	NOT IDENT.
EU-154	-4.459E-02	1.438E-01	1.152E-01	7.338E-02	NOT IDENT.
EU-155	7.446E-02	1.366E-01	1.211E-01	6.968E-02	FAIL ABUN
TB-160	1.752E-02	1.454E-01	1.253E-01	7.419E-02	FAIL ABUN
HO-166M	2.061E-02	7.597E-02	6.690E-02	3.876E-02	FAIL ABUN
TM-171	-5.856E+01	5.042E+01	4.066E+01	2.573E+01	NOT IDENT.
LU-176	-3.479E-03	2.957E-02	2.563E-02	1.509E-02	NOT IDENT.
LU-177	1.671E+00	1.727E+00	1.058E+00	8.811E-01	FAIL ABUN
LU-177M	-4.216E-01	2.208E-01	1.661E-01	1.127E-01	FAIL ABUN
HF-181	-2.941E-02	4.875E-02	3.959E-02	2.487E-02	NOT IDENT.
W-181	-5.361E-01	6.420E-01	5.462E-01	3.275E-01	NOT IDENT.
TA-182	1.261E-01	2.592E-01	2.234E-01	1.322E-01	NOT IDENT.
RE-183	-1.725E-01	1.392E-01	1.123E-01	7.101E-02	FAIL ABUN
RE-184	4.630E-02	2.867E-01	2.544E-01	1.463E-01	NOT IDENT.
OS-185	-5.652E-03	4.816E-02	3.967E-02	2.457E-02	NOT IDENT.
RE-188	-5.051E-02	2.131E-01	1.804E-01	1.087E-01	NOT IDENT.
W-188	-2.343E+00	9.798E+00	7.326E+00	4.999E+00	NOT IDENT.
IR-192	-2.301E-02	4.165E-02	3.520E-02	2.125E-02	FAIL ABUN
AU-195	3.214E-01	2.817E-01	2.475E-01	1.437E-01	FAIL ABUN
TL-200	-7.565E+01	1.403E+02	0.000E+00	7.156E+01	SHORT HLIF
TL-201	4.168E+00	5.400E+00	4.733E+00	2.755E+00	NOT IDENT.
TL-202	1.714E-02	7.021E-02	6.090E-02	3.582E-02	NOT IDENT.
HG-203	3.193E-02	4.701E-02	4.243E-02	2.398E-02	FAIL ABUN
BI-207	1.631E-02	6.390E-02	5.491E-02	3.260E-02	FAIL ABUN
TL-207	8.446E-01	9.423E-01	7.487E-01	4.808E-01	FAIL ABUN
PO-209	4.896E+00	7.974E+00	7.160E+00	4.068E+00	NOT IDENT.
BI-210	1.111E+01	1.314E+01	1.182E+01	6.706E+00	NOT IDENT.
PB-210	1.111E+01	1.314E+01	1.182E+01	6.706E+00	NOT IDENT.
PO-210	1.111E+01	1.314E+01	1.182E+01	6.702E+00	NOT IDENT.
PB-211	-1.888E+00	1.630E+00	8.901E-01	8.315E-01	NOT IDENT.
PO-215	8.446E-01	9.423E-01	7.487E-01	4.808E-01	FAIL ABUN
RN-219	3.392E-01	4.810E-01	4.286E-01	2.454E-01	FAIL ABUN
RN-220	-9.165E+00	3.020E+01	2.481E+01	1.541E+01	NOT IDENT.
RA-223	8.446E-01	9.423E-01	7.487E-01	4.808E-01	FAIL ABUN
AC-227	2.875E-01	4.832E-01	4.346E-01	2.465E-01	FAIL ABUN
TH-227	2.875E-01	4.840E-01	4.346E-01	2.469E-01	FAIL ABUN
TH-229	-3.677E-01	6.551E-01	5.311E-01	3.342E-01	FAIL ABUN
PA-231	-3.476E-01	1.795E+00	1.557E+00	9.159E-01	NOT IDENT.
TH-231	8.446E-01	9.423E-01	7.487E-01	4.808E-01	FAIL ABUN
U-231	1.224E-01	1.055E+00	8.128E-01	5.383E-01	FAIL ABUN
PA-233	-5.962E-03	7.827E-02	6.792E-02	3.993E-02	FAIL ABUN
PA-234	8.182E-02	3.496E-01	3.023E-01	1.784E-01	FAIL ABUN
PA-234M	-1.036E+00	5.628E+00	4.713E+00	2.871E+00	NOT IDENT.
TH-234	1.922E+00	2.411E+00	2.156E+00	1.230E+00	FAIL ABUN
U-235	3.679E-02	2.642E-01	2.243E-01	1.348E-01	FAIL ABUN
NP-236	1.115E-02	1.014E-01	8.692E-02	5.175E-02	NOT IDENT.
U-238	1.922E+00	2.411E+00	2.156E+00	1.230E+00	FAIL ABUN
NP-239	-3.147E-01	2.356E-01	1.921E-01	1.202E-01	FAIL ABUN
AM-241	-1.583E-01	3.043E-01	2.651E-01	1.553E-01	NOT IDENT.
CM-243	8.227E-02	1.207E-01	1.076E-01	6.156E-02	FAIL ABUN
AM-246	-1.232E-01	1.610E-01	1.245E-01	8.216E-02	NOT IDENT.
CM-247	3.871E-02	4.233E-02	3.830E-02	2.160E-02	NOT IDENT.
CF-249	2.673E-02	4.998E-02	4.424E-02	2.550E-02	NOT IDENT.
CF-251	-7.076E-02	1.660E-01	1.385E-01	8.471E-02	NOT IDENT.

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 \* GEL Laboratories LLC \*  
 \* 2040 SAVAGE ROAD \*  
 \* CHARLESTON ,SC 29417 \*  
 \* GAMMA SPECTROSCOPY BACKGROUND REPORT \*  
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ENERGY	MDA COUNTS
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46.50	249.9630
46.50	249.9630
46.50	249.9630
48.70	307.5221
49.72	299.5534
51.35	287.1099
52.39	254.3830
52.97	280.2778
53.15	285.1124
53.44	272.8861
54.07	293.1530
56.28	324.7531
56.28	324.7545
57.37	0.0000
57.53	316.7786
57.53	316.7799
57.60	332.1276
57.98	319.8733
57.98	319.8733
59.32	350.2848
59.32	350.2848
59.40	350.3280
59.54	355.2025
59.72	356.2609
60.01	370.8284
61.10	374.3270
61.14	374.3493
61.30	374.4391
63.00	358.0182
63.29	357.2053
63.29	357.2053
63.58	361.2214
64.28	368.3598
65.12	441.4104
65.20	441.4612
65.20	441.4612
66.05	444.9101
66.72	455.7310
66.83	455.8044
66.91	455.8564
67.20	411.6606
67.20	411.6606
67.75	421.3087
67.85	421.3683
68.90	404.8630
68.90	404.8630
69.30	391.0676
69.67	389.7110
70.82	387.2079
70.82	387.2079
70.83	387.2139
72.80	419.7636
72.87	419.8029
72.87	419.8029
74.67	420.8207
74.81	420.8993
74.81	420.8993
74.81	420.8993
74.81	420.8993
74.81	420.8993
74.81	420.8993
74.81	420.8993
74.97	420.9893
75.28	421.1628
75.70	421.3968
77.11	368.4472
77.11	368.4472

77.11	368.4472
77.11	368.4472
77.11	368.4472
77.11	368.4472
77.11	368.4472
78.38	405.3319
79.62	519.7192
79.80	519.8397
79.80	519.8397
80.11	531.1113
80.18	531.1584
80.30	531.2405
80.30	531.2405
80.57	472.9032
81.00	526.9668
81.07	478.7436
81.07	478.7436
81.07	478.7436
81.07	478.7436
82.60	385.3205
83.37	352.3600
83.78	344.6014
83.78	344.6014
83.78	344.6014
83.78	344.6014
84.21	363.8520
84.90	381.6563
85.43	402.5918
86.29	565.4974
86.50	565.6426
86.54	586.9166
86.59	586.9526
86.72	587.0447
86.79	587.0942
86.94	587.2021
87.30	553.4358
87.30	553.4358
87.30	553.4358
87.30	553.4358
87.30	553.4358
87.30	553.4358
87.30	553.4358
87.57	474.6418
87.88	474.8197
88.03	534.7691
88.36	534.9818
88.47	535.0533
89.95	536.0021
91.11	523.3904
92.29	459.2719
92.38	459.3208
92.38	459.3208
93.35	335.7445
94.00	344.0379
94.67	347.5208
94.67	347.5222
94.90	347.6145
94.90	347.6145
94.90	347.6145
94.90	347.6145
95.87	359.2813
95.87	359.2813
96.73	332.2196
97.43	334.0970
98.44	277.3867
98.44	277.3867
98.88	294.4602
99.55	325.5953
99.55	325.5953
99.86	325.7083
100.00	348.0155
100.10	353.1151
103.18	328.9389
103.76	318.9889
105.00	330.6100
105.31	338.8611
108.00	388.8295
109.28	323.9544

111.00	390.0648
111.00	390.0648
111.76	394.4743
112.95	343.6682
115.19	311.5591
116.30	333.5305
117.00	361.5825
117.00	361.5825
117.66	397.9035
121.11	305.1505
121.62	313.5853
121.78	313.6350
122.06	323.0402
122.32	333.4788
122.32	333.4788
122.32	333.4788
122.32	333.4788
123.07	349.2719
127.23	337.1618
129.76	336.9374
131.20	383.3575
133.02	369.3664
133.54	336.0469
135.34	346.0478
136.00	345.2101
136.25	330.5972
136.48	314.9208
140.51	335.0486
140.51	0.0000
142.18	358.7675
142.65	350.4742
143.76	325.4618
144.24	311.8575
144.24	311.8575
144.24	311.8575
144.24	311.8575
145.22	350.2203
145.44	346.0554
147.16	346.5818
152.43	326.8784
152.70	334.4108
153.22	332.4283
154.21	351.9040
154.21	351.9040
154.21	351.9040
154.21	351.9040
155.03	353.2179
156.02	378.0804
158.56	307.1819
159.00	0.0000
159.00	295.5157
160.31	331.2122
161.27	360.4402
162.32	374.7106
162.64	371.5899
163.35	363.2097
163.89	353.6966
165.85	301.5012
167.43	309.4361
171.28	316.8854
171.86	305.1307
172.10	317.0933
176.55	341.0179
176.60	341.0299
181.06	322.5983
184.41	326.7050
185.71	327.0290
186.00	318.5667
190.27	287.9850
192.34	297.8825
193.63	306.9688
197.04	277.9571
198.01	288.0893
198.60	297.0448
200.40	308.4918
201.83	335.3731
202.84	298.3252
205.31	335.5442

208.36	320.2559
208.81	320.3569
209.75	292.0750
209.75	292.0750
210.97	278.0635
215.65	273.3497
216.55	286.2988
218.09	287.7211
222.10	272.7910
223.80	268.6088
226.40	256.6931
227.00	271.2123
227.08	271.2270
227.20	271.2472
228.16	279.5374
228.18	279.5411
228.18	279.5411
231.56	0.0000
235.69	270.3518
236.00	243.8190
236.00	243.8190
238.63	244.2344
238.63	244.2344
238.63	244.2344
238.63	244.2344
239.00	244.2919
240.98	244.6038
241.98	232.0214
241.98	232.0214
241.98	232.0214
244.69	191.4071
245.39	211.2488
247.94	225.2896
248.90	227.5575
249.79	233.1715
252.40	219.8130
252.85	224.4552
252.85	224.4552
254.15	0.0000
256.20	221.2481
256.20	221.2481
260.50	233.7981
260.90	242.1417
262.80	241.7041
264.65	221.4668
268.24	226.5682
268.79	232.1934
269.46	231.3629
269.46	231.3629
269.46	231.3629
269.46	231.3629
271.23	206.8996
273.65	270.5927
276.40	205.4671
277.35	204.5474
277.60	186.9089
277.60	186.9089
278.00	191.6036
278.60	196.3238
279.20	187.0856
279.53	201.0841
280.46	217.9582
281.68	223.7051
283.67	183.8362
284.30	185.7706
285.00	178.3747
285.90	190.6125
286.10	190.6349
286.10	190.6349
287.40	181.6922
288.45	0.0000
290.67	192.0674
290.80	192.0824
291.72	182.8077
293.26	0.0000
293.70	198.9674
295.21	199.1356
295.21	199.1356

295.21	199.1356
295.96	199.2184
296.50	199.2805
297.23	199.3607
298.57	199.5108
299.80	193.0533
299.80	193.0533
300.09	193.0859
300.09	193.0859
300.09	193.0859
300.09	193.0859
300.12	193.0884
301.29	186.9301
302.84	169.7959
303.76	162.0167
303.91	162.0314
304.40	209.2791
304.40	209.2791
304.84	213.1529
306.84	172.0602
308.46	179.7810
311.98	174.4361
316.51	183.4160
318.01	180.7087
319.02	176.9997
319.41	164.6625
320.08	170.3288
323.87	162.1910
323.87	162.1910
323.87	162.1910
323.87	162.1910
325.23	203.6797
328.77	178.5501
333.44	185.3753
334.20	184.1695
334.20	184.1695
334.30	184.1789
338.28	168.2153
338.28	168.2153
338.28	168.2153
338.28	168.2153
338.32	168.2196
338.32	168.2196
338.32	168.2196
340.50	117.0819
340.57	117.0863
344.27	196.0459
345.85	181.7283
350.59	0.0000
351.07	154.7949
351.92	154.8594
351.92	154.8594
351.92	154.8594
355.39	0.0000
356.01	137.3935
364.48	143.1599
366.43	148.1703
367.43	153.1191
367.94	0.0000
369.80	147.4351
374.96	139.9696
383.85	151.3738
387.95	139.8454
388.63	139.8905
391.69	137.1301
391.69	137.1301
392.90	139.1807
398.62	115.7946
400.65	117.8829
401.10	119.8893
401.81	114.9720
402.60	108.0739
404.84	170.7108
410.95	124.4064
411.60	127.4281
413.65	176.3713
414.70	154.5213
415.30	147.5827



415.76	131.6552
417.63	0.0000
418.52	115.8386
423.70	130.1158
427.08	113.2690
427.89	104.2844
432.53	130.6189
433.93	122.6538
439.47	104.8074
439.56	104.8112
439.89	110.8741
443.98	120.1548
444.90	122.2215
445.03	122.2289
445.03	122.2289
445.03	122.2289
453.90	116.6031
463.38	98.4013
468.07	103.6908
473.00	99.1313
475.06	110.4653
475.35	107.4097
476.78	111.5667
477.59	96.2444
477.96	91.1392
482.03	113.8536
484.57	97.5420
487.03	100.7216
490.36	0.0000
492.35	90.6351
497.08	100.0916
507.63	0.0000
510.53	0.0000
510.84	100.2834
511.00	100.2899
511.85	100.3229
511.85	100.3229
513.99	91.7493
513.99	91.7493
520.41	86.4225
520.65	88.5133
527.90	88.7561
528.96	0.0000
529.64	91.9488
529.87	0.0000
531.02	99.3140
537.32	96.4046
543.00	91.3585
546.56	0.0000
549.76	92.6385
552.65	84.3066
555.20	92.8232
563.23	81.4572
563.90	95.2317
568.70	84.7969
569.32	89.0572
569.50	88.0011
569.67	90.1278
573.80	108.3127
574.00	114.6920
574.64	123.4816
578.91	81.5594
579.30	0.0000
583.14	91.6249
585.48	71.0856
591.81	78.3678
592.07	80.1544
593.00	78.0437
595.88	86.6815
600.56	84.4102
602.52	0.0000
602.71	89.3901
602.71	89.3901
603.60	91.2048
604.41	76.9201
604.70	76.9279
609.31	99.9841

609.31	99.9841
609.31	99.9841
609.31	99.9841
610.33	100.0204
612.46	75.3372
614.37	70.0020
618.01	97.0444
621.84	62.6205
621.84	62.6205
631.29	79.0649
633.02	75.8601
633.10	75.8618
634.78	82.4106
635.90	99.7962
636.97	88.9808
645.85	88.1528
646.12	77.2766
656.30	81.9012
657.75	100.5127
657.90	0.0000
661.65	74.3850
661.65	74.3850
664.57	0.0000
666.33	82.1649
666.33	82.1649
675.00	68.1107
677.61	78.0636
685.20	90.0048
692.80	92.9820
695.00	82.9120
696.49	83.8721
696.49	83.8721
697.00	84.8069
697.49	93.1176
698.33	93.1402
698.50	104.2133
699.00	108.8413
702.63	89.5719
706.10	85.0446
706.58	0.0000
706.67	93.3806
709.31	109.1870
711.68	92.5985
713.82	96.3638
717.42	91.8316
720.50	74.8079
721.93	0.0000
722.20	78.0305
722.78	70.0805
722.78	70.0805
722.89	70.0836
722.95	70.0851
723.30	71.6858
724.18	60.5506
727.18	66.9844
733.00	67.1016
735.90	86.7466
739.58	69.1010
742.81	71.9713
744.21	74.8063
747.13	83.2926
751.79	75.9095
752.31	81.5448
753.82	79.7065
755.35	75.9886
756.15	77.8834
756.87	76.0232
763.93	104.3945
765.79	80.9259
766.42	84.7046
766.84	85.6569
776.49	84.9518
778.00	76.4896
778.57	74.6122
778.89	75.5648
783.80	60.5365
785.46	63.4041
792.07	78.6923

795.84	72.1313
796.30	68.3438
798.80	112.0870
801.93	74.1565
805.60	60.9089
810.29	75.2824
810.76	71.4813
815.85	67.7643
817.79	64.9356
818.51	57.3071
819.60	58.2796
826.30	58.3876
828.27	0.0000
831.60	82.4359
831.96	74.7754
834.83	75.7935
836.80	0.0000
846.75	54.8627
848.13	65.4752
856.28	0.0000
856.80	62.8699
860.37	54.0973
867.32	51.4313
867.82	53.0982
871.10	50.7283
873.19	60.0966
874.81	55.2733
875.33	0.0000
876.40	50.4459
879.36	50.4850
880.27	50.4977
880.51	52.4432
881.50	56.3421
883.24	55.3962
884.67	54.4448
889.25	45.7493
896.60	45.8363
898.02	56.5840
899.00	67.3337
903.28	55.2651
911.07	41.9512
911.07	41.9512
911.07	41.9512
919.63	48.1581
920.93	42.1969
925.00	60.9051
925.24	60.9089
926.50	57.9797
935.52	49.2472
937.48	63.0664
944.10	61.1965
946.00	56.2880
949.00	35.5767
962.29	56.0903
964.01	57.5304
966.15	57.5610
968.20	57.5894
969.11	57.6023
969.11	57.6023
969.11	57.6023
977.42	52.2458
980.50	60.7493
983.50	62.7872
989.30	56.8864
996.32	54.9832
1001.03	62.0505
1001.68	61.0596
1004.76	62.1060
1021.30	0.0000
1024.50	0.0000
1034.80	56.4922
1036.00	57.5172
1037.82	53.5046
1038.57	52.5036
1038.76	0.0000
1045.16	60.6738
1046.59	50.5778
1048.07	46.5465

1050.47	51.6350
1050.47	51.6350
1062.04	49.7417
1063.62	57.8837
1076.63	57.0368
1077.35	63.1580
1078.86	59.1021
1085.78	50.0089
1099.22	56.3025
1112.02	61.5942
1112.84	73.9277
1115.52	56.3571
1120.29	44.0761
1120.29	44.0761
1120.29	44.0761
1120.29	44.0761
1120.51	44.0778
1121.28	52.9018
1124.00	0.0000
1129.67	44.3140
1131.51	0.0000
1147.95	0.0000
1167.94	70.6563
1173.22	58.2536
1175.09	55.1544
1177.93	69.7644
1189.05	74.1028
1204.90	85.8671
1205.75	0.0000
1213.00	95.4508
1221.42	78.8055
1230.97	84.2220
1235.34	79.0283
1236.41	0.0000
1238.25	64.3161
1246.25	64.4203
1260.41	0.0000
1271.85	44.5840
1274.45	50.9785
1274.54	50.9785
1291.56	37.2986
1298.22	0.0000
1312.09	33.1683
1325.50	41.8358
1325.50	41.8358
1332.49	29.0028
1333.61	22.5629
1360.21	19.4377
1362.66	0.0000
1365.15	50.8019
1368.21	22.7115
1368.53	0.0000
1376.25	32.4939
1384.27	23.4308
1394.10	21.4245
1395.20	30.7464
1407.95	22.4138
1434.06	29.0895
1436.60	23.4706
1457.56	0.0000
1460.81	15.0865
1489.15	25.5875
1509.49	16.1687
1596.49	25.0995
1620.62	6.7847
1678.03	0.0000
1691.02	9.8043
1691.02	9.8043
1706.46	0.0000
1750.46	0.0000
1764.49	8.6789
1764.49	8.6789
1764.49	8.6789
1764.49	8.6789
1770.23	10.4238
1771.40	24.8230
1791.20	0.0000
1808.65	17.9749

1836.01

9.0248

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G244515001

Total Uranium Activity	5.7340E+00	ug/g
Total Uranium Counting Unc.	7.1736E+00	ug/g
Total Uranium Tpu	3.6600E-06	ug/g
Total Uranium Mda	6.4139E+00	ug/g

```

*****
*
*               GEL Laboratories LLC
*               2040 SAVAGE ROAD
*               CHARLESTON ,SC 29417
*               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941242          SAMPLE ID   : G244515001
*  ANALYST       : MXR1           DETECTOR    : GAM15
*  SAMPLE DATE   : 8-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 21-JAN-2010 09:17:29.53  SAMPLE ALQT: 128.270 GRAM
*
*****

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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.316E+00
GROSS GAMMA ERROR  (pCi/GRAM )  : 1.490E+00
GROSS GAMMA MDA    (pCi/GRAM )  : 3.691E+00
GROSS GAMMA DLC     (pCi/GRAM )  : 1.789E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 13:03:58.95

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014513.CNF;1
Sample date        : 14-JAN-2010 00:00:00 Acquisition date : 21-JAN-2010 11:03:34
Sample ID          : G1202014513      Sample quantity   : 1.51950E+02 GRAM
Detector name      : GAM02             Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00     Elapsed real time: 0 02:00:01.82  0.0%
Energy tolerance   : 1.50000 keV       Analyst Initials  : MXR1
Abundance limit    : 75.00000          Sensitivity        : 5.00000
Batch ID           : 941242             Detector SN#       :
Matrix Spike ID    :                    LCS ID           : 1032-A
*****

```

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	937.87	14	5	0.63	1875.96	1871	10	1.93E-03	40.4	

Flag: "\*" = Peak area was modified by background subtraction



## VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 13:04:02

```

Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014513.CNF;1
Analyses by       : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8
Sample title      : MXR1
Sample date       : 14-JAN-2010 00:00:00 Acquisition date : 21-JAN-2010 11:03:34
Sample ID        : G1202014513 Sample quantity : 151.95 GRAM
Sample type      : SOLID Sample geometry :
Detector name    : GAMMA2 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:01.82 0.0%
Peak Width (FWHM): 3.00 Confidence level : 5.00 %
Energy tolerance : 1.50 keV Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 0.00 %
Efficiency type  : Empirical Efficiencies at : Peak Energy
Abundance limit  : 75.00 WTM error limit : 3.00

```

## Full Combined Activity-MDA Report

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	477.59	*	4.225E-02	1.599E-01	2.668E-01	2.830E-02	0.158	
NA-22	1274.54	*	-1.782E-02	2.009E-02	2.591E-02	2.297E-03	-0.688	
NA-24	1368.53	*	-1.372E-06	2.009E-02	Half-Life too short			
AL-26	1129.67		3.361E-01	6.419E-01	1.187E+00	1.014E-01	0.283	
	1808.65	*	1.626E-03	1.942E-02	3.287E-02	2.721E-03	0.049	
K-40	1460.81	*	-1.568E-01	2.554E-01	4.036E-01	3.836E-02	-0.389	
TI-44	67.85		4.434E-03	2.161E-02	3.714E-02	3.064E-03	0.119	
	78.38	*	1.256E-03	1.453E-02	2.462E-02	2.229E-03	0.051	
SC-46	889.25	*	-1.536E-02	1.977E-02	2.725E-02	2.770E-03	-0.564	
	1120.51		-2.082E-02	2.332E-02	3.225E-02	2.786E-03	-0.645	
V-48	944.10		-9.597E-02	3.073E-01	4.630E-01	4.634E-02	-0.207	
	983.50	*	-7.510E-03	2.607E-02	3.946E-02	3.859E-03	-0.190	
	1312.09		1.064E-02	2.904E-02	5.125E-02	4.692E-03	0.208	
CR-51	320.08	*	-1.859E-01	1.818E-01	2.710E-01	3.306E-02	-0.686	
MN-52	744.21		-7.676E-03	4.662E-02	7.475E-02	6.886E-03	-0.103	
	848.13		-8.452E-01	1.688E+00	2.548E+00	2.525E-01	-0.332	
	935.52		3.931E-03	5.856E-02	8.297E-02	8.340E-03	0.047	
	1246.25		3.776E-01	1.255E+00	2.188E+00	1.889E-01	0.173	
	1333.61		7.477E-01	9.191E-01	1.778E+00	1.656E-01	0.421	
	1434.06	*	4.026E-02	4.360E-02	8.753E-02	8.142E-03	0.460	
MN-54	834.83	*	-1.244E-02	1.719E-02	2.409E-02	2.366E-03	-0.517	
CO-56	846.75	*	5.315E-04	2.430E-02	3.971E-02	3.931E-03	0.013	
	977.42		-8.144E-01	1.332E+00	1.848E+00	1.814E-01	-0.441	
	1037.82		2.717E-02	1.358E-01	2.356E-01	2.313E-02	0.115	
	1175.09		7.286E-01	8.974E-01	1.710E+00	1.380E-01	0.426	
	1238.25		-9.975E-03	3.017E-02	4.600E-02	4.058E-03	-0.217	
	1360.21		2.156E-01	5.094E-01	9.085E-01	8.472E-02	0.237	
	1771.40		3.888E-03	1.487E-01	2.482E-01	2.096E-02	0.016	
CO-57	122.06	*	-7.460E-03	1.278E-02	2.008E-02	1.679E-03	-0.371	
	136.48		-5.877E-02	1.061E-01	1.660E-01	1.567E-02	-0.354	
CO-58	810.76	*	9.614E-04	1.940E-02	3.198E-02	3.097E-03	0.030	
FE-59	142.65		-1.170E+00	1.507E+00	2.300E+00	2.086E-01	-0.509	
	192.34		1.069E-01	4.502E-01	7.347E-01	1.097E-01	0.145	
	1099.22	*	-1.866E-02	3.242E-02	4.670E-02	4.452E-03	-0.400	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-60	1291.56			2.612E-02	4.878E-02	8.942E-02	9.044E-03	0.292
	1173.22			1.232E-02	1.847E-02	3.457E-02	2.784E-03	0.356
	1332.49		*	6.823E-03	1.967E-02	3.468E-02	3.231E-03	0.197
ZN-65	1115.52		*	-9.467E-03	4.117E-02	6.567E-02	5.713E-03	-0.144
GE-68	1077.35		*	5.173E-01	6.704E-01	1.247E+00	1.129E-01	0.415
AS-73	53.44		*	4.509E-02	4.802E-01	8.279E-01	6.853E-02	0.054
AS-74	595.88		*	3.233E-02	4.366E-02	7.847E-02	7.327E-03	0.412
SE-75	634.78			-7.838E-03	1.550E-01	2.570E-01	2.297E-02	-0.031
	66.05			-3.873E+00	2.354E+00	3.492E+00	3.502E-01	-1.109
	96.73			-1.139E-02	3.689E-01	6.137E-01	8.569E-02	-0.019
BR-77	121.11			4.578E-03	6.571E-02	1.088E-01	1.199E-02	0.042
	136.00			-8.815E-03	1.913E-02	3.017E-02	2.670E-03	-0.292
	198.60			-1.773E-01	1.038E+00	1.590E+00	1.862E-01	-0.111
	264.65		*	1.021E-02	2.276E-02	3.969E-02	4.851E-03	0.257
	279.53			2.975E-02	5.927E-02	1.032E-01	1.303E-02	0.288
	303.91			1.853E-01	1.087E+00	1.841E+00	2.632E-01	0.101
	400.65			-7.434E-02	1.371E-01	2.099E-01	2.569E-02	-0.354
	87.88			-8.595E-01	7.798E+00	1.296E+01	1.300E+00	-0.066
	200.40			-2.596E+00	9.853E+00	1.538E+01	1.690E+00	-0.169
	239.00			-5.874E-02	6.136E-01	1.026E+00	1.208E-01	-0.057
	249.79			4.971E+00	3.856E+00	7.085E+00	8.470E-01	0.702
	281.68			-2.847E+00	5.452E+00	8.724E+00	1.080E+00	-0.326
	297.23			-2.605E+00	2.966E+00	4.528E+00	5.530E-01	-0.575
	303.76			6.802E-01	1.044E+01	1.753E+01	2.126E+00	0.039
	439.47			-3.033E+00	8.386E+00	1.299E+01	1.308E+00	-0.234
	484.57			-1.336E+00	1.420E+01	2.262E+01	2.263E+00	-0.059
	520.65		*	-4.141E-01	6.062E-01	8.689E-01	8.574E-02	-0.477
	574.64			-7.474E+00	1.188E+01	1.834E+01	1.746E+00	-0.408
	578.91			-3.450E+00	4.911E+00	7.503E+00	7.117E-01	-0.460
	585.48			5.614E+00	1.008E+01	1.793E+01	1.691E+00	0.313
SR-82	755.35			-1.801E+00	8.707E+00	1.383E+01	1.285E+00	-0.130
	817.79			-1.554E+00	7.854E+00	1.242E+01	1.206E+00	-0.125
	698.33			-2.198E+00	1.699E+01	2.770E+01	2.461E+00	-0.079
RB-83	776.49		*	-1.033E-03	1.805E-01	2.960E-01	2.793E-02	-0.003
	1395.20			9.346E-01	5.317E+00	8.996E+00	8.386E-01	0.104
	520.41		*	-2.450E-02	3.577E-02	5.135E-02	5.068E-03	-0.477
RB-84	529.64			2.782E-02	5.827E-02	9.893E-02	9.716E-03	0.281
	552.65			6.844E-02	9.453E-02	1.732E-01	1.676E-02	0.395
	881.50		*	2.658E-03	3.337E-02	5.489E-02	5.555E-03	0.048
KR-85	513.99		*	-2.098E+01	7.090E+00	8.044E+00	7.962E-01	-2.608
SR-85	513.99		*	-9.923E-02	3.354E-02	3.805E-02	3.767E-03	-2.608
RB-86	1076.63		*	2.051E-01	3.346E-01	6.086E-01	5.517E-02	0.337
Y-88	898.02			3.365E-03	1.990E-02	3.324E-02	3.409E-03	0.101
ZR-88	1836.01		*	-2.599E-03	1.760E-02	2.762E-02	2.253E-03	-0.094
	392.90		*	5.811E-03	1.625E-02	2.763E-02	2.765E-03	0.210
	1204.90		*	-5.908E-01	6.710E+00	1.088E+01	9.034E-01	-0.054
Y-91	702.63		*	1.327E-02	1.987E-02	3.542E-02	3.158E-03	0.375
NB-94	871.10			1.299E-02	1.831E-02	3.314E-02	3.332E-03	0.392
NB-95	765.79		*	6.836E-03	2.364E-02	3.918E-02	3.668E-03	0.174

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NB-95M	235.69	*	-3.646E-02	6.279E-02	1.021E-01	1.291E-02	-0.357	
ZR-95	724.18		-8.783E-03	3.951E-02	6.285E-02	6.148E-03	-0.140	
	756.15	*	-1.619E-02	3.220E-02	4.837E-02	4.891E-03	-0.335	
NB-97	657.90	*	-6.657E-06	3.220E-02	Half-Life	too short		
	1024.50		-1.449E-03	3.220E-02	Half-Life	too short		
ZR-97	254.15		6.209E-04	3.220E-02	Half-Life	too short		
	355.39		1.078E-05	3.220E-02	Half-Life	too short		
	507.63	*	-1.867E-03	3.220E-02	Half-Life	too short		
	602.52		-2.290E-03	3.220E-02	Half-Life	too short		
	1021.30		1.856E-03	3.220E-02	Half-Life	too short		
	1147.95		1.803E-04	3.220E-02	Half-Life	too short		
	1362.66		1.981E-04	3.220E-02	Half-Life	too short		
	1750.46		5.328E-04	3.220E-02	Half-Life	too short		
MO-99	140.51		-9.404E-01	2.233E+00	3.391E+00	9.429E-01	-0.277	
	181.06		-2.557E-01	1.327E+00	2.097E+00	4.045E-01	-0.122	
	366.43		5.860E+00	6.729E+00	1.204E+01	1.299E+00	0.487	
	739.58	*	-2.177E-01	8.807E-01	1.394E+00	2.163E-01	-0.156	
	778.00		-1.015E+00	2.720E+00	4.204E+00	3.971E-01	-0.241	
TC-99M	140.51	*	-6.099E+00	2.720E+00	Half-Life	too short		
RH-101	127.23		-1.499E-02	1.656E-02	2.530E-02	2.147E-03	-0.592	
	198.01	*	4.332E-04	1.927E-02	2.997E-02	3.278E-03	0.014	
	325.23		2.050E-02	1.328E-01	2.234E-01	2.629E-02	0.092	
RH-102	418.52		-3.642E-02	1.643E-01	2.612E-01	2.628E-02	-0.139	
	475.06	*	8.653E-03	1.672E-02	2.865E-02	2.875E-03	0.302	
	631.29		6.357E-03	3.034E-02	5.198E-02	4.667E-03	0.122	
	697.49		2.528E-03	4.627E-02	7.712E-02	6.847E-03	0.033	
	766.84		8.159E-03	6.506E-02	1.057E-01	9.904E-03	0.077	
	1046.59		-2.494E-02	5.183E-02	7.833E-02	7.303E-03	-0.318	
	1112.84		5.309E-02	1.016E-01	1.847E-01	1.611E-02	0.287	
RU-103	497.08	*	1.370E-03	2.068E-02	3.356E-02	5.040E-03	0.041	
	610.33		-9.868E-02	4.324E-01	6.814E-01	1.158E-01	-0.145	
RH-106	511.85		-3.762E-01	1.750E-01	2.829E-01	2.803E-02	-1.330	
	621.84	*	-2.045E-02	1.817E-01	2.994E-01	4.090E-02	-0.068	
	1050.47		1.034E+00	1.001E+00	1.978E+00	1.838E-01	0.523	
RU-106	511.85		-3.762E-01	1.750E-01	2.829E-01	2.803E-02	-1.330	
	621.84	*	-2.045E-02	1.817E-01	2.994E-01	2.719E-02	-0.068	
	1050.47		1.034E+00	1.001E+00	1.978E+00	1.838E-01	0.523	
AG-108M	433.93	*	5.279E-03	1.808E-02	3.042E-02	3.154E-03	0.174	
	614.37		-3.960E-03	2.157E-02	3.529E-02	3.345E-03	-0.112	
	722.95		-6.475E-03	1.901E-02	2.959E-02	2.776E-03	-0.219	
CD-109	88.03	*	-5.247E-02	3.345E-01	5.540E-01	5.563E-02	-0.095	
AG-110M	657.75	*	-4.769E-03	1.607E-02	2.549E-02	2.273E-03	-0.187	
	677.61		2.629E-02	1.668E-01	2.826E-01	2.536E-02	0.093	
	706.67		-4.761E-02	1.265E-01	1.995E-01	1.830E-02	-0.239	
	763.93		7.453E-02	9.115E-02	1.652E-01	1.581E-02	0.451	
	884.67		1.614E-02	2.729E-02	4.838E-02	5.019E-03	0.334	
	937.48	+	6.707E-02	5.462E-02	9.806E-02	1.011E-02	0.684	
	1384.27		-3.871E-02	8.886E-02	1.300E-01	1.241E-02	-0.298	
IN-111	171.28		4.845E-03	8.431E-02	1.366E-01	1.416E-02	0.035	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	245.39	*		-7.814E-02	7.859E-02	1.202E-01	1.428E-02	-0.650
IN-113M	391.69	*		6.229E-03	2.391E-02	4.028E-02	4.121E-03	0.155
SN-113	391.69	*		6.229E-03	2.391E-02	4.028E-02	4.121E-03	0.155
IN-114M	190.27	*		-2.771E-02	8.904E-02	1.389E-01	1.496E-02	-0.200
CD-115	260.90			-1.506E+00	6.409E+00	1.059E+01	1.285E+00	-0.142
	492.35			5.544E-01	1.961E+00	3.268E+00	3.262E-01	0.170
	527.90	*		2.395E-01	5.725E-01	9.670E-01	9.506E-02	0.248
SN-117M	156.02			-5.408E-01	7.882E-01	1.205E+00	1.171E-01	-0.449
	158.56	*		-2.651E-03	1.963E-02	3.148E-02	3.101E-03	-0.084
SB-122	563.90	*		4.827E-02	1.734E-01	3.005E-01	2.885E-02	0.161
	692.80			-5.903E-01	3.342E+00	5.404E+00	4.780E-01	-0.109
I-123	159.00	*		-6.477E-05	3.342E+00	Half-Life	too short	
	528.96			1.632E-02	3.342E+00	Half-Life	too short	
TE-123M	159.00	*		-4.996E-03	1.435E-02	2.259E-02	2.242E-03	-0.221
I-124	602.71	*		-7.222E-02	1.139E-01	1.772E-01	1.643E-02	-0.408
	722.78			-2.584E-01	5.616E-01	8.550E-01	7.747E-02	-0.302
	1325.50			-6.040E-01	4.281E+00	6.754E+00	6.255E-01	-0.089
	1376.25			-1.028E-01	4.217E+00	6.847E+00	6.385E-01	-0.015
	1509.49			9.172E-02	2.484E+00	4.059E+00	3.742E-01	0.023
	1691.02			-4.298E-01	7.707E-01	1.108E+00	9.702E-02	-0.388
SB-124	602.71			-1.368E-02	2.157E-02	3.356E-02	3.113E-03	-0.408
	645.85			-5.307E-04	2.186E-01	3.641E-01	3.393E-02	-0.001
	709.31			4.928E-01	1.542E+00	2.647E+00	2.373E-01	0.186
	713.82			6.834E-02	8.969E-01	1.497E+00	1.842E-01	0.046
	722.78			-7.095E-02	1.542E-01	2.348E-01	2.169E-02	-0.302
	968.20			-9.563E-02	1.527E+00	2.029E+00	2.004E-01	-0.047
	1045.16			-3.232E-01	9.829E-01	1.533E+00	1.431E-01	-0.211
	1325.50			-1.771E-01	1.256E+00	1.981E+00	1.834E-01	-0.089
	1368.21			4.278E-01	6.450E-01	1.251E+00	1.743E-01	0.342
	1436.60			-1.899E-01	2.052E+00	3.266E+00	3.038E-01	-0.058
	1691.02	*		-2.784E-02	4.992E-02	7.173E-02	6.524E-03	-0.388
SB-125	427.89	*		5.020E-02	5.541E-02	9.840E-02	1.005E-02	0.510
	463.38			-4.810E-02	1.416E-01	2.183E-01	2.323E-02	-0.220
	600.56			-1.485E-02	1.124E-01	1.858E-01	1.836E-02	-0.080
	635.90			7.985E-02	1.603E-01	2.827E-01	2.714E-02	0.282
TE-125M	109.28	*		-3.260E+00	4.260E+00	6.641E+00	6.800E-01	-0.491
I-126	388.63			-3.636E-02	7.679E-02	1.192E-01	1.205E-02	-0.305
	666.33	*		-6.517E-02	6.739E-02	9.685E-02	8.377E-03	-0.673
	753.82			6.864E-02	4.659E-01	7.852E-01	7.286E-02	0.087
SB-126	223.80			4.633E-01	1.510E+00	2.455E+00	2.817E-01	0.189
	278.60			9.692E-01	8.881E-01	1.605E+00	1.990E-01	0.604
	296.50			-4.419E-01	5.171E-01	7.271E-01	8.886E-02	-0.608
	414.70			-3.505E-03	2.945E-02	4.744E-02	4.770E-03	-0.074
	415.30			3.951E-01	2.390E+00	3.969E+00	3.991E-01	0.100
	555.20			-7.484E-01	1.349E+00	2.107E+00	2.036E-01	-0.355
	573.80			-3.148E-01	3.706E-01	5.544E-01	5.282E-02	-0.568
	593.00			-3.438E-01	3.889E-01	5.863E-01	5.490E-02	-0.586
	656.30			-5.873E-01	1.009E+00	1.518E+00	1.318E-01	-0.387
	666.33			-2.676E-02	2.767E-02	3.977E-02	3.440E-03	-0.673

---- Non-Identified Nuclides ----

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	675.00			-4.448E-01	7.291E-01	1.107E+00	9.649E-02	-0.402
	695.00			9.523E-03	2.953E-02	5.083E-02	4.504E-03	0.187
	697.00			1.383E-02	1.056E-01	1.777E-01	1.577E-02	0.078
	720.50	*		-1.126E-02	4.677E-02	7.435E-02	6.724E-03	-0.151
	856.80			1.033E-01	1.673E-01	2.974E-01	2.964E-02	0.347
	989.30			-2.366E-02	4.559E-01	7.256E-01	7.069E-02	-0.033
	1034.80			8.143E-01	2.563E+00	4.549E+00	4.284E-01	0.179
	1213.00			1.046E-01	1.378E+00	2.309E+00	1.932E-01	0.045
SN-126	64.28			-4.615E-01	3.179E-01	4.991E-01	7.402E-02	-0.925
	86.94			-1.028E-01	1.508E-01	2.303E-01	9.592E-02	-0.446
	87.57	*		-1.018E-02	3.358E-02	5.504E-02	5.501E-03	-0.185
SB-127	61.10			-2.097E+01	8.723E+00	1.223E+01	1.033E+00	-1.714
	252.40			-7.120E-01	6.782E-01	9.273E-01	3.932E-01	-0.768
	290.80			-1.987E+00	3.052E+00	4.807E+00	6.144E-01	-0.413
	411.60			8.240E-01	1.833E+00	3.124E+00	4.799E-01	0.264
	444.90			5.158E-01	1.399E+00	2.367E+00	2.862E-01	0.218
	473.00			-1.431E-02	2.589E-01	4.154E-01	5.155E-02	-0.034
	543.00			9.156E-01	2.234E+00	3.775E+00	5.202E-01	0.243
	603.60			-5.716E-01	1.761E+00	2.844E+00	3.243E-01	-0.201
	685.20	*		-5.896E-03	1.785E-01	2.945E-01	2.864E-02	-0.020
	698.50			-9.818E-02	2.317E+00	3.816E+00	5.620E-01	-0.026
	722.20			2.358E-01	3.485E+00	5.817E+00	5.649E-01	0.041
	783.80			3.246E-01	4.673E-01	8.433E-01	9.685E-02	0.385
XE-127	57.60			8.227E-01	2.807E+00	4.894E+00	3.765E-01	0.168
	145.22			-2.963E-02	3.386E-01	5.486E-01	5.038E-02	-0.054
	172.10			6.338E-04	5.621E-02	9.072E-02	9.420E-03	0.007
	202.84	*		-5.075E-04	2.225E-02	3.542E-02	3.911E-03	-0.014
	374.96			-2.030E-02	8.932E-02	1.429E-01	1.506E-02	-0.142
I-131	80.18			1.337E-01	9.842E-01	1.672E+00	1.543E-01	0.080
	284.30			-9.547E-02	4.382E-01	7.210E-01	9.116E-02	-0.132
	364.48	*		1.739E-02	3.358E-02	5.817E-02	6.506E-03	0.299
	636.97			-9.431E-02	4.825E-01	7.859E-01	7.343E-02	-0.120
	722.89			-5.963E-01	1.649E+00	2.557E+00	2.320E-01	-0.233
TE-132	49.72			-2.311E+00	3.037E+00	4.357E+00	4.082E-01	-0.530
	111.76			7.065E-01	3.238E+00	5.064E+00	4.597E-01	0.140
	116.30			-1.705E+00	2.654E+00	4.157E+00	3.744E-01	-0.410
	228.16	*		3.429E-02	7.793E-02	1.278E-01	2.113E-02	0.268
BA-133	53.15			1.153E+00	2.135E+00	3.799E+00	3.161E-01	0.303
	79.62			4.643E-02	5.483E-01	9.282E-01	1.442E-01	0.050
	81.00			-1.330E-02	4.131E-02	6.780E-02	1.102E-02	-0.196
	276.40			-1.783E-02	2.095E-01	3.495E-01	5.924E-02	-0.051
	302.84			1.548E-02	7.661E-02	1.302E-01	2.056E-02	0.119
	356.01	*		-1.656E-03	2.650E-02	4.348E-02	6.486E-03	-0.038
	383.85			9.991E-02	1.701E-01	2.954E-01	4.070E-02	0.338
I-133	510.53			-5.924E-04	1.701E-01	Half-Life	too short	
	529.87	*		3.460E-06	1.701E-01	Half-Life	too short	
	706.58			-2.167E-04	1.701E-01	Half-Life	too short	
	856.28			-7.028E-06	1.701E-01	Half-Life	too short	
	875.33			-9.997E-05	1.701E-01	Half-Life	too short	

---- Non-Identified Nuclides ----

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CS-134	1236.41			5.352E-05	1.701E-01	Half-Life	too short	
	1298.22			6.249E-05	1.701E-01	Half-Life	too short	
	475.35			3.200E-01	1.094E+00	1.829E+00	1.835E-01	0.175
	563.23			-5.613E-02	2.133E-01	3.488E-01	3.377E-02	-0.161
	569.32			-4.016E-02	1.271E-01	1.870E-01	1.808E-02	-0.215
	604.70			-1.430E-02	2.034E-02	3.140E-02	2.912E-03	-0.455
	795.84	*		2.380E-02	2.645E-02	4.834E-02	4.651E-03	0.492
	801.93			-3.506E-02	2.551E-01	4.020E-01	3.880E-02	-0.087
	1038.57			4.813E-01	1.757E+00	3.090E+00	2.901E-01	0.156
	1167.94			-3.204E-01	9.400E-01	1.431E+00	1.162E-01	-0.224
CS-135	1365.15			2.262E-02	6.182E-01	1.020E+00	9.879E-02	0.022
I-135	268.24	*		8.630E-04	8.083E-02	1.362E-01	1.801E-02	0.006
	288.45			2.843E+01	8.083E-02	Half-Life	too short	
	417.63			-2.829E+01	8.083E-02	Half-Life	too short	
	546.56			-1.872E+01	8.083E-02	Half-Life	too short	
	836.80			-2.159E+01	8.083E-02	Half-Life	too short	
	1038.76			8.229E+00	8.083E-02	Half-Life	too short	
	1124.00			-8.564E+00	8.083E-02	Half-Life	too short	
	1131.51			1.504E+00	8.083E-02	Half-Life	too short	
	1260.41	*		-2.338E+00	8.083E-02	Half-Life	too short	
	1457.56			5.034E+01	8.083E-02	Half-Life	too short	
CS-136	1678.03			2.191E+00	8.083E-02	Half-Life	too short	
	1706.46			6.586E+01	8.083E-02	Half-Life	too short	
	1791.20			6.515E+00	8.083E-02	Half-Life	too short	
	66.91			-2.267E-02	2.381E-01	4.011E-01	6.095E-02	-0.057
	86.29			-1.363E-01	3.164E-01	5.144E-01	7.048E-02	-0.265
	153.22			1.445E-01	2.266E-01	3.851E-01	4.040E-02	0.375
	163.89			3.548E-02	4.028E-01	6.558E-01	7.237E-02	0.054
	176.55			-7.513E-02	1.339E-01	2.053E-01	2.235E-02	-0.366
	273.65			-2.099E-02	1.660E-01	2.762E-01	3.515E-02	-0.076
	340.57			-1.511E-02	4.292E-02	6.847E-02	7.964E-03	-0.221
BA-137M	818.51			-6.676E-03	2.780E-02	4.365E-02	4.243E-03	-0.153
	1048.07	*		3.571E-03	3.301E-02	5.634E-02	5.435E-03	0.063
	1235.34			-1.749E-02	1.349E-01	2.158E-01	2.544E-02	-0.081
	661.65	*		1.192E-02	1.880E-02	3.379E-02	2.911E-03	0.353
CS-137	661.65	*		1.260E-02	1.987E-02	3.572E-02	3.083E-03	0.353
CE-139	165.85	*		-1.272E-03	1.594E-02	2.561E-02	2.627E-03	-0.050
BA-140	162.64			1.787E-01	3.063E-01	4.816E-01	5.061E-02	0.371
	304.84			-1.779E-02	4.503E-01	7.486E-01	2.192E-01	-0.024
LA-140	423.70			-2.587E-01	7.513E-01	1.169E+00	3.838E-01	-0.221
	537.32	*		3.329E-02	8.489E-02	1.428E-01	4.779E-02	0.233
	328.77			8.704E-02	1.116E-01	1.969E-01	2.375E-02	0.442
	432.53			-2.812E-01	7.898E-01	1.230E+00	1.283E-01	-0.229
	487.03			6.508E-03	5.572E-02	9.104E-02	9.526E-03	0.071
	751.79			-4.189E-02	5.652E-01	9.191E-01	9.309E-02	-0.046
	815.85			-2.960E-02	9.976E-02	1.536E-01	1.627E-02	-0.193
	867.82			-5.102E-01	5.162E-01	6.855E-01	7.149E-02	-0.744
	919.63			-7.398E-01	1.102E+00	1.572E+00	1.871E-01	-0.471
	925.24			-8.655E-02	4.251E-01	6.627E-01	7.003E-02	-0.131

---- Non-Identified Nuclides ----

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CE-141	1596.49	*		-2.578E-03	2.996E-02	4.905E-02	4.436E-03	-0.053
	145.44	*		-5.707E-03	3.001E-02	4.825E-02	4.507E-03	-0.118
	57.37			-4.290E+00	1.245E+01	2.073E+01	1.861E+00	-0.207
	231.56			-3.834E+01	3.447E+01	4.526E+01	1.471E+01	-0.847
	293.26	*		6.654E-01	1.437E+00	2.487E+00	5.748E-01	0.268
CE-143	350.59			-1.006E+01	2.193E+01	3.363E+01	1.070E+01	-0.299
	490.36			-2.142E+01	3.869E+01	5.711E+01	1.825E+01	-0.375
	664.57			-6.634E+00	1.542E+01	2.395E+01	7.734E+00	-0.277
	721.93			-2.730E-01	1.340E+01	2.205E+01	6.454E+00	-0.012
	80.11			1.407E-01	8.626E-01	1.468E+00	1.352E-01	0.096
CE-144	133.54	*		-4.419E-03	1.011E-01	1.651E-01	2.577E-02	-0.027
	476.78			-7.789E-03	3.909E-02	6.153E-02	6.601E-03	-0.127
	618.01			1.364E-03	2.111E-02	3.374E-02	3.153E-03	0.040
	696.49	*		3.513E-03	2.032E-02	3.435E-02	3.048E-03	0.102
	778.57			-6.689E-01	1.241E+00	1.861E+00	1.759E-01	-0.359
PR-144	696.49	*		2.371E-01	1.371E+00	2.318E+00	2.057E-01	0.102
	1489.15			4.515E-01	7.019E+00	1.156E+01	1.069E+00	0.039
	453.90	*		2.563E-03	2.550E-02	4.181E-02	4.982E-03	0.061
	633.02			1.422E-01	8.222E-01	1.398E+00	5.234E-01	0.102
	735.90			3.700E-02	8.757E-02	1.513E-01	4.353E-02	0.245
ND-147	747.13			-9.860E-03	4.698E-02	7.475E-02	1.078E-02	-0.132
	91.11			-3.492E-01	1.114E-01	1.814E-01	1.868E-02	-1.925
	319.41			-9.044E-01	1.208E+00	1.863E+00	2.212E-01	-0.486
	439.89			-1.217E+00	2.053E+00	3.086E+00	3.109E-01	-0.394
	531.02	*		3.886E-02	2.111E-01	3.191E-01	4.999E-02	0.122
PM-149	285.90	*		-9.041E-01	4.636E+00	7.634E+00	1.363E+00	-0.118
	121.78			-2.676E-02	3.745E-02	5.815E-02	5.638E-03	-0.460
	244.69			-1.366E-01	1.607E-01	2.507E-01	2.975E-02	-0.545
	344.27	*		7.335E-03	4.953E-02	8.324E-02	9.785E-03	0.088
	443.98			1.779E-01	5.317E-01	8.975E-01	9.040E-02	0.198
EU-152	778.89			-9.935E-02	1.454E-01	2.123E-01	2.006E-02	-0.468
	867.32			-4.397E-01	4.560E-01	6.068E-01	6.087E-02	-0.725
	964.01			-9.392E-02	1.679E-01	2.463E-01	2.438E-02	-0.381
	1085.78			3.347E-02	1.940E-01	3.334E-01	2.995E-02	0.100
	1112.02			1.592E-02	1.481E-01	2.513E-01	2.193E-02	0.063
GD-153	1407.95			-6.807E-02	1.044E-01	1.429E-01	1.331E-02	-0.476
	69.67			8.947E-01	7.319E-01	1.334E+00	1.118E-01	0.671
	83.37			1.080E+00	6.928E+00	1.125E+01	1.072E+00	0.096
	97.43	*		-4.877E-02	4.476E-02	6.547E-02	5.950E-03	-0.745
	103.18			2.637E-02	5.110E-02	8.787E-02	7.693E-03	0.300
EU-154	123.07			-7.800E-03	2.724E-02	4.387E-02	4.904E-03	-0.178
	247.94			5.700E-02	1.850E-01	3.206E-01	4.529E-02	0.178
	591.81			-3.093E-01	4.109E-01	6.314E-01	7.728E-02	-0.490
	723.30			-1.307E-02	7.953E-02	1.278E-01	1.269E-02	-0.102
	756.87			-1.546E-01	3.657E-01	5.561E-01	6.937E-02	-0.278
	873.19			1.855E-01	1.496E-01	2.907E-01	3.868E-02	0.638
	996.32			-2.610E-01	2.368E-01	2.993E-01	5.482E-02	-0.872
	1004.76			-1.510E-01	1.188E-01	1.542E-01	1.914E-02	-0.979
	1274.45	*		-4.887E-02	5.668E-02	7.362E-02	8.461E-03	-0.664

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	48.70			6.326E-01	1.951E+00	3.117E+00	2.759E-01	0.203
	60.01			-3.796E+00	2.788E+00	4.284E+00	3.232E-01	-0.886
	86.54			-1.581E-02	4.282E-02	6.995E-02	6.962E-03	-0.226
	105.31	*		-3.685E-02	5.505E-02	8.150E-02	7.146E-03	-0.452
TB-160	86.79			-6.592E-02	1.050E-01	1.680E-01	1.664E-02	-0.393
	197.04			1.053E-02	3.045E-01	4.739E-01	5.174E-02	0.022
	215.65			3.884E-03	3.916E-01	6.226E-01	7.042E-02	0.006
	298.57			-1.252E-02	5.329E-02	8.710E-02	1.062E-02	-0.144
	879.36	*		4.994E-03	6.624E-02	1.090E-01	1.102E-02	0.046
	962.29			-8.849E-02	2.788E-01	4.264E-01	4.225E-02	-0.208
	966.15			3.533E-02	9.960E-02	1.692E-01	1.672E-02	0.209
	1177.93			0.000E+00	1.425E-01	2.360E-01	1.909E-02	0.000
	1271.85			9.560E-02	2.995E-01	5.258E-01	4.646E-02	0.182
	80.57			2.923E-03	1.128E-01	1.901E-01	1.759E-02	0.015
HO-166M	184.41			-2.143E-02	2.546E-02	4.239E-02	4.512E-03	-0.506
	280.46			-5.123E-02	4.976E-02	7.570E-02	9.380E-03	-0.677
	410.95			3.157E-02	1.430E-01	2.389E-01	2.401E-02	0.132
	711.68	*		4.014E-04	3.751E-02	6.209E-02	5.576E-03	0.006
	752.31			1.010E-02	1.367E-01	2.276E-01	2.110E-02	0.044
	810.29			2.013E-03	3.154E-02	5.211E-02	5.035E-03	0.039
	51.35			3.584E+00	1.945E+01	3.381E+01	2.903E+00	0.106
TM-171	52.39			3.356E-01	9.894E+00	1.700E+01	1.434E+00	0.020
	59.40			1.693E+00	1.427E+01	2.453E+01	1.836E+00	0.069
	66.72	*		-7.194E+00	1.316E+01	2.146E+01	1.753E+00	-0.335
LU-176	88.36			-5.883E-02	8.279E-02	1.316E-01	1.315E-02	-0.447
	201.83			-4.860E-03	1.579E-02	2.453E-02	2.703E-03	-0.198
	306.84	*		-5.656E-03	1.345E-02	2.150E-02	2.598E-03	-0.263
	401.10			3.211E-01	3.533E+00	5.841E+00	5.858E-01	0.055
LU-177	112.95			2.890E-01	3.976E-01	6.406E-01	5.411E-02	0.451
	208.36	*		-5.814E-03	2.617E-01	4.160E-01	4.642E-02	-0.014
LU-177M	52.97			4.318E-01	9.334E-01	1.653E+00	1.380E-01	0.261
	54.07			3.660E-02	4.898E-01	8.431E-01	6.899E-02	0.043
	61.30			-2.002E+00	8.629E-01	1.227E+00	9.451E-02	-1.632
	121.62			-1.920E-01	1.890E-01	2.860E-01	2.388E-02	-0.672
	147.16			-1.010E-01	3.469E-01	5.529E-01	5.127E-02	-0.183
	171.86			3.995E-03	2.520E-01	4.069E-01	4.223E-02	0.010
	218.09			4.154E-02	4.697E-01	7.513E-01	8.535E-02	0.055
	268.79			-8.443E-02	4.148E-01	6.862E-01	8.410E-02	-0.123
	319.02			-8.500E-02	1.499E-01	2.360E-01	2.804E-02	-0.360
	367.43			2.758E-01	4.751E-01	8.293E-01	8.922E-02	0.333
HF-181	413.65	*		1.754E-02	1.054E-01	1.750E-01	1.759E-02	0.100
	56.28			-2.803E-01	4.660E-01	7.597E-01	5.976E-02	-0.369
	57.53			6.649E-02	2.410E-01	4.199E-01	3.234E-02	0.158
	65.20			-1.086E+00	4.587E-01	6.436E-01	5.185E-02	-1.688
	133.02			-2.147E-04	2.910E-02	4.765E-02	4.136E-03	-0.005
	136.25			-1.158E-01	2.091E-01	3.272E-01	2.880E-02	-0.354
W-181	345.85			-1.810E-02	9.021E-02	1.460E-01	1.654E-02	-0.124
	482.03	*		-7.285E-03	1.959E-02	2.988E-02	2.992E-03	-0.244
	56.28			-1.187E-01	1.979E-01	3.226E-01	2.537E-02	-0.368



----- Non-Identified Nuclides -----

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TA-182	57.53			2.820E-02	1.024E-01	1.784E-01	1.374E-02	0.158
	65.20	*		-4.580E-01	1.934E-01	2.713E-01	2.186E-02	-1.688
	67.75			7.193E-03	4.933E-02	8.447E-02	6.963E-03	0.085
	100.10			-1.937E-02	8.992E-02	1.475E-01	1.315E-02	-0.131
	152.43			3.514E-02	1.659E-01	2.739E-01	2.611E-02	0.128
	222.10			1.868E-02	1.897E-01	3.033E-01	3.470E-02	0.062
	1001.68			-6.329E-01	1.208E+00	1.998E+00	1.931E-01	-0.317
RE-183	1121.28			-5.148E-02	6.489E-02	9.175E-02	7.919E-03	-0.561
	1189.05			1.748E-01	1.349E-01	2.708E-01	2.215E-02	0.646
	1221.42	*		-6.322E-02	7.358E-02	9.640E-02	8.132E-03	-0.656
	1230.97			1.240E-01	1.619E-01	3.101E-01	2.639E-02	0.400
	57.98			4.497E-02	9.796E-02	1.727E-01	1.321E-02	0.260
	59.32			2.216E-02	5.361E-02	9.402E-02	7.045E-03	0.236
	67.20			1.162E-02	8.498E-02	1.455E-01	1.194E-02	0.080
RE-184	162.32	*		3.719E-02	6.285E-02	9.891E-02	9.947E-03	0.376
	208.81			1.931E-02	4.741E-01	7.575E-01	8.460E-02	0.025
	291.72			-8.195E-02	4.855E-01	8.009E-01	9.833E-02	-0.102
	57.98			1.732E-01	3.774E-01	6.653E-01	5.087E-02	0.260
	59.32			8.531E-02	2.063E-01	3.619E-01	2.712E-02	0.236
	67.20			4.475E-02	3.273E-01	5.604E-01	4.597E-02	0.080
	161.27			-1.541E-01	2.154E-01	3.066E-01	3.065E-02	-0.502
OS-185	216.55			4.740E-02	1.442E-01	2.353E-01	2.666E-02	0.201
	252.85	*		-9.169E-02	1.231E-01	1.943E-01	2.333E-02	-0.472
	318.01			2.725E-01	2.554E-01	4.605E-01	5.480E-02	0.592
	792.07			-2.072E-01	5.022E-01	7.683E-01	7.331E-02	-0.270
	903.28			-1.557E-01	4.881E-01	7.425E-01	7.573E-02	-0.210
	920.93			4.378E-02	2.348E-01	3.922E-01	3.970E-02	0.112
	59.72			4.833E-03	1.446E-01	2.471E-01	1.854E-02	0.020
RE-188	61.14			-2.220E-01	9.272E-02	1.308E-01	1.005E-02	-1.698
	69.30			1.038E-01	1.299E-01	2.312E-01	1.931E-02	0.449
	592.07			-1.213E+00	1.548E+00	2.369E+00	2.220E-01	-0.512
	646.12	*		-2.686E-03	1.923E-02	3.135E-02	2.762E-03	-0.086
	717.42			1.842E-03	4.520E-01	7.471E-01	6.741E-02	0.002
	874.81			-3.324E-02	2.910E-01	4.631E-01	4.667E-02	-0.072
	880.27			-1.408E-01	3.948E-01	5.996E-01	6.063E-02	-0.235
W-188	155.03	*		-2.838E-02	8.211E-02	1.296E-01	1.252E-02	-0.219
	477.96			7.598E-01	1.533E+00	2.631E+00	2.637E-01	0.289
	633.10			2.670E-01	1.540E+00	2.624E+00	2.350E-01	0.102
IR-192	63.58			-8.664E+00	3.154E+01	5.416E+01	4.293E+00	-0.160
	227.08			-5.377E+00	6.953E+00	1.019E+01	1.176E+00	-0.528
	290.67	*		-2.575E+00	3.881E+00	6.106E+00	7.505E-01	-0.422
AU-195	295.96			-4.973E-02	5.599E-02	7.817E-02	9.593E-03	-0.636
	308.46			-1.277E-02	4.782E-02	7.762E-02	9.383E-03	-0.165
	316.51	*		9.544E-04	1.934E-02	3.233E-02	3.861E-03	0.030
	468.07			1.600E-02	3.288E-02	5.640E-02	5.969E-03	0.284
	604.41			-1.607E-01	2.547E-01	3.954E-01	5.318E-02	-0.406
	612.46			-6.256E-01	3.805E-01	4.966E-01	5.159E-02	-1.260
	65.12			-2.166E-01	9.096E-02	1.275E-01	1.026E-02	-1.699
	66.83			-2.288E-02	4.256E-02	6.943E-02	5.677E-03	-0.330

---- Non-Identified Nuclides ----

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TL-200	75.70			3.642E-02	7.950E-02	1.309E-01	1.155E-02	0.278
	98.88	*		-6.119E-02	1.268E-01	1.944E-01	1.747E-02	-0.315
	129.76			5.538E-01	1.393E+00	2.350E+00	2.014E-01	0.236
	367.94	*		1.358E-01	1.915E+00	3.177E+00	3.414E-01	0.043
	579.30			-1.769E+01	1.464E+01	2.069E+01	1.962E+00	-0.855
TL-201	828.27			-1.711E+00	1.931E+01	3.103E+01	3.035E+00	-0.055
	1205.75			9.873E-01	7.360E+00	1.251E+01	1.040E+00	0.079
	68.90			2.161E-01	3.797E-01	6.676E-01	5.557E-02	0.324
	70.82			-3.516E-02	2.085E-01	3.487E-01	2.949E-02	-0.101
	80.30			7.527E-02	3.590E-01	6.129E-01	5.656E-02	0.123
TL-202	135.34			-1.094E+00	2.237E+00	3.519E+00	3.085E-01	-0.311
	167.43	*		2.646E-01	6.702E-01	1.115E+00	1.147E-01	0.237
	68.90			7.198E-02	1.265E-01	2.224E-01	1.851E-02	0.324
	70.82			-1.168E-02	6.927E-02	1.158E-01	9.798E-03	-0.101
	80.30			2.501E-02	1.193E-01	2.037E-01	1.880E-02	0.123
HG-203	439.56	*		-1.558E-02	2.524E-02	3.774E-02	3.802E-03	-0.413
	70.83			-7.261E-02	4.132E-01	6.905E-01	9.325E-02	-0.105
	72.87			-2.247E-01	2.270E-01	3.524E-01	4.649E-02	-0.638
	82.60			-4.106E-01	4.787E-01	7.182E-01	1.026E-01	-0.572
	279.20	*		1.502E-02	2.070E-02	3.656E-02	4.597E-03	0.411
BI-207	72.80			-7.256E-02	7.403E-02	1.156E-01	9.944E-03	-0.628
	74.97			3.987E-02	4.147E-02	7.439E-02	6.522E-03	0.536
	84.90			4.501E-03	9.089E-02	1.467E-01	1.422E-02	0.031
	569.67			-7.902E-03	1.999E-02	2.911E-02	2.782E-03	-0.271
	1063.62	*		-8.500E-03	2.533E-02	3.968E-02	3.643E-03	-0.214
TL-207	1770.23			-4.482E-01	3.881E-01	4.675E-01	3.950E-02	-0.959
	81.07			-4.923E-02	9.252E-02	1.496E-01	1.391E-02	-0.329
	83.78			8.045E-03	5.919E-02	9.590E-02	9.182E-03	0.084
	94.90			-6.979E-01	1.705E-01	1.866E-01	1.732E-02	-3.741
	122.32			-6.279E-01	9.279E-01	1.449E+00	1.305E-01	-0.433
TL-208	144.24			-1.718E-01	4.217E-01	6.603E-01	6.675E-02	-0.260
	154.21			9.230E-02	1.969E-01	3.312E-01	3.444E-02	0.279
	269.46			3.788E-04	9.758E-02	1.642E-01	2.035E-02	0.002
	323.87	*		2.979E-01	3.956E-01	6.923E-01	1.346E-01	0.430
	338.28			1.212E-01	5.353E-01	9.053E-01	1.310E-01	0.134
PO-209	445.03			4.769E-01	1.293E+00	2.188E+00	2.880E-01	0.218
	277.35			9.179E-02	2.146E-01	3.714E-01	5.646E-02	0.247
	510.84			-1.585E-01	1.634E-01	2.860E-01	3.704E-02	-0.554
	583.14	*		-2.072E-02	2.498E-02	3.535E-02	3.541E-03	-0.586
	860.37			-5.640E-02	1.599E-01	2.451E-01	2.583E-02	-0.230
BI-210	260.50			-2.658E+00	5.242E+00	8.450E+00	1.025E+00	-0.315
	262.80			3.391E+00	1.409E+01	2.421E+01	2.946E+00	0.140
	896.60	*		-1.213E+00	3.557E+00	5.362E+00	5.475E-01	-0.226
	46.50	*		7.164E-01	3.394E+00	5.163E+00	4.947E-01	0.139
	46.50	*		7.164E-01	3.394E+00	5.163E+00	4.947E-01	0.139
PB-211	46.50	*		7.164E-01	3.394E+00	5.163E+00	4.507E-01	0.139
	72.87			-1.266E+00	1.273E+00	1.985E+00	1.709E-01	-0.638
	351.07	*		-9.244E-02	1.286E-01	1.932E-01	2.229E-02	-0.478
	404.84	*		1.553E-02	4.951E-01	8.122E-01	5.107E-01	0.019

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BI-212	427.08			6.072E-01	1.282E+00	2.102E+00	1.311E+00	0.289
	831.96			3.279E-01	5.998E-01	1.012E+00	6.362E-01	0.324
	727.18	*		4.345E-02	1.371E-01	2.371E-01	2.470E-02	0.183
	785.46			-1.413E-01	9.371E-01	1.501E+00	1.425E-01	-0.094
PB-212	1620.62			-3.289E-01	6.275E-01	8.791E-01	7.894E-02	-0.374
	74.81			1.340E-01	1.434E-01	2.560E-01	3.278E-02	0.523
	77.11			-5.567E-02	9.126E-02	1.393E-01	1.246E-02	-0.400
	87.30			-1.315E-01	1.622E-01	2.547E-01	3.596E-02	-0.516
PO-212	238.63	*		-8.490E-03	3.597E-02	5.963E-02	7.504E-03	-0.142
	300.09			1.276E-01	4.007E-01	6.877E-01	9.294E-02	0.186
	74.81			1.340E-01	1.434E-01	2.560E-01	3.278E-02	0.523
	77.11			-5.567E-02	9.126E-02	1.393E-01	1.246E-02	-0.400
BI-214	87.30			-1.315E-01	1.622E-01	2.547E-01	3.596E-02	-0.516
	115.19			-7.163E-01	1.712E+00	2.734E+00	2.299E-01	-0.262
	238.63	*		-8.490E-03	3.597E-02	5.963E-02	7.504E-03	-0.142
	300.09			1.276E-01	4.007E-01	6.877E-01	9.294E-02	0.186
PB-214	609.31	*		3.744E-03	4.629E-02	7.553E-02	7.882E-03	0.050
	1120.29			-1.119E-01	1.441E-01	2.044E-01	2.225E-02	-0.548
	1764.49			4.181E-02	1.886E-01	3.381E-01	2.865E-02	0.124
	74.81			2.309E-01	2.467E-01	4.410E-01	5.058E-02	0.523
PO-214	77.11			-9.544E-02	1.566E-01	2.388E-01	2.806E-02	-0.400
	87.30			-2.252E-01	2.775E-01	4.364E-01	5.497E-02	-0.516
	241.98			-1.121E-01	1.916E-01	3.025E-01	3.958E-02	-0.371
	295.21			-6.650E-03	7.791E-02	1.190E-01	1.635E-02	-0.056
PO-214	351.92	*		-1.455E-02	4.456E-02	6.982E-02	8.828E-03	-0.208
	74.81			2.309E-01	2.467E-01	4.410E-01	5.058E-02	0.523
	77.11			-9.544E-02	1.566E-01	2.388E-01	2.806E-02	-0.400
	87.30			-2.252E-01	2.775E-01	4.364E-01	5.497E-02	-0.516
PO-215	241.98			-1.121E-01	1.916E-01	3.025E-01	3.958E-02	-0.371
	295.21			-6.650E-03	7.791E-02	1.190E-01	1.635E-02	-0.056
	351.92	*		-1.455E-02	4.456E-02	6.982E-02	8.828E-03	-0.208
	81.07			-4.923E-02	9.252E-02	1.496E-01	1.391E-02	-0.329
PO-215	83.78			8.045E-03	5.919E-02	9.590E-02	9.182E-03	0.084
	94.90			-6.979E-01	1.705E-01	1.866E-01	1.732E-02	-3.741
	122.32			-6.279E-01	9.279E-01	1.449E+00	1.305E-01	-0.433
	144.24			-1.718E-01	4.217E-01	6.603E-01	6.675E-02	-0.260
PO-216	154.21			9.230E-02	1.969E-01	3.312E-01	3.444E-02	0.279
	269.46			3.788E-04	9.758E-02	1.642E-01	2.035E-02	0.002
	323.87	*		2.979E-01	3.956E-01	6.923E-01	1.346E-01	0.430
	338.28			1.212E-01	5.353E-01	9.053E-01	1.310E-01	0.134
PO-216	445.03			4.769E-01	1.293E+00	2.188E+00	2.880E-01	0.218
	74.81			1.340E-01	1.434E-01	2.560E-01	3.278E-02	0.523
	77.11			-5.567E-02	9.126E-02	1.393E-01	1.246E-02	-0.400
	87.30			-1.315E-01	1.622E-01	2.547E-01	3.596E-02	-0.516
PO-218	238.63	*		-8.490E-03	3.597E-02	5.963E-02	7.504E-03	-0.142
	300.09			1.276E-01	4.007E-01	6.877E-01	9.294E-02	0.186
	74.81			2.309E-01	2.467E-01	4.410E-01	5.058E-02	0.523
	77.11			-9.544E-02	1.566E-01	2.388E-01	2.806E-02	-0.400
	87.30			-2.252E-01	2.775E-01	4.364E-01	5.497E-02	-0.516

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	241.98			-1.121E-01	1.916E-01	3.025E-01	3.958E-02	-0.371
	295.21			-6.650E-03	7.791E-02	1.190E-01	1.635E-02	-0.056
	351.92	*		-1.455E-02	4.456E-02	6.982E-02	8.828E-03	-0.208
RN-219	271.23			1.394E-02	1.316E-01	2.232E-01	3.021E-02	0.062
	401.81	*		1.044E-01	2.163E-01	3.724E-01	5.913E-02	0.280
RN-220	549.76	*		2.437E+00	1.420E+01	2.321E+01	2.252E+00	0.105
RA-223	81.07			-4.923E-02	9.252E-02	1.496E-01	1.391E-02	-0.329
	83.78			8.045E-03	5.919E-02	9.590E-02	9.182E-03	0.084
	94.90			-6.979E-01	1.705E-01	1.866E-01	1.732E-02	-3.741
	122.32			-6.279E-01	9.279E-01	1.449E+00	1.305E-01	-0.433
	144.24			-1.718E-01	4.217E-01	6.603E-01	6.675E-02	-0.260
	154.21			9.230E-02	1.969E-01	3.312E-01	3.444E-02	0.279
	269.46			3.788E-04	9.758E-02	1.642E-01	2.035E-02	0.002
	323.87	*		2.979E-01	3.956E-01	6.923E-01	1.346E-01	0.430
	338.28			1.212E-01	5.353E-01	9.053E-01	1.310E-01	0.134
	445.03			4.769E-01	1.293E+00	2.188E+00	2.880E-01	0.218
RA-224	240.98	*		-3.590E-01	3.825E-01	5.888E-01	6.948E-02	-0.610
RA-226	609.31	*		3.744E-03	4.629E-02	7.553E-02	7.982E-03	0.050
	1120.29			-1.119E-01	1.441E-01	2.044E-01	2.225E-02	-0.548
	1764.49			4.181E-02	1.886E-01	3.381E-01	2.865E-02	0.124
AC-227	79.80			1.514E-02	6.958E-01	1.173E+00	2.549E-01	0.013
	236.00			-2.613E-02	1.251E-01	2.092E-01	3.051E-02	-0.125
	256.20	*		1.109E-01	2.076E-01	3.636E-01	6.369E-02	0.305
	286.10			-1.034E-01	8.615E-01	1.429E+00	2.269E-01	-0.072
	299.80			1.904E-01	7.502E-01	1.280E+00	2.494E-01	0.149
	304.40			2.234E-01	1.025E+00	1.742E+00	3.536E-01	0.128
	334.20			-5.690E-03	1.250E+00	2.072E+00	4.330E-01	-0.003
TH-227	79.80			1.514E-02	6.958E-01	1.173E+00	2.581E-01	0.013
	94.00			-1.606E-01	1.191E+00	1.868E+00	4.125E-01	-0.086
	236.00			-2.613E-02	1.251E-01	2.092E-01	2.849E-02	-0.125
	256.20	*		1.109E-01	2.079E-01	3.636E-01	7.250E-02	0.305
	286.10			-1.034E-01	8.676E-01	1.429E+00	1.440E+00	-0.072
	299.80			1.904E-01	7.502E-01	1.280E+00	2.494E-01	0.149
	304.40			2.234E-01	1.025E+00	1.742E+00	3.536E-01	0.128
	334.20			-5.690E-03	1.250E+00	2.072E+00	4.330E-01	-0.003
AC-228	338.32			2.751E-02	1.285E-01	2.163E-01	9.077E-02	0.127
	911.07	*		-1.233E-01	8.572E-02	1.098E-01	1.370E-02	-1.123
	969.11			-4.198E-02	1.669E-01	2.160E-01	5.146E-02	-0.194
RA-228	338.32			2.751E-02	1.285E-01	2.163E-01	9.077E-02	0.127
	911.07	*		-1.233E-01	8.572E-02	1.098E-01	1.370E-02	-1.123
	969.11			-4.198E-02	1.669E-01	2.160E-01	5.146E-02	-0.194
TH-228	74.81			1.350E-01	1.439E-01	2.579E-01	2.276E-02	0.523
	77.11			-5.609E-02	9.194E-02	1.404E-01	1.255E-02	-0.400
	87.30			-1.324E-01	1.629E-01	2.566E-01	2.557E-02	-0.516
	238.63	*		-8.554E-03	3.624E-02	6.007E-02	7.560E-03	-0.142
	300.09			1.286E-01	4.106E-01	6.929E-01	4.150E-01	0.186
TH-229	85.43			-1.684E-02	8.733E-02	1.384E-01	1.350E-02	-0.122
	88.47			-3.270E-02	4.767E-02	7.591E-02	7.577E-03	-0.431
	100.00			7.995E-03	9.585E-02	1.604E-01	1.431E-02	0.050

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-230	193.63	*		-3.447E-02	2.747E-01	4.348E-01	4.715E-02	-0.079
	210.97			-1.241E-01	3.994E-01	6.173E-01	6.922E-02	-0.201
	609.31	*		3.744E-03	4.629E-02	7.553E-02	7.982E-03	0.050
	1120.29			-1.119E-01	1.441E-01	2.044E-01	2.225E-02	-0.548
PA-231	1764.49			4.181E-02	1.886E-01	3.380E-01	2.865E-02	0.124
	283.67	*		-3.520E-03	8.377E-01	1.404E+00	2.469E-01	-0.003
	301.29			1.834E-01	3.001E-01	5.259E-01	7.862E-02	0.349
TH-231	81.07			-4.923E-02	9.252E-02	1.496E-01	1.391E-02	-0.329
	83.78			8.045E-03	5.919E-02	9.590E-02	9.182E-03	0.084
	94.90			-6.979E-01	1.705E-01	1.866E-01	1.732E-02	-3.741
	122.32			-6.279E-01	9.279E-01	1.449E+00	1.305E-01	-0.433
U-231	144.24			-1.718E-01	4.217E-01	6.603E-01	6.675E-02	-0.260
	154.21			9.230E-02	1.969E-01	3.312E-01	3.444E-02	0.279
	269.46			3.788E-04	9.758E-02	1.642E-01	2.035E-02	0.002
	323.87	*		2.979E-01	3.956E-01	6.923E-01	1.346E-01	0.430
	338.28			1.212E-01	5.353E-01	9.053E-01	1.310E-01	0.134
	445.03			4.769E-01	1.293E+00	2.188E+00	2.880E-01	0.218
	84.21			1.958E-01	7.311E-01	1.196E+00	1.151E-01	0.164
	92.29			-2.170E-01	3.823E-01	7.207E-01	6.869E-02	-0.301
	95.87	*		-3.304E-01	1.858E-01	2.519E-01	2.319E-02	-1.312
	108.00			1.933E-01	2.713E-01	4.725E-01	4.049E-02	0.409
TH-232	338.32			2.751E-02	1.280E-01	2.163E-01	2.487E-02	0.127
	911.07	*		-1.233E-01	8.572E-02	1.098E-01	1.370E-02	-1.123
	969.11			-4.198E-02	1.669E-01	2.160E-01	5.146E-02	-0.194
PA-233	75.28			4.565E-01	1.329E+00	2.168E+00	3.348E-01	0.211
	86.59			-2.903E-01	6.993E-01	1.132E+00	3.084E-01	-0.256
	300.12			6.535E-02	2.071E-01	3.552E-01	6.102E-02	0.184
	311.98	*		-8.868E-03	3.596E-02	5.851E-02	7.126E-03	-0.152
PA-234	340.50			-1.408E-01	3.163E-01	4.969E-01	1.242E-01	-0.283
	398.62			3.619E-01	1.095E+00	1.855E+00	5.029E-01	0.195
	415.76			1.101E-01	9.771E-01	1.613E+00	3.576E-01	0.068
	63.00			-3.311E-01	1.019E+00	1.744E+00	2.634E-01	-0.190
	94.67			-4.723E-01	1.275E-01	1.345E-01	1.734E-02	-3.511
	98.44			-4.576E-02	5.940E-02	8.030E-02	4.485E-02	-0.570
	99.86			-2.206E-01	2.727E-01	4.073E-01	3.637E-02	-0.542
	111.00			1.230E-02	9.294E-02	1.552E-01	1.862E-02	0.079
	131.20			1.894E-03	5.398E-02	8.873E-02	7.644E-03	0.021
	152.70			7.079E-03	1.682E-01	2.741E-01	4.806E-02	0.026
	186.00			-7.958E-01	9.545E-01	1.536E+00	4.891E-01	-0.518
	226.40			-3.502E-01	2.513E-01	3.391E-01	5.174E-02	-1.033
	227.20			-1.757E-01	2.549E-01	3.771E-01	4.353E-02	-0.466
	248.90			5.296E-01	4.549E-01	8.077E-01	1.929E-01	0.656
	293.70			2.461E-01	3.428E-01	6.033E-01	1.169E-01	0.408
	369.80			-1.498E-01	4.781E-01	7.582E-01	1.719E-01	-0.198
	568.70			-3.757E-02	6.599E-01	1.007E+00	9.631E-02	-0.037
	569.50			-5.943E-02	1.768E-01	2.592E-01	2.478E-02	-0.229
	574.00			-6.935E-01	8.165E-01	1.222E+00	1.163E-01	-0.568
	699.00			9.771E-03	4.304E-01	7.145E-01	1.372E-01	0.014
	706.10			-4.316E-01	6.862E-01	1.003E+00	4.478E-01	-0.430

---- Non-Identified Nuclides ----

	Line Nuclide	Energy Ided (keV)	Activity Key (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		733.00	1.389E-01	2.205E-01	3.894E-01	8.722E-02	0.357
		742.81	5.539E-02	6.271E-01	1.047E+00	7.046E-01	0.053
		796.30	3.091E-01	5.412E-01	9.418E-01	2.578E-01	0.328
		805.60	-3.189E-01	6.182E-01	9.234E-01	2.858E-01	-0.345
		819.60	1.693E-01	6.960E-01	1.175E+00	4.498E-01	0.144
		826.30	-4.060E-01	5.252E-01	6.997E-01	3.147E-01	-0.580
		831.60	1.513E-01	3.014E-01	5.285E-01	1.596E-01	0.286
		876.40	-3.817E-01	5.983E-01	6.167E-01	6.348E-01	-0.619
		880.51	-6.359E-02	1.539E-01	2.315E-01	2.341E-02	-0.275
		883.24	1.530E-01	1.841E-01	2.880E-01	1.942E-01	0.531
		899.00	1.781E-01	4.196E-01	7.208E-01	3.176E-01	0.247
		925.00	-1.873E-01	6.607E-01	1.014E+00	1.024E-01	-0.185
		926.50	2.024E-02	9.769E-02	1.632E-01	4.214E-02	0.124
		946.00 *	-4.552E-02	1.381E-01	2.061E-01	4.005E-02	-0.221
		949.00	2.422E-02	1.852E-01	3.077E-01	3.071E-02	0.079
		980.50	-2.369E-01	3.368E-01	4.494E-01	4.404E-02	-0.527
		1394.10	4.471E-01	7.059E-01	1.211E+00	7.893E-01	0.369
PA-234M		766.42	2.141E+00	6.806E+00	1.117E+01	5.684E+00	0.192
		1001.03 *	-1.022E+00	2.870E+00	4.867E+00	5.296E-01	-0.210
TH-234		63.29 *	-2.357E-01	8.634E-01	1.481E+00	2.615E-01	-0.159
		92.38	-1.996E-01	3.556E-01	6.678E-01	1.237E-01	-0.299
U-234		609.31 *	3.744E-03	4.629E-02	7.553E-02	7.982E-03	0.050
		1120.29	-1.119E-01	1.441E-01	2.044E-01	2.225E-02	-0.548
		1764.49	4.181E-02	1.886E-01	3.380E-01	2.865E-02	0.124
U-235		89.95	-2.933E+00	1.112E+00	7.740E-01	2.415E-01	-3.789
		93.35	-8.176E-01	4.619E-01	7.240E-01	2.048E-01	-1.129
		105.00	-4.617E-01	5.661E-01	8.051E-01	2.404E-01	-0.573
		143.76 *	-2.643E-02	1.280E-01	2.031E-01	3.607E-02	-0.130
		163.35	-1.549E-02	2.934E-01	4.412E-01	8.736E-02	-0.035
		185.71	-3.810E-02	3.475E-02	5.681E-02	6.063E-03	-0.671
		205.31	-9.711E-02	3.102E-01	4.665E-01	9.479E-02	-0.208
NP-236		94.67	-3.583E-01	9.127E-02	1.020E-01	9.496E-03	-3.511
		98.44	-3.461E-02	4.066E-02	6.070E-02	5.474E-03	-0.570
		111.00	9.307E-03	7.029E-02	1.174E-01	9.966E-03	0.079
		160.31 *	-2.728E-02	4.442E-02	6.846E-02	6.809E-03	-0.399
NP-237		86.50 *	-5.060E-02	1.064E-01	1.716E-01	3.926E-02	-0.295
		95.87	-1.031E+00	6.269E-01	7.864E-01	1.954E-01	-1.312
U-238		63.29 *	-2.357E-01	8.634E-01	1.481E+00	2.615E-01	-0.159
		92.38	-1.996E-01	3.542E-01	6.678E-01	6.358E-02	-0.299
NP-239		99.55	-4.591E-02	8.997E-02	1.373E-01	1.229E-02	-0.334
		117.00 *	-2.577E-02	9.338E-02	1.508E-01	1.265E-02	-0.171
		209.75	-2.076E-01	4.118E-01	6.252E-01	6.995E-02	-0.332
		228.18	5.736E-02	1.298E-01	2.130E-01	2.463E-02	0.269
		277.60	4.412E-02	1.048E-01	1.813E-01	2.245E-02	0.243
		334.30	-1.719E-02	7.071E-01	1.170E+00	1.355E-01	-0.015
AM-241		59.54 *	1.477E-02	8.193E-02	1.415E-01	1.159E-02	0.104
AM-243		74.67 *	1.740E-02	2.349E-02	4.159E-02	3.637E-03	0.418
		86.72	-2.108E+00	3.873E+00	6.239E+00	6.175E-01	-0.338
		117.66	2.249E-01	1.809E+00	3.013E+00	2.525E-01	0.075

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	142.18			-1.473E+01	1.092E+01	1.588E+01	1.437E+00	-0.928
	99.55			-4.722E-02	9.254E-02	1.413E-01	1.264E-02	-0.334
	103.76	*		-2.216E-02	5.200E-02	7.932E-02	6.923E-03	-0.279
	117.00			-2.650E-02	9.602E-02	1.551E-01	1.300E-02	-0.171
	209.75			-2.045E-01	4.057E-01	6.160E-01	6.892E-02	-0.332
	228.18			5.793E-02	1.311E-01	2.152E-01	2.488E-02	0.269
AM-246	277.60			4.446E-02	1.056E-01	1.827E-01	2.262E-02	0.243
	798.80			-3.416E-02	8.870E-02	1.377E-01	1.320E-02	-0.248
	1036.00			7.775E-02	1.352E-01	2.499E-01	2.351E-02	0.311
	1062.04			3.085E-02	1.127E-01	1.971E-01	1.812E-02	0.156
	1078.86	*		-3.838E-03	7.722E-02	1.279E-01	1.156E-02	-0.030
	278.00			4.286E-01	4.260E-01	7.646E-01	9.470E-02	0.561
CM-247	287.40			3.069E-01	6.925E-01	1.201E+00	1.481E-01	0.255
	402.60	*		1.330E-02	1.931E-02	3.399E-02	3.410E-03	0.391
CF-249	252.85			-3.550E-01	4.765E-01	7.525E-01	9.035E-02	-0.472
	333.44			-7.910E-02	9.795E-02	1.494E-01	1.733E-02	-0.530
	387.95	*		-1.158E-02	2.252E-02	3.478E-02	3.522E-03	-0.333
CF-251	176.60	*		-3.776E-02	6.920E-02	1.062E-01	1.113E-02	-0.355
	227.00			-1.867E-01	2.244E-01	3.265E-01	3.767E-02	-0.572
	285.00			-2.760E-02	9.669E-01	1.617E+00	1.997E-01	-0.017
ANH-511	511.00	*		-3.643E-02	3.509E-02	6.142E-02	6.089E-03	-0.593

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014513      *
* Acquisition date   : 21-JAN-2010 11:03:34 Detector SN#                   *
* Detector ID        : GAM02                                           Sensitivity      : 5.000      *
* Geometry           : CAN                                           Energy tolerance: 1.500      *
* Elapsed live time  : 0 02:00:00.00                               Abundance limit : 75.000      *
* Elapsed real time  : 0 02:00:01.82                               Half life ratio  : 8.000      *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 14-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202014513 Analyst initials: MXR1                *
* Batch Number       : 941242 Sample Quantity : 1.5195E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                  *
*****
*
*                                     QC DATA                                *
*
* Standard Weight    : 0.00000                                           *
* CALIB. DATE/TIME   : 29-OCT-2009 10:28:07 MS Isotope                   *
* MSD DPM             : 0.000 MSD Isotope                                *
* LCS DPM             : 0.000 LCS Isotope                                *
* LCSD DPM            : 0.000 LCSD Isotope                               *
*****

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## Combined Activity-MDA Report

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )	
BE-7	4.225E-02	1.567E-01	2.768E-01	0.000E+00 NOT IDENT.
NA-22	-1.782E-02	1.969E-02	2.620E-02	0.000E+00 NOT IDENT.
NA-24	0.000E+00	6.426E+01	0.000E+00	0.000E+00 SHORT HLIF
AL-26	1.626E-03	1.903E-02	3.293E-02	0.000E+00 NOT IDENT.
K-40	-1.568E-01	2.502E-01	4.066E-01	0.000E+00 NOT IDENT.
TI-44	1.256E-03	1.424E-02	2.667E-02	0.000E+00 NOT IDENT.
SC-46	-1.536E-02	1.937E-02	2.781E-02	0.000E+00 NOT IDENT.
V-48	-7.510E-03	2.555E-02	4.017E-02	0.000E+00 NOT IDENT.
CR-51	-1.859E-01	1.782E-01	2.839E-01	0.000E+00 NOT IDENT.
MN-52	4.026E-02	4.273E-02	8.822E-02	0.000E+00 NOT IDENT.
MN-54	-1.244E-02	1.685E-02	2.462E-02	0.000E+00 NOT IDENT.
CO-56	5.315E-04	2.382E-02	4.058E-02	0.000E+00 NOT IDENT.
CO-57	-7.460E-03	1.252E-02	2.153E-02	0.000E+00 NOT IDENT.
CO-58	9.614E-04	1.901E-02	3.272E-02	0.000E+00 NOT IDENT.
FE-59	-1.866E-02	3.177E-02	4.740E-02	0.000E+00 NOT IDENT.
CO-60	6.823E-03	1.928E-02	3.503E-02	0.000E+00 NOT IDENT.
ZN-65	-9.467E-03	4.035E-02	6.664E-02	0.000E+00 NOT IDENT.
GE-68	5.173E-01	6.570E-01	1.266E+00	0.000E+00 NOT IDENT.
AS-73	4.509E-02	4.706E-01	9.049E-01	0.000E+00 NOT IDENT.
AS-74	3.233E-02	4.279E-02	8.093E-02	0.000E+00 NOT IDENT.
SE-75	1.021E-02	2.231E-02	4.177E-02	0.000E+00 NOT IDENT.
BR-77	-4.141E-01	5.941E-01	8.992E-01	0.000E+00 NOT IDENT.
SR-82	-1.033E-03	1.769E-01	3.032E-01	0.000E+00 NOT IDENT.
RB-83	-2.450E-02	3.505E-02	5.315E-02	0.000E+00 NOT IDENT.
RB-84	2.658E-03	3.271E-02	5.604E-02	0.000E+00 NOT IDENT.
KR-85	-2.098E+01	6.948E+00	8.327E+00	0.000E+00 NOT IDENT.



SR-85	-9.923E-02	3.287E-02	3.939E-02	0.000E+00	NOT IDENT.
RB-86	2.051E-01	3.279E-01	6.182E-01	0.000E+00	NOT IDENT.
Y-88	-2.599E-03	1.724E-02	2.765E-02	0.000E+00	NOT IDENT.
ZR-88	5.811E-03	1.593E-02	2.880E-02	0.000E+00	NOT IDENT.
Y-91	-5.908E-01	6.576E+00	1.102E+01	0.000E+00	NOT IDENT.
NB-94	1.327E-02	1.947E-02	3.638E-02	0.000E+00	NOT IDENT.
NB-95	6.836E-03	2.317E-02	4.015E-02	0.000E+00	NOT IDENT.
NB-95M	-3.646E-02	6.154E-02	1.077E-01	0.000E+00	NOT IDENT.
ZR-95	-1.619E-02	3.155E-02	4.958E-02	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.401E+01	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	9.159E+02	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-2.177E-01	8.631E-01	1.430E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.413E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	4.332E-04	1.889E-02	3.176E-02	0.000E+00	NOT IDENT.
RH-102	8.653E-03	1.638E-02	2.972E-02	0.000E+00	NOT IDENT.
RU-103	1.370E-03	2.027E-02	3.477E-02	0.000E+00	NOT IDENT.
RH-106	-2.045E-02	1.780E-01	3.085E-01	0.000E+00	NOT IDENT.
RU-106	-2.045E-02	1.780E-01	3.085E-01	0.000E+00	NOT IDENT.
AG-108M	5.279E-03	1.772E-02	3.163E-02	0.000E+00	NOT IDENT.
CD-109	-5.247E-02	3.278E-01	5.985E-01	0.000E+00	NOT IDENT.
AG-110M	-4.769E-03	1.575E-02	2.622E-02	0.000E+00	FAIL ABUN
IN-111	-7.814E-02	7.702E-02	1.267E-01	0.000E+00	NOT IDENT.
IN-113M	6.229E-03	2.343E-02	4.198E-02	0.000E+00	NOT IDENT.
SN-113	6.229E-03	2.343E-02	4.198E-02	0.000E+00	NOT IDENT.
IN-114M	-2.771E-02	8.726E-02	1.473E-01	0.000E+00	NOT IDENT.
CD-115	2.395E-01	5.611E-01	1.000E+00	0.000E+00	NOT IDENT.
SN-117M	-2.651E-03	1.923E-02	3.354E-02	0.000E+00	NOT IDENT.
SB-122	4.827E-02	1.699E-01	3.103E-01	0.000E+00	NOT IDENT.
I-123	0.000E+00	1.823E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	-4.996E-03	1.406E-02	2.407E-02	0.000E+00	NOT IDENT.
I-124	-7.122E-02	1.116E-01	1.827E-01	0.000E+00	NOT IDENT.
SB-124	-2.784E-02	4.892E-02	7.199E-02	0.000E+00	NOT IDENT.
SB-125	5.020E-02	5.430E-02	1.023E-01	0.000E+00	NOT IDENT.
TE-125M	-3.260E+00	4.175E+00	7.139E+00	0.000E+00	NOT IDENT.
I-126	-6.517E-02	6.604E-02	9.960E-02	0.000E+00	NOT IDENT.
SB-126	-1.126E-02	4.584E-02	7.630E-02	0.000E+00	NOT IDENT.
SN-126	-1.018E-02	3.291E-02	5.947E-02	0.000E+00	NOT IDENT.
SB-127	-5.896E-03	1.749E-01	3.027E-01	0.000E+00	NOT IDENT.
XE-127	-5.075E-04	2.180E-02	3.752E-02	0.000E+00	NOT IDENT.
I-131	1.739E-02	3.290E-02	6.074E-02	0.000E+00	NOT IDENT.
TE-132	3.429E-02	7.637E-02	1.349E-01	0.000E+00	NOT IDENT.
BA-133	-1.656E-03	2.597E-02	4.543E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	7.591E+00	0.000E+00	0.000E+00	SHORT HLIF
CS-134	2.380E-02	2.592E-02	4.948E-02	0.000E+00	NOT IDENT.
CS-135	8.630E-04	7.921E-02	1.433E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	1.121E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	3.571E-03	3.235E-02	5.726E-02	0.000E+00	NOT IDENT.
BA-137M	1.192E-02	1.843E-02	3.476E-02	0.000E+00	NOT IDENT.
CS-137	1.260E-02	1.948E-02	3.674E-02	0.000E+00	NOT IDENT.
CE-139	-1.272E-03	1.562E-02	2.726E-02	0.000E+00	NOT IDENT.
BA-140	3.329E-02	8.319E-02	1.477E-01	0.000E+00	NOT IDENT.
LA-140	-2.578E-03	2.936E-02	4.930E-02	0.000E+00	NOT IDENT.
CE-141	-5.707E-03	2.941E-02	5.152E-02	0.000E+00	NOT IDENT.
CE-143	6.654E-01	1.409E+00	2.611E+00	0.000E+00	NOT IDENT.
CE-144	-4.419E-03	9.909E-02	1.766E-01	0.000E+00	NOT IDENT.
PM-144	3.513E-03	1.991E-02	3.528E-02	0.000E+00	NOT IDENT.
PR-144	2.371E-01	1.344E+00	2.381E+00	0.000E+00	NOT IDENT.
PM-146	2.563E-03	2.499E-02	4.341E-02	0.000E+00	NOT IDENT.
ND-147	3.886E-02	2.068E-01	3.300E-01	0.000E+00	NOT IDENT.
PM-149	-9.041E-01	4.543E+00	8.019E+00	0.000E+00	NOT IDENT.
EU-152	7.335E-03	4.854E-02	8.703E-02	0.000E+00	NOT IDENT.
GD-153	-4.877E-02	4.386E-02	7.057E-02	0.000E+00	NOT IDENT.
EU-154	-4.887E-02	5.555E-02	7.444E-02	0.000E+00	NOT IDENT.
EU-155	-3.685E-02	5.394E-02	8.769E-02	0.000E+00	NOT IDENT.
TB-160	4.994E-03	6.492E-02	1.113E-01	0.000E+00	NOT IDENT.
HO-166M	4.014E-04	3.676E-02	6.374E-02	0.000E+00	NOT IDENT.
TM-171	-7.194E+00	1.290E+01	2.333E+01	0.000E+00	NOT IDENT.
LU-176	-5.656E-03	1.318E-02	2.255E-02	0.000E+00	NOT IDENT.
LU-177	-5.814E-03	2.565E-01	4.404E-01	0.000E+00	NOT IDENT.
LU-177M	1.754E-02	1.033E-01	1.821E-01	0.000E+00	NOT IDENT.
HF-181	-7.285E-03	1.919E-02	3.098E-02	0.000E+00	NOT IDENT.
W-181	-4.580E-01	1.895E-01	2.952E-01	0.000E+00	NOT IDENT.
TA-182	-6.322E-02	7.211E-02	9.759E-02	0.000E+00	NOT IDENT.
RE-183	3.719E-02	6.159E-02	1.053E-01	0.000E+00	NOT IDENT.
RE-184	-9.169E-02	1.206E-01	2.048E-01	0.000E+00	NOT IDENT.
OS-185	-2.686E-03	1.885E-02	3.227E-02	0.000E+00	NOT IDENT.
RE-188	-2.838E-02	8.047E-02	1.382E-01	0.000E+00	NOT IDENT.
W-188	-2.575E+00	3.803E+00	6.412E+00	0.000E+00	NOT IDENT.

IR-192	9.544E-04	1.896E-02	3.388E-02	0.000E+00	NOT IDENT.
AU-195	-6.119E-02	1.243E-01	2.095E-01	0.000E+00	NOT IDENT.
TL-200	1.358E-01	1.877E+00	3.317E+00	0.000E+00	NOT IDENT.
TL-201	2.646E-01	6.568E-01	1.186E+00	0.000E+00	NOT IDENT.
TL-202	-1.558E-02	2.474E-02	3.922E-02	0.000E+00	NOT IDENT.
HG-203	1.502E-02	2.028E-02	3.843E-02	0.000E+00	NOT IDENT.
BI-207	-8.500E-03	2.482E-02	4.032E-02	0.000E+00	NOT IDENT.
TL-207	2.979E-01	3.877E-01	7.250E-01	0.000E+00	NOT IDENT.
TL-208	-2.072E-02	2.448E-02	3.648E-02	0.000E+00	NOT IDENT.
PO-209	-1.213E+00	3.486E+00	5.472E+00	0.000E+00	NOT IDENT.
BI-210	7.164E-01	3.327E+00	5.661E+00	0.000E+00	NOT IDENT.
PB-210	7.164E-01	3.327E+00	5.661E+00	0.000E+00	NOT IDENT.
PO-210	7.164E-01	3.326E+00	5.661E+00	0.000E+00	NOT IDENT.
BI-211	-9.244E-02	1.260E-01	2.019E-01	0.000E+00	NOT IDENT.
PB-211	1.553E-02	4.852E-01	8.459E-01	0.000E+00	NOT IDENT.
BI-212	4.345E-02	1.343E-01	2.433E-01	0.000E+00	NOT IDENT.
PB-212	-8.490E-03	3.525E-02	6.291E-02	0.000E+00	NOT IDENT.
PO-212	-8.490E-03	3.525E-02	6.291E-02	0.000E+00	NOT IDENT.
BI-214	3.744E-03	4.537E-02	7.785E-02	0.000E+00	NOT IDENT.
PB-214	-1.455E-02	4.367E-02	7.297E-02	0.000E+00	NOT IDENT.
PO-214	-1.455E-02	4.367E-02	7.297E-02	0.000E+00	NOT IDENT.
PO-215	2.979E-01	3.877E-01	7.250E-01	0.000E+00	NOT IDENT.
PO-216	-8.490E-03	3.525E-02	6.291E-02	0.000E+00	NOT IDENT.
PO-218	-1.455E-02	4.367E-02	7.297E-02	0.000E+00	NOT IDENT.
RN-219	1.044E-01	2.119E-01	3.879E-01	0.000E+00	NOT IDENT.
RN-220	2.437E+00	1.391E+01	2.399E+01	0.000E+00	NOT IDENT.
RA-223	2.979E-01	3.877E-01	7.250E-01	0.000E+00	NOT IDENT.
RA-224	-3.590E-01	3.748E-01	6.211E-01	0.000E+00	NOT IDENT.
RA-226	3.744E-03	4.537E-02	7.785E-02	0.000E+00	NOT IDENT.
AC-227	1.109E-01	2.034E-01	3.830E-01	0.000E+00	NOT IDENT.
TH-227	1.109E-01	2.037E-01	3.830E-01	0.000E+00	NOT IDENT.
AC-228	-1.233E-01	8.400E-02	1.120E-01	0.000E+00	NOT IDENT.
RA-228	-1.233E-01	8.400E-02	1.120E-01	0.000E+00	NOT IDENT.
TH-228	-8.554E-03	3.551E-02	6.338E-02	0.000E+00	NOT IDENT.
TH-229	-3.447E-02	2.692E-01	4.611E-01	0.000E+00	NOT IDENT.
TH-230	3.744E-03	4.537E-02	7.785E-02	0.000E+00	NOT IDENT.
PA-231	-3.520E-03	8.210E-01	1.475E+00	0.000E+00	NOT IDENT.
TH-231	2.979E-01	3.877E-01	7.250E-01	0.000E+00	NOT IDENT.
U-231	-3.304E-01	1.820E-01	2.716E-01	0.000E+00	NOT IDENT.
TH-232	-1.233E-01	8.400E-02	1.120E-01	0.000E+00	NOT IDENT.
PA-233	-8.868E-03	3.524E-02	6.133E-02	0.000E+00	NOT IDENT.
PA-234	-4.552E-02	1.353E-01	2.100E-01	0.000E+00	NOT IDENT.
PA-234M	-1.022E+00	2.813E+00	4.953E+00	0.000E+00	NOT IDENT.
TH-234	-2.357E-01	8.461E-01	1.613E+00	0.000E+00	NOT IDENT.
U-234	3.744E-03	4.537E-02	7.785E-02	0.000E+00	NOT IDENT.
U-235	-2.643E-02	1.255E-01	2.169E-01	0.000E+00	NOT IDENT.
NP-236	-2.728E-02	4.353E-02	7.293E-02	0.000E+00	NOT IDENT.
NP-237	-5.060E-02	1.043E-01	1.855E-01	0.000E+00	NOT IDENT.
U-238	-2.357E-01	8.461E-01	1.613E+00	0.000E+00	NOT IDENT.
NP-239	-2.577E-02	9.151E-02	1.619E-01	0.000E+00	NOT IDENT.
AM-241	1.477E-02	8.029E-02	1.542E-01	0.000E+00	NOT IDENT.
AM-243	1.740E-02	2.302E-02	4.511E-02	0.000E+00	NOT IDENT.
CM-243	-2.216E-02	5.096E-02	8.538E-02	0.000E+00	NOT IDENT.
AM-246	-3.838E-03	7.567E-02	1.298E-01	0.000E+00	NOT IDENT.
CM-247	1.330E-02	1.892E-02	3.541E-02	0.000E+00	NOT IDENT.
CF-249	-1.158E-02	2.207E-02	3.626E-02	0.000E+00	NOT IDENT.
CF-251	-3.776E-02	6.781E-02	1.129E-01	0.000E+00	NOT IDENT.
ANH-511	-3.643E-02	3.438E-02	6.359E-02	0.000E+00	NOT IDENT.

```
*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                     *
*****
Configuration      : DKAl00:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014513.CNF;1
Sample date        : 14-JAN-2010 00:00:00 Acquisition date : 21-JAN-2010 11:03:34
Sample ID          : G1202014513 Sample quantity : 1.51950E+02 GRAM
Detector name      : GAM02 Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00 Elapsed real time: 0 02:00:01.82 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 941242 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****
```

Nuclide Line Activity Report

Flag: "\*" = Keyline

Summary of Nuclide Activity  
Sample ID : G1202014513

Page : 2  
Acquisition date : 21-JAN-2010 11:03:34

Total number of lines in spectrum 1  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 1 100.00%  
\*\*\*\* There are no nuclides meeting summary criteria \*\*\*\*

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202014513

Page : 3  
Acquisition date : 21-JAN-2010 11:03:34

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	937.87	14	5	0.63	1875.96	1871	10	1.93E-03	80.8	1.53E+00	T

Flags: "T" = Tentatively associated

```

*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
*                               DETECTOR DATA                               *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014513.CNF;1
* Acquisition date   : 21-JAN-2010 11:03:34   Detector SN#      :
* Detector ID        : GAM02                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 02:00:01.82          Half life ratio  : 8.00000
*****
*                               SAMPLE DATA                               *
*
* Sample date        : 14-JAN-2010 00:00:00   Nuclide Library : SOLID
* Sample ID          : G1202014513           Analyst initials: MXR1
* Batch Number       : 941242                Sample Quantity  : 1.51950E+02 GRAM
*****
*                               QC DATA                               *
*
* CALIB. DATE/TIME   : 29-OCT-2009 10:28:07.3MS Isotope      :
* MSD ID              :                      MSD Isotope      :
* LCS ID              : 1032-A               LCS Isotope      :
*****

```

## Combined Activity-MDA Report

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	4.225E-02		1.599E-01	2.668E-01	2.830E-02	0.158
NA-22	-1.782E-02		2.009E-02	2.591E-02	2.297E-03	-0.688
NA-24	-1.372E-06		3.278E-05	Half-Life too short		
AL-26	1.626E-03		1.942E-02	3.287E-02	2.721E-03	0.049
K-40	-1.568E-01		2.554E-01	4.036E-01	3.836E-02	-0.389
TI-44	1.256E-03		1.453E-02	2.462E-02	2.229E-03	0.051
SC-46	-1.536E-02		1.977E-02	2.725E-02	2.770E-03	-0.564
V-48	-7.510E-03		2.607E-02	3.946E-02	3.859E-03	-0.190
CR-51	-1.859E-01		1.818E-01	2.710E-01	3.306E-02	-0.686
MN-52	4.026E-02		4.360E-02	8.753E-02	8.142E-03	0.460
MN-54	-1.244E-02		1.719E-02	2.409E-02	2.366E-03	-0.517
CO-56	5.315E-04		2.430E-02	3.971E-02	3.931E-03	0.013
CO-57	-7.460E-03		1.278E-02	2.008E-02	1.679E-03	-0.371
CO-58	9.614E-04		1.940E-02	3.198E-02	3.097E-03	0.030
FE-59	-1.866E-02		3.242E-02	4.670E-02	4.452E-03	-0.400
CO-60	6.823E-03		1.967E-02	3.468E-02	3.231E-03	0.197
ZN-65	-9.467E-03		4.117E-02	6.567E-02	5.713E-03	-0.144

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
GE-68	5.173E-01		6.704E-01	1.247E+00	1.129E-01	0.415
AS-73	4.509E-02		4.802E-01	8.279E-01	6.853E-02	0.054
AS-74	3.233E-02		4.366E-02	7.847E-02	7.327E-03	0.412
SE-75	1.021E-02		2.276E-02	3.969E-02	4.851E-03	0.257
BR-77	-4.141E-01		6.062E-01	8.689E-01	8.574E-02	-0.477
SR-82	-1.033E-03		1.805E-01	2.960E-01	2.793E-02	-0.003
RB-83	-2.450E-02		3.577E-02	5.135E-02	5.068E-03	-0.477
RB-84	2.658E-03		3.337E-02	5.489E-02	5.555E-03	0.048
KR-85	-2.098E+01		7.090E+00	8.044E+00	7.962E-01	-2.608
SR-85	-9.923E-02		3.354E-02	3.805E-02	3.767E-03	-2.608
RB-86	2.051E-01		3.346E-01	6.086E-01	5.517E-02	0.337
Y-88	-2.599E-03		1.760E-02	2.762E-02	2.253E-03	-0.094
ZR-88	5.811E-03		1.625E-02	2.763E-02	2.765E-03	0.210
Y-91	-5.908E-01		6.710E+00	1.088E+01	9.034E-01	-0.054
NB-94	1.327E-02		1.987E-02	3.542E-02	3.158E-03	0.375
NB-95	6.836E-03		2.364E-02	3.918E-02	3.668E-03	0.174
NB-95M	-3.646E-02		6.279E-02	1.021E-01	1.291E-02	-0.357
ZR-95	-1.619E-02		3.220E-02	4.837E-02	4.891E-03	-0.335
NB-97	-6.657E-06		1.225E-05	Half-Life	too short	
ZR-97	-1.867E-03		4.673E-04	Half-Life	too short	
MO-99	-2.177E-01		8.807E-01	1.394E+00	2.163E-01	-0.156
TC-99M	-6.099E+00		7.209E+00	Half-Life	too short	
RH-101	4.332E-04		1.927E-02	2.997E-02	3.278E-03	0.014
RH-102	8.653E-03		1.672E-02	2.865E-02	2.875E-03	0.302
RU-103	1.370E-03		2.068E-02	3.356E-02	5.040E-03	0.041
RH-106	-2.045E-02		1.817E-01	2.994E-01	4.090E-02	-0.068
RU-106	-2.045E-02		1.817E-01	2.994E-01	2.719E-02	-0.068
AG-108M	5.279E-03		1.808E-02	3.042E-02	3.154E-03	0.174
CD-109	-5.247E-02		3.345E-01	5.540E-01	5.563E-02	-0.095
AG-110M	-4.769E-03		1.607E-02	2.549E-02	2.273E-03	-0.187
IN-111	-7.814E-02		7.859E-02	1.202E-01	1.428E-02	-0.650
IN-113M	6.229E-03		2.391E-02	4.028E-02	4.121E-03	0.155
SN-113	6.229E-03		2.391E-02	4.028E-02	4.121E-03	0.155
IN-114M	-2.771E-02		8.904E-02	1.389E-01	1.496E-02	-0.200
CD-115	2.395E-01		5.725E-01	9.670E-01	9.506E-02	0.248
SN-117M	-2.651E-03		1.963E-02	3.148E-02	3.101E-03	-0.084
SB-122	4.827E-02		1.734E-01	3.005E-01	2.885E-02	0.161
I-123	-6.477E-05		9.300E-05	Half-Life	too short	
TE-123M	-4.996E-03		1.435E-02	2.259E-02	2.242E-03	-0.221
I-124	-7.222E-02		1.139E-01	1.772E-01	1.643E-02	-0.408
SB-124	-2.784E-02		4.992E-02	7.173E-02	6.524E-03	-0.388
SB-125	5.020E-02		5.541E-02	9.840E-02	1.005E-02	0.510
TE-125M	-3.260E+00		4.260E+00	6.641E+00	6.800E-01	-0.491
I-126	-6.517E-02		6.739E-02	9.685E-02	8.377E-03	-0.673
SB-126	-1.126E-02		4.677E-02	7.435E-02	6.724E-03	-0.151
SN-126	-1.018E-02		3.358E-02	5.504E-02	5.501E-03	-0.185
SB-127	-5.896E-03		1.785E-01	2.945E-01	2.864E-02	-0.020
XE-127	-5.075E-04		2.225E-02	3.542E-02	3.911E-03	-0.014

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
I-131	1.739E-02		3.358E-02	5.817E-02	6.506E-03	0.299
TE-132	3.429E-02		7.793E-02	1.278E-01	2.113E-02	0.268
BA-133	-1.656E-03		2.650E-02	4.348E-02	6.486E-03	-0.038
I-133	3.460E-06		3.873E-06	Half-Life	too short	
CS-134	2.380E-02		2.645E-02	4.834E-02	4.651E-03	0.492
CS-135	8.630E-04		8.083E-02	1.362E-01	1.801E-02	0.006
I-135	-2.338E+00		5.719E+00	Half-Life	too short	
CS-136	3.571E-03		3.301E-02	5.634E-02	5.435E-03	0.063
BA-137M	1.192E-02		1.880E-02	3.379E-02	2.911E-03	0.353
CS-137	1.260E-02		1.987E-02	3.572E-02	3.083E-03	0.353
CE-139	-1.272E-03		1.594E-02	2.561E-02	2.627E-03	-0.050
BA-140	3.329E-02		8.489E-02	1.428E-01	4.779E-02	0.233
LA-140	-2.578E-03		2.996E-02	4.905E-02	4.436E-03	-0.053
CE-141	-5.707E-03		3.001E-02	4.825E-02	4.507E-03	-0.118
CE-143	6.654E-01		1.437E+00	2.487E+00	5.748E-01	0.268
CE-144	-4.419E-03		1.011E-01	1.651E-01	2.577E-02	-0.027
PM-144	3.513E-03		2.032E-02	3.435E-02	3.048E-03	0.102
PR-144	2.371E-01		1.371E+00	2.318E+00	2.057E-01	0.102
PM-146	2.563E-03		2.550E-02	4.181E-02	4.982E-03	0.061
ND-147	3.886E-02		2.111E-01	3.191E-01	4.999E-02	0.122
PM-149	-9.041E-01		4.636E+00	7.634E+00	1.363E+00	-0.118
EU-152	7.335E-03		4.953E-02	8.324E-02	9.785E-03	0.088
GD-153	-4.877E-02		4.476E-02	6.547E-02	5.950E-03	-0.745
EU-154	-4.887E-02		5.668E-02	7.362E-02	8.461E-03	-0.664
EU-155	-3.685E-02		5.505E-02	8.150E-02	7.146E-03	-0.452
TB-160	4.994E-03		6.624E-02	1.090E-01	1.102E-02	0.046
HO-166M	4.014E-04		3.751E-02	6.209E-02	5.576E-03	0.006
TM-171	-7.194E+00		1.316E+01	2.146E+01	1.753E+00	-0.335
LU-176	-5.656E-03		1.345E-02	2.150E-02	2.598E-03	-0.263
LU-177	-5.814E-03		2.617E-01	4.160E-01	4.642E-02	-0.014
LU-177M	1.754E-02		1.054E-01	1.750E-01	1.759E-02	0.100
HF-181	-7.285E-03		1.959E-02	2.988E-02	2.992E-03	-0.244
W-181	-4.580E-01		1.934E-01	2.713E-01	2.186E-02	-1.688
TA-182	-6.322E-02		7.358E-02	9.640E-02	8.132E-03	-0.656
RE-183	3.719E-02		6.285E-02	9.891E-02	9.947E-03	0.376
RE-184	-9.169E-02		1.231E-01	1.943E-01	2.333E-02	-0.472
OS-185	-2.686E-03		1.923E-02	3.135E-02	2.762E-03	-0.086
RE-188	-2.838E-02		8.211E-02	1.296E-01	1.252E-02	-0.219
W-188	-2.575E+00		3.881E+00	6.106E+00	7.505E-01	-0.422
IR-192	9.544E-04		1.934E-02	3.233E-02	3.861E-03	0.030
AU-195	-6.119E-02		1.268E-01	1.944E-01	1.747E-02	-0.315
TL-200	1.358E-01		1.915E+00	3.177E+00	3.414E-01	0.043
TL-201	2.646E-01		6.702E-01	1.115E+00	1.147E-01	0.237
TL-202	-1.558E-02		2.524E-02	3.774E-02	3.802E-03	-0.413
HG-203	1.502E-02		2.070E-02	3.656E-02	4.597E-03	0.411
BI-207	-8.500E-03		2.533E-02	3.968E-02	3.643E-03	-0.214
TL-207	2.979E-01		3.956E-01	6.923E-01	1.346E-01	0.430
TL-208	-2.072E-02		2.498E-02	3.535E-02	3.541E-03	-0.586



----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-209	-1.213E+00		3.557E+00	5.362E+00	5.475E-01	-0.226
BI-210	7.164E-01		3.394E+00	5.163E+00	4.947E-01	0.139
PB-210	7.164E-01		3.394E+00	5.163E+00	4.947E-01	0.139
PO-210	7.164E-01		3.394E+00	5.163E+00	4.507E-01	0.139
BI-211	-9.244E-02		1.286E-01	1.932E-01	2.229E-02	-0.478
PB-211	1.553E-02		4.951E-01	8.122E-01	5.107E-01	0.019
BI-212	4.345E-02		1.371E-01	2.371E-01	2.470E-02	0.183
PB-212	-8.490E-03		3.597E-02	5.963E-02	7.504E-03	-0.142
PO-212	-8.490E-03		3.597E-02	5.963E-02	7.504E-03	-0.142
BI-214	3.744E-03		4.629E-02	7.553E-02	7.982E-03	0.050
PB-214	-1.455E-02		4.456E-02	6.982E-02	8.828E-03	-0.208
PO-214	-1.455E-02		4.456E-02	6.982E-02	8.828E-03	-0.208
PO-215	2.979E-01		3.956E-01	6.923E-01	1.346E-01	0.430
PO-216	-8.490E-03		3.597E-02	5.963E-02	7.504E-03	-0.142
PO-218	-1.455E-02		4.456E-02	6.982E-02	8.828E-03	-0.208
RN-219	1.044E-01		2.163E-01	3.724E-01	5.913E-02	0.280
RN-220	2.437E+00		1.420E+01	2.321E+01	2.252E+00	0.105
RA-223	2.979E-01		3.956E-01	6.923E-01	1.346E-01	0.430
RA-224	-3.590E-01		3.825E-01	5.888E-01	6.948E-02	-0.610
RA-226	3.744E-03		4.629E-02	7.553E-02	7.982E-03	0.050
AC-227	1.109E-01		2.076E-01	3.636E-01	6.369E-02	0.305
TH-227	1.109E-01		2.079E-01	3.636E-01	7.250E-02	0.305
AC-228	-1.233E-01		8.572E-02	1.098E-01	1.370E-02	-1.123
RA-228	-1.233E-01		8.572E-02	1.098E-01	1.370E-02	-1.123
TH-228	-8.554E-03		3.624E-02	6.007E-02	7.560E-03	-0.142
TH-229	-3.447E-02		2.747E-01	4.348E-01	4.715E-02	-0.079
TH-230	3.744E-03		4.629E-02	7.553E-02	7.982E-03	0.050
PA-231	-3.520E-03		8.377E-01	1.404E+00	2.469E-01	-0.003
TH-231	2.979E-01		3.956E-01	6.923E-01	1.346E-01	0.430
U-231	-3.304E-01		1.858E-01	2.519E-01	2.319E-02	-1.312
TH-232	-1.233E-01		8.572E-02	1.098E-01	1.370E-02	-1.123
PA-233	-8.868E-03		3.596E-02	5.851E-02	7.126E-03	-0.152
PA-234	-4.552E-02		1.381E-01	2.061E-01	4.005E-02	-0.221
PA-234M	-1.022E+00		2.870E+00	4.867E+00	5.296E-01	-0.210
TH-234	-2.357E-01		8.634E-01	1.481E+00	2.615E-01	-0.159
U-234	3.744E-03		4.629E-02	7.553E-02	7.982E-03	0.050
U-235	-2.643E-02		1.280E-01	2.031E-01	3.607E-02	-0.130
NP-236	-2.728E-02		4.442E-02	6.846E-02	6.809E-03	-0.399
NP-237	-5.060E-02		1.064E-01	1.716E-01	3.926E-02	-0.295
U-238	-2.357E-01		8.634E-01	1.481E+00	2.615E-01	-0.159
NP-239	-2.577E-02		9.338E-02	1.508E-01	1.265E-02	-0.171
AM-241	1.477E-02		8.193E-02	1.415E-01	1.159E-02	0.104
AM-243	1.740E-02		2.349E-02	4.159E-02	3.637E-03	0.418
CM-243	-2.216E-02		5.200E-02	7.932E-02	6.923E-03	-0.279
AM-246	-3.838E-03		7.722E-02	1.279E-01	1.156E-02	-0.030
CM-247	1.330E-02		1.931E-02	3.399E-02	3.410E-03	0.391
CF-249	-1.158E-02		2.252E-02	3.478E-02	3.522E-03	-0.333
CF-251	-3.776E-02		6.920E-02	1.062E-01	1.113E-02	-0.355

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	-3.643E-02		3.509E-02	6.142E-02	6.089E-03	-0.593

## VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202014513          *
* Acquisition date   : 21-JAN-2010 11:03:34 Detector SN# :                   *
* Detector ID        : GAM02 Sensitivity      : 5.000                       *
* Geometry           : CAN Energy tolerance: 1.500                       *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000             *
* Elapsed real time  : 0 02:00:01.82 Half life ratio : 8.000             *
*****
*                                     SAMPLE DATA                            *
*
* Sample date       : 14-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID         : G1202014513 Analyst initials: MXR1                 *
* Batch Number      : 941242 Sample Quantity : 1.5195E+02 GRAM          *
* Recovery          : 1.00000 Carrier Weight : 0.00000                  *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME  : 29-OCT-2009 10:28:07 MS Isotope :                   *
* MSD DPM           : 0.000 MSD Isotope :                               *
* LCS DPM           : 0.000 LCS Isotope :                               *
* LCSD DPM          : 0.000 LCSD Isotope :                               *
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## Combined Activity-MDA Report

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act Error	DLC (pCi/GRAM )	TPU	
---- Non-Identified Nuclides ----					
Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU	
BE-7	4.225E-02	1.567E-01	1.385E-01	7.997E-02	NOT IDENT.
NA-22	-1.782E-02	1.969E-02	1.311E-02	1.005E-02	NOT IDENT.
NA-24	-1.372E+00	6.426E+01	0.000E+00	3.278E+01	SHORT HLIF
AL-26	1.626E-03	1.903E-02	1.647E-02	9.709E-03	NOT IDENT.
K-40	-1.568E-01	2.502E-01	2.034E-01	1.277E-01	NOT IDENT.
TI-44	1.256E-03	1.424E-02	1.334E-02	7.263E-03	NOT IDENT.
SC-46	-1.536E-02	1.937E-02	1.391E-02	9.884E-03	NOT IDENT.
V-48	-7.510E-03	2.555E-02	2.010E-02	1.304E-02	NOT IDENT.
CR-51	-1.859E-01	1.782E-01	1.420E-01	9.090E-02	NOT IDENT.
MN-52	4.026E-02	4.273E-02	4.414E-02	2.180E-02	NOT IDENT.
MN-54	-1.244E-02	1.685E-02	1.232E-02	8.597E-03	NOT IDENT.
CO-56	5.315E-04	2.382E-02	2.030E-02	1.215E-02	NOT IDENT.
CO-57	-7.460E-03	1.252E-02	1.077E-02	6.388E-03	NOT IDENT.
CO-58	9.614E-04	1.901E-02	1.637E-02	9.700E-03	NOT IDENT.
FE-59	-1.866E-02	3.177E-02	2.371E-02	1.621E-02	NOT IDENT.
CO-60	6.823E-03	1.928E-02	1.752E-02	9.835E-03	NOT IDENT.
ZN-65	-9.467E-03	4.035E-02	3.334E-02	2.059E-02	NOT IDENT.
GE-68	5.173E-01	6.570E-01	6.335E-01	3.352E-01	NOT IDENT.
AS-73	4.509E-02	4.706E-01	4.527E-01	2.401E-01	NOT IDENT.
AS-74	3.233E-02	4.279E-02	4.049E-02	2.183E-02	NOT IDENT.
SE-75	1.021E-02	2.231E-02	2.090E-02	1.138E-02	NOT IDENT.
BR-77	-4.141E-01	5.941E-01	4.499E-01	3.031E-01	NOT IDENT.
SR-82	-1.033E-03	1.769E-01	1.517E-01	9.025E-02	NOT IDENT.
RB-83	-2.450E-02	3.505E-02	2.659E-02	1.788E-02	NOT IDENT.
RB-84	2.658E-03	3.271E-02	2.804E-02	1.669E-02	NOT IDENT.
KR-85	-2.098E+01	6.948E+00	4.166E+00	3.545E+00	NOT IDENT.

SR-85	-9.923E-02	3.287E-02	1.971E-02	1.677E-02	NOT IDENT.
RB-86	2.051E-01	3.279E-01	3.093E-01	1.673E-01	NOT IDENT.
Y-88	-2.599E-03	1.724E-02	1.383E-02	8.798E-03	NOT IDENT.
ZR-88	5.811E-03	1.593E-02	1.441E-02	8.126E-03	NOT IDENT.
Y-91	-5.908E-01	6.576E+00	5.511E+00	3.355E+00	NOT IDENT.
NB-94	1.327E-02	1.947E-02	1.820E-02	9.934E-03	NOT IDENT.
NB-95	6.836E-03	2.317E-02	2.008E-02	1.182E-02	NOT IDENT.
NB-95M	-3.646E-02	6.154E-02	5.389E-02	3.140E-02	NOT IDENT.
ZR-95	-1.619E-02	3.155E-02	2.480E-02	1.610E-02	NOT IDENT.
NB-97	-6.657E+00	2.401E+01	0.000E+00	1.225E+01	SHORT HLIF
ZR-97	-1.867E+03	9.159E+02	0.000E+00	4.673E+02	SHORT HLIF
MO-99	-2.177E-01	8.631E-01	7.155E-01	4.403E-01	NOT IDENT.
TC-99M	-6.099E+06	1.413E+07	0.000E+00	7.209E+06	SHORT HLIF
RH-101	4.332E-04	1.889E-02	1.589E-02	9.635E-03	NOT IDENT.
RH-102	8.653E-03	1.638E-02	1.487E-02	8.359E-03	NOT IDENT.
RU-103	1.370E-03	2.027E-02	1.739E-02	1.034E-02	NOT IDENT.
RH-106	-2.045E-02	1.780E-01	1.543E-01	9.084E-02	NOT IDENT.
RU-106	-2.045E-02	1.780E-01	1.543E-01	9.083E-02	NOT IDENT.
AG-108M	5.279E-03	1.772E-02	1.582E-02	9.042E-03	NOT IDENT.
CD-109	-5.247E-02	3.278E-01	2.994E-01	1.672E-01	NOT IDENT.
AG-110M	-4.769E-03	1.575E-02	1.312E-02	8.034E-03	FAIL ABUN
IN-111	-7.814E-02	7.702E-02	6.340E-02	3.929E-02	NOT IDENT.
IN-113M	6.229E-03	2.343E-02	2.100E-02	1.196E-02	NOT IDENT.
SN-113	6.229E-03	2.343E-02	2.100E-02	1.196E-02	NOT IDENT.
IN-114M	-2.771E-02	8.726E-02	7.371E-02	4.452E-02	NOT IDENT.
CD-115	2.395E-01	5.611E-01	5.005E-01	2.863E-01	NOT IDENT.
SN-117M	-2.651E-03	1.923E-02	1.678E-02	9.813E-03	NOT IDENT.
SB-122	4.827E-02	1.699E-01	1.552E-01	8.671E-02	NOT IDENT.
I-123	-6.477E+01	1.823E+02	0.000E+00	9.300E+01	SHORT HLIF
TE-123M	-4.996E-03	1.406E-02	1.204E-02	7.173E-03	NOT IDENT.
I-124	-7.222E-02	1.116E-01	9.140E-02	5.695E-02	NOT IDENT.
SB-124	-2.784E-02	4.892E-02	3.601E-02	2.496E-02	NOT IDENT.
SB-125	5.020E-02	5.430E-02	5.120E-02	2.770E-02	NOT IDENT.
TE-125M	-3.260E+00	4.175E+00	3.571E+00	2.130E+00	NOT IDENT.
I-126	-6.517E-02	6.604E-02	4.983E-02	3.369E-02	NOT IDENT.
SB-126	-1.126E-02	4.584E-02	3.817E-02	2.339E-02	NOT IDENT.
SN-126	-1.018E-02	3.291E-02	2.975E-02	1.679E-02	NOT IDENT.
SB-127	-5.896E-03	1.749E-01	1.514E-01	8.923E-02	NOT IDENT.
XE-127	-5.075E-04	2.180E-02	1.877E-02	1.112E-02	NOT IDENT.
I-131	1.739E-02	3.290E-02	3.039E-02	1.679E-02	NOT IDENT.
TE-132	3.429E-02	7.637E-02	6.751E-02	3.896E-02	NOT IDENT.
BA-133	-1.656E-03	2.597E-02	2.273E-02	1.325E-02	NOT IDENT.
I-133	3.460E+00	7.591E+00	0.000E+00	3.873E+00	SHORT HLIF
CS-134	2.380E-02	2.592E-02	2.476E-02	1.322E-02	NOT IDENT.
CS-135	8.630E-04	7.921E-02	7.167E-02	4.042E-02	NOT IDENT.
I-135	-2.338E+06	1.121E+07	0.000E+00	5.719E+06	SHORT HLIF
CS-136	3.571E-03	3.235E-02	2.865E-02	1.650E-02	NOT IDENT.
BA-137M	1.192E-02	1.843E-02	1.739E-02	9.401E-03	NOT IDENT.
CS-137	1.260E-02	1.948E-02	1.838E-02	9.937E-03	NOT IDENT.
CE-139	-1.272E-03	1.562E-02	1.364E-02	7.969E-03	NOT IDENT.
BA-140	3.329E-02	8.319E-02	7.389E-02	4.245E-02	NOT IDENT.
LA-140	-2.578E-03	2.936E-02	2.466E-02	1.498E-02	NOT IDENT.
CE-141	-5.707E-03	2.941E-02	2.577E-02	1.500E-02	NOT IDENT.
CE-143	6.654E-01	1.409E+00	1.306E+00	7.187E-01	NOT IDENT.
CE-144	-4.419E-03	9.909E-02	8.835E-02	5.055E-02	NOT IDENT.
PM-144	3.513E-03	1.991E-02	1.765E-02	1.016E-02	NOT IDENT.
PR-144	2.371E-01	1.344E+00	1.191E+00	6.857E-01	NOT IDENT.
PM-146	2.563E-03	2.499E-02	2.172E-02	1.275E-02	NOT IDENT.
ND-147	3.886E-02	2.068E-01	1.651E-01	1.055E-01	NOT IDENT.
PM-149	-9.041E-01	4.543E+00	4.012E+00	2.318E+00	NOT IDENT.
EU-152	7.335E-03	4.854E-02	4.354E-02	2.476E-02	NOT IDENT.
GD-153	-4.877E-02	4.386E-02	3.531E-02	2.238E-02	NOT IDENT.
EU-154	-4.887E-02	5.555E-02	3.724E-02	2.834E-02	NOT IDENT.
EU-155	-3.685E-02	5.394E-02	4.387E-02	2.752E-02	NOT IDENT.
TB-160	4.994E-03	6.492E-02	5.569E-02	3.312E-02	NOT IDENT.
HO-166M	4.014E-04	3.676E-02	3.189E-02	1.875E-02	NOT IDENT.
TM-171	-7.194E+00	1.290E+01	1.167E+01	6.582E+00	NOT IDENT.
LU-176	-5.656E-03	1.318E-02	1.128E-02	6.725E-03	NOT IDENT.
LU-177	-5.814E-03	2.565E-01	2.203E-01	1.309E-01	NOT IDENT.
LU-177M	1.754E-02	1.033E-01	9.112E-02	5.272E-02	NOT IDENT.
HF-181	-7.285E-03	1.919E-02	1.550E-02	9.793E-03	NOT IDENT.
W-181	-4.580E-01	1.895E-01	1.477E-01	9.668E-02	NOT IDENT.
TA-182	-6.322E-02	7.211E-02	4.882E-02	3.679E-02	NOT IDENT.
RE-183	3.719E-02	6.159E-02	5.270E-02	3.142E-02	NOT IDENT.
RE-184	-9.169E-02	1.206E-01	1.024E-01	6.153E-02	NOT IDENT.
OS-185	-2.686E-03	1.885E-02	1.614E-02	9.616E-03	NOT IDENT.
RE-188	-2.838E-02	8.047E-02	6.912E-02	4.106E-02	NOT IDENT.
W-188	-2.575E+00	3.803E+00	3.208E+00	1.940E+00	NOT IDENT.

IR-192	9.544E-04	1.896E-02	1.695E-02	9.672E-03	NOT IDENT.
AU-195	-6.119E-02	1.243E-01	1.048E-01	6.341E-02	NOT IDENT.
TL-200	1.358E-01	1.877E+00	1.660E+00	9.576E-01	NOT IDENT.
TL-201	2.646E-01	6.568E-01	5.934E-01	3.351E-01	NOT IDENT.
TL-202	-1.558E-02	2.474E-02	1.962E-02	1.262E-02	NOT IDENT.
HG-203	1.502E-02	2.028E-02	1.923E-02	1.035E-02	NOT IDENT.
BI-207	-8.500E-03	2.482E-02	2.017E-02	1.266E-02	NOT IDENT.
TL-207	2.979E-01	3.877E-01	3.627E-01	1.978E-01	NOT IDENT.
TL-208	-2.072E-02	2.448E-02	1.825E-02	1.249E-02	NOT IDENT.
PO-209	-1.213E+00	3.486E+00	2.738E+00	1.778E+00	NOT IDENT.
BI-210	7.164E-01	3.327E+00	2.832E+00	1.697E+00	NOT IDENT.
PB-210	7.164E-01	3.327E+00	2.832E+00	1.697E+00	NOT IDENT.
PO-210	7.164E-01	3.326E+00	2.832E+00	1.697E+00	NOT IDENT.
BI-211	-9.244E-02	1.260E-01	1.010E-01	6.428E-02	NOT IDENT.
PB-211	1.553E-02	4.852E-01	4.232E-01	2.475E-01	NOT IDENT.
BI-212	4.345E-02	1.343E-01	1.217E-01	6.853E-02	NOT IDENT.
PB-212	-8.490E-03	3.525E-02	3.148E-02	1.798E-02	NOT IDENT.
PO-212	-8.490E-03	3.525E-02	3.148E-02	1.798E-02	NOT IDENT.
BI-214	3.744E-03	4.537E-02	3.895E-02	2.315E-02	NOT IDENT.
PB-214	-1.455E-02	4.367E-02	3.651E-02	2.228E-02	NOT IDENT.
PO-214	-1.455E-02	4.367E-02	3.651E-02	2.228E-02	NOT IDENT.
PO-215	2.979E-01	3.877E-01	3.627E-01	1.978E-01	NOT IDENT.
PO-216	-8.490E-03	3.525E-02	3.148E-02	1.798E-02	NOT IDENT.
PO-218	-1.455E-02	4.367E-02	3.651E-02	2.228E-02	NOT IDENT.
RN-219	1.044E-01	2.119E-01	1.941E-01	1.081E-01	NOT IDENT.
RN-220	2.437E+00	1.391E+01	1.200E+01	7.098E+00	NOT IDENT.
RA-223	2.979E-01	3.877E-01	3.627E-01	1.978E-01	NOT IDENT.
RA-224	-3.590E-01	3.748E-01	3.107E-01	1.912E-01	NOT IDENT.
RA-226	3.744E-03	4.537E-02	3.895E-02	2.315E-02	NOT IDENT.
AC-227	1.109E-01	2.034E-01	1.916E-01	1.038E-01	NOT IDENT.
TH-227	1.109E-01	2.037E-01	1.916E-01	1.039E-01	NOT IDENT.
AC-228	-1.233E-01	8.400E-02	5.606E-02	4.286E-02	NOT IDENT.
RA-228	-1.233E-01	8.400E-02	5.606E-02	4.286E-02	NOT IDENT.
TH-228	-8.554E-03	3.551E-02	3.171E-02	1.812E-02	NOT IDENT.
TH-229	-3.447E-02	2.692E-01	2.307E-01	1.373E-01	NOT IDENT.
TH-230	3.744E-03	4.537E-02	3.895E-02	2.315E-02	NOT IDENT.
PA-231	-3.520E-03	8.210E-01	7.381E-01	4.189E-01	NOT IDENT.
TH-231	2.979E-01	3.877E-01	3.627E-01	1.978E-01	NOT IDENT.
U-231	-3.304E-01	1.820E-01	1.359E-01	9.288E-02	NOT IDENT.
TH-232	-1.233E-01	8.400E-02	5.606E-02	4.286E-02	NOT IDENT.
PA-233	-8.868E-03	3.524E-02	3.068E-02	1.798E-02	NOT IDENT.
PA-234	-4.552E-02	1.353E-01	1.051E-01	6.903E-02	NOT IDENT.
PA-234M	-1.022E+00	2.813E+00	2.478E+00	1.435E+00	NOT IDENT.
TH-234	-2.357E-01	8.461E-01	8.069E-01	4.317E-01	NOT IDENT.
U-234	3.744E-03	4.537E-02	3.895E-02	2.315E-02	NOT IDENT.
U-235	-2.643E-02	1.255E-01	1.085E-01	6.402E-02	NOT IDENT.
NP-236	-2.728E-02	4.353E-02	3.649E-02	2.221E-02	NOT IDENT.
NP-237	-5.060E-02	1.043E-01	9.281E-02	5.320E-02	NOT IDENT.
U-238	-2.357E-01	8.461E-01	8.069E-01	4.317E-01	NOT IDENT.
NP-239	-2.577E-02	9.151E-02	8.098E-02	4.669E-02	NOT IDENT.
AM-241	1.477E-02	8.029E-02	7.715E-02	4.096E-02	NOT IDENT.
AM-243	1.740E-02	2.302E-02	2.257E-02	1.174E-02	NOT IDENT.
CM-243	-2.216E-02	5.096E-02	4.271E-02	2.600E-02	NOT IDENT.
AM-246	-3.838E-03	7.567E-02	6.496E-02	3.861E-02	NOT IDENT.
CM-247	1.330E-02	1.892E-02	1.771E-02	9.654E-03	NOT IDENT.
CF-249	-1.158E-02	2.207E-02	1.814E-02	1.126E-02	NOT IDENT.
CF-251	-3.776E-02	6.781E-02	5.648E-02	3.460E-02	NOT IDENT.
ANH-511	-3.643E-02	3.438E-02	3.182E-02	1.754E-02	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON ,SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
46.50	74.0224
46.50	74.0224
46.50	74.0224
48.70	75.8491
49.72	92.3416
51.35	69.4349
52.39	73.8760
52.97	62.2433
53.15	62.2804
53.44	74.1343
54.07	70.9111
56.28	79.9207
56.28	79.9214
57.37	81.0508
57.53	68.2876
57.53	68.2880
57.60	68.3026
57.98	66.6742
57.98	66.6742
59.32	73.8185
59.32	73.8185
59.40	81.5638
59.54	78.1631
59.72	78.2061
60.01	112.6821
61.10	150.1649
61.14	150.1831
61.30	150.2552
63.00	78.1126
63.29	78.1793
63.29	78.1793
63.58	77.3765
64.28	86.2467
65.12	148.4612
65.20	148.4956
65.20	148.4956
66.05	122.5890
66.72	93.8710
66.83	93.9009
66.91	84.2666
67.20	82.5789
67.20	82.5789
67.75	86.2260
67.85	85.3703
68.90	78.5590
68.90	78.5590
69.30	79.5296
69.67	69.8812
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70.83	88.7380
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75.70	77.3089
77.11	97.4399
77.11	97.4399

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79.80	88.1140
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83.78	81.6431
83.78	81.6431
84.21	84.4826
84.90	90.1419
85.43	89.3355
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86.50	108.9529
86.54	105.2694
86.59	105.2816
86.72	105.3141
86.79	106.2549
86.94	106.2929
87.30	109.1588
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87.57	95.3429
87.88	90.7804
88.03	92.6656
88.36	110.3568
88.47	110.3853
89.95	271.7910
91.11	141.8568
92.29	108.5500
92.38	108.5718
92.38	108.5718
93.35	115.3751
94.00	162.5122
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94.67	271.8842
94.90	279.5539
94.90	279.5539
94.90	279.5539
94.90	279.5539
95.87	158.4707
95.87	158.4707
96.73	103.0119
97.43	109.7940
98.44	107.1887
98.44	107.1887
98.88	97.7957
99.55	95.0841
99.55	95.0841
99.86	102.7590
100.00	102.7897
100.10	111.3805
103.18	86.2349
103.76	97.8517
105.00	97.1410
105.31	91.4287
108.00	73.5454
109.28	105.7518

111.00	93.4585
111.00	93.4585
111.76	89.6992
112.95	74.2729
115.19	90.3014
116.30	95.4123
117.00	89.6304
117.00	89.6304
117.66	78.8949
121.11	87.3492
121.62	106.3094
121.78	99.3840
122.06	99.4354
122.32	106.4471
122.32	106.4471
122.32	106.4471
122.32	106.4471
123.07	100.6173
127.23	111.4184
129.76	88.7305
131.20	94.0104
133.02	89.2389
133.54	89.3195
135.34	94.6877
136.00	95.8149
136.25	99.9345
136.48	99.9739
140.51	108.8726
140.51	0.0000
142.18	116.3853
142.65	111.3212
143.76	93.9706
144.24	101.2778
144.24	101.2778
144.24	101.2778
144.24	101.2778
145.22	113.8616
145.44	113.9030
147.16	109.0289
152.43	86.9109
152.70	90.0907
153.22	80.7284
154.21	76.6528
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154.21	76.6528
154.21	76.6528
155.03	93.5729
156.02	95.8229
158.56	90.9113
159.00	0.0000
159.00	93.0882
160.31	107.0526
161.27	101.9004
162.32	78.6724
162.64	78.7101
163.35	90.5062
163.89	99.1048
165.85	97.2559
167.43	86.7695
171.28	88.3337
171.86	86.2516
172.10	87.3594
176.55	94.4270
176.60	94.4332
181.06	89.5615
184.41	93.2671
185.71	104.4233
186.00	94.5682
190.27	89.5825
192.34	77.6299
193.63	83.3160
197.04	74.7616
198.01	75.9729
198.60	83.8570
200.40	90.7756
201.83	87.5731
202.84	83.1890
205.31	84.5772



208.36	81.5039
208.81	78.1521
209.75	87.3143
209.75	87.3143
210.97	80.6319
215.65	79.9527
216.55	74.3225
218.09	79.0428
222.10	78.2708
223.80	74.9678
226.40	106.4321
227.00	90.2994
227.08	90.3081
227.20	90.3200
228.16	71.8729
228.18	71.8748
228.18	71.8748
231.56	98.9228
235.69	99.9744
236.00	93.8691
236.00	93.8691
238.63	85.3486
238.63	85.3486
238.63	85.3486
238.63	85.3486
239.00	80.9822
240.98	92.6304
241.98	77.7191
241.98	77.7191
241.98	77.7191
244.69	69.0938
245.39	67.3744
247.94	56.8945
248.90	50.7247
249.79	49.8827
252.40	83.0743
252.85	75.0714
252.85	75.0714
254.15	0.0000
256.20	59.1962
256.20	59.1962
260.50	70.2769
260.90	63.9971
262.80	56.8986
264.65	57.0082
268.24	59.9444
268.79	69.0652
269.46	62.7471
269.46	62.7471
269.46	62.7471
269.46	62.7471
271.23	67.4148
273.65	71.2338
276.40	72.3459
277.35	66.9148
277.60	68.7653
277.60	68.7653
278.00	57.7859
278.60	52.3138
279.20	59.6918
279.53	62.4675
280.46	82.7531
281.68	70.8857
283.67	59.0332
284.30	65.5311
285.00	60.0340
285.90	62.8597
286.10	62.8722
286.10	62.8722
287.40	56.4717
288.45	0.0000
290.67	72.4383
290.80	72.4478
291.72	66.0035
293.26	53.0670
293.70	49.3640
295.21	54.0989
295.21	54.0989

295.21	54.0989
295.96	64.4053
296.50	65.3719
297.23	67.2858
298.57	57.0786
299.80	54.3343
299.80	54.3343
300.09	52.4752
300.09	52.4752
300.09	52.4752
300.09	52.4752
300.12	52.4761
301.29	49.7198
302.84	52.6102
303.76	55.4763
303.91	53.6028
304.40	53.6271
304.40	53.6271
304.84	53.6488
306.84	56.5778
308.46	52.8845
311.98	56.8442
316.51	60.8838
318.01	45.7244
319.02	66.7412
319.41	66.7647
320.08	69.6672
323.87	52.6669
323.87	52.6669
323.87	52.6669
323.87	52.6669
325.23	62.3171
328.77	50.9709
333.44	66.6279
334.20	52.1774
334.20	52.1774
334.30	52.1823
338.28	50.4218
338.28	50.4218
338.28	50.4218
338.28	50.4218
338.32	50.4234
338.32	50.4234
338.32	50.4234
340.50	53.4315
340.57	51.4917
344.27	39.9584
345.85	46.8428
350.59	53.8863
351.07	54.8883
351.92	50.0226
351.92	50.0226
351.92	50.0226
355.39	0.0000
356.01	58.0646
364.48	39.6381
366.43	33.7453
367.43	35.7589
367.94	41.7360
369.80	46.7734
374.96	39.9701
383.85	38.2360
387.95	48.4512
388.63	48.4764
391.69	40.4913
391.69	40.4913
392.90	39.5154
398.62	33.5806
400.65	46.8809
401.10	36.7015
401.81	32.6411
402.60	30.6189
404.84	37.8260
410.95	44.1584
411.60	43.1523
413.65	48.3612
414.70	47.3687
415.30	42.2381

415.76	43.2830
417.63	0.0000
418.52	43.3695
423.70	46.6404
427.08	38.4414
427.89	35.3447
432.53	42.7611
433.93	33.4072
439.47	37.7287
439.56	41.9235
439.89	42.9813
443.98	32.5903
444.90	33.6626
445.03	33.6655
445.03	33.6655
445.03	33.6655
445.03	33.6655
453.90	38.1033
463.38	34.0854
468.07	27.7805
473.00	40.7342
475.06	31.1284
475.35	33.2814
476.78	38.6856
477.59	30.1046
477.96	26.8856
482.03	31.2692
484.57	35.6406
487.03	37.8599
490.36	45.5286
492.35	32.5612
497.08	33.7473
507.63	0.0000
510.53	0.0000
510.84	48.3106
511.00	48.3150
511.85	65.9189
511.85	65.9189
513.99	151.8103
513.99	151.8103
520.41	34.2355
520.65	33.1366
527.90	27.7344
528.96	0.0000
529.64	28.8739
529.87	0.0000
531.02	25.5634
537.32	20.0808
543.00	23.5058
546.56	0.0000
549.76	25.8455
552.65	20.7112
555.20	31.5632
563.23	39.8610
563.90	35.3457
568.70	29.9884
569.32	30.9080
569.50	30.9113
569.67	31.8239
573.80	37.3655
574.00	37.3695
574.64	33.7354
578.91	35.6437
579.30	42.0502
583.14	39.3918
585.48	30.2696
591.81	49.7035
592.07	47.8702
593.00	47.8943
595.88	34.1320
600.56	43.4658
602.52	0.0000
602.71	45.3681
602.71	45.3681
603.60	42.6106
604.41	45.4099
604.70	47.2709
609.31	31.5911

609.31	31.5911
609.31	31.5911
609.31	31.5911
610.33	33.4679
612.46	50.2585
614.37	33.5391
618.01	30.8034
621.84	31.8003
621.84	31.8003
631.29	26.3177
633.02	30.1039
633.10	30.1055
634.78	31.0729
635.90	27.3220
636.97	33.9363
645.85	19.8859
646.12	20.8355
656.30	22.8463
657.75	21.9101
657.90	0.0000
661.65	20.9983
661.65	20.9983
664.57	32.4992
666.33	36.3542
666.33	36.3542
675.00	31.7053
677.61	25.0117
685.20	23.1732
692.80	28.1030
695.00	28.1327
696.49	31.0648
696.49	31.0648
697.00	32.0437
697.49	33.0222
698.33	35.9503
698.50	34.0096
699.00	33.0462
702.63	26.2874
706.10	40.9582
706.58	0.0000
706.67	37.0676
709.31	29.3005
711.68	32.2660
713.82	29.3621
717.42	23.5289
720.50	22.5811
721.93	18.6660
722.20	18.6683
722.78	21.6219
722.78	21.6219
722.89	20.6401
722.95	20.6406
723.30	19.6611
724.18	20.6524
727.18	17.7267
733.00	22.7108
735.90	23.7299
739.58	22.7788
742.81	15.8695
744.21	20.8416
747.13	21.8630
751.79	19.9170
752.31	18.9253
753.82	16.9448
755.35	19.9482
756.15	21.9511
756.87	19.9619
763.93	21.0256
765.79	20.0405
766.42	19.0441
766.84	22.0548
776.49	26.1752
778.00	25.1849
778.57	26.1987
778.89	27.2103
783.80	16.1590
785.46	23.2448
792.07	24.3246

795.84	19.2881
796.30	23.3532
798.80	33.5422
801.93	25.4443
805.60	30.5808
810.29	19.4059
810.76	19.4096
815.85	16.3801
817.79	21.5163
818.51	22.5473
819.60	19.4815
826.30	29.8178
828.27	18.5225
831.60	13.3958
831.96	12.3671
834.83	20.6362
836.80	0.0000
846.75	29.0309
848.13	31.1221
856.28	0.0000
856.80	16.6563
860.37	23.9776
867.32	25.0893
867.82	26.1395
871.10	13.6103
873.19	8.3824
874.81	17.8243
875.33	0.0000
876.40	23.0807
879.36	15.7551
880.27	19.9639
880.51	21.0166
881.50	18.9220
883.24	11.5715
884.67	15.7881
889.25	22.1423
896.60	15.8610
898.02	14.8118
899.00	12.7005
903.28	18.0218
911.07	23.3922
911.07	23.3922
911.07	23.3922
919.63	25.6014
920.93	16.0085
925.00	20.3086
925.24	20.3104
926.50	17.1117
935.52	16.0964
937.48	16.1082
944.10	15.0708
946.00	14.0042
949.00	9.7060
962.29	26.0086
964.01	29.2775
966.15	19.5337
968.20	20.6342
969.11	23.8998
969.11	23.8998
969.11	23.8998
977.42	16.3440
980.50	15.2711
983.50	16.3795
989.30	17.5074
996.32	30.7146
1001.03	13.1851
1001.68	14.2870
1004.76	27.5049
1021.30	0.0000
1024.50	0.0000
1034.80	10.1903
1036.00	9.2676
1037.82	12.0553
1038.57	11.1309
1038.76	0.0000
1045.16	13.0151
1046.59	14.8815
1048.07	12.0976

1050.47	6.5192
1050.47	6.5192
1062.04	13.0891
1063.62	15.9022
1076.63	15.0313
1077.35	13.1558
1078.86	17.8628
1085.78	13.1922
1099.22	12.3033
1112.02	13.3050
1112.84	10.4566
1115.52	16.1741
1120.29	12.3869
1120.29	12.3869
1120.29	12.3869
1120.29	12.3869
1120.51	13.3409
1121.28	12.3912
1124.00	0.0000
1129.67	6.6898
1131.51	0.0000
1147.95	0.0000
1167.94	10.6388
1173.22	7.7500
1175.09	7.7542
1177.93	11.6416
1189.05	6.8140
1204.90	10.7587
1205.75	9.7831
1213.00	13.7260
1221.42	14.7437
1230.97	5.9141
1235.34	9.8694
1236.41	0.0000
1238.25	11.8530
1246.25	10.8908
1260.41	0.0000
1271.85	8.9766
1274.45	14.9719
1274.54	14.9725
1291.56	7.0211
1298.22	0.0000
1312.09	9.0791
1325.50	8.1003
1325.50	8.1003
1332.49	8.1159
1333.61	5.0741
1360.21	8.1774
1362.66	0.0000
1365.15	8.1882
1368.21	3.0731
1368.53	0.0000
1376.25	9.2391
1384.27	12.3452
1394.10	6.1887
1395.20	10.3174
1407.95	13.4576
1434.06	3.1267
1436.60	10.4293
1457.56	0.0000
1460.81	7.3458
1489.15	8.4551
1509.49	8.4977
1596.49	7.4375
1620.62	7.4796
1678.03	0.0000
1691.02	11.4003
1691.02	11.4003
1706.46	0.0000
1750.46	0.0000
1764.49	7.7232
1764.49	7.7232
1764.49	7.7232
1764.49	7.7232
1770.23	17.3986
1771.40	7.7347
1791.20	0.0000
1808.65	5.8470

1836.01

4.9004

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202014513

Total Uranium Activity	-7.1331E-01	ug/g
Total Uranium Counting Unc.	2.5178E+00	ug/g
Total Uranium Tpu	1.2846E-06	ug/g
Total Uranium Mda	2.4009E+00	ug/g



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*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON ,SC 29417                *
*               GROSS GAMMA REPORT                  *
*
*****
*
*  BATCH ID      : 941242                          SAMPLE ID   : G1202014513
*  ANALYST       : MXR1                             DETECTOR    : GAM02
*  SAMPLE DATE   : 14-JAN-2010 00:00:00.00          COUNT TIME   : 0 02:00:00.00
*  ANALYSIS DATE : 21-JAN-2010 11:03:34.40          SAMPLE ALQT  : 151.950 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.246E-02
GROSS GAMMA ERROR   (pCi/GRAM ) : 9.074E-03
GROSS GAMMA MDA      (pCi/GRAM ) : 6.906E-02
GROSS GAMMA DLC      (pCi/GRAM ) : 3.236E-02

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 13:25:07.98

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014514.CNF;1
Sample date   : 8-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 11:24:27
Sample ID     : G1202014514           Sample quantity : 1.28270E+02 GRAM
Detector name : GAM17                 Detector geometry: CAN
Elapsed live time: 0 02:00:00.00      Elapsed real time: 0 02:00:09.33 0.1%
Energy tolerance: 1.50000 keV         Analyst Initials : MXR1
Abundance limit: 75.00000             Sensitivity      : 5.00000
Batch ID      : 941242                Detector SN#     :
Matrix Spike ID :                     LCS ID          : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	46.81*	80	478	1.03	93.25	88	10	1.11E-02	54.3	
2	0	63.41*	72	652	1.05	126.47	122	9	1.00E-02	66.6	
3	3	74.87*	594	374	0.90	149.39	144	15	8.25E-02	6.4	1.93E+00
4	3	77.13*	935	421	0.94	153.91	144	15	1.30E-01	4.9	
5	5	84.43*	163	325	1.47	168.51	165	28	2.26E-02	19.7	4.84E+00
6	5	87.31	382	302	1.18	174.28	165	28	5.31E-02	9.0	
7	5	89.98	251	283	1.13	179.62	165	28	3.48E-02	12.9	
8	5	92.78*	297	333	1.43	185.22	165	28	4.13E-02	14.0	
9	0	185.58*	189	266	1.21	370.90	365	10	2.63E-02	18.4	
10	0	209.35	101	246	0.94	418.45	414	9	1.40E-02	29.8	
11	6	238.53*	1134	121	1.03	476.84	471	18	1.57E-01	3.4	1.99E+00
12	6	241.40	273	204	1.73	482.58	471	18	3.80E-02	15.3	
13	0	270.11	74	175	1.40	540.02	534	10	1.03E-02	35.4	
14	0	295.01*	295	225	1.16	589.83	585	12	4.10E-02	11.9	
15	0	328.04	48	114	1.40	655.93	652	7	6.67E-03	39.9	
16	0	338.06*	174	161	1.26	675.98	671	11	2.41E-02	16.4	
17	0	351.66*	601	123	1.10	703.19	697	12	8.35E-02	5.6	
18	0	409.44	37	68	1.13	818.80	815	8	5.08E-03	42.4	
19	0	463.01	57	80	1.07	926.00	922	9	7.87E-03	31.5	
20	0	510.45*	83	124	1.33	1020.93	1013	16	1.16E-02	35.8	
21	0	582.78*	313	78	1.50	1165.67	1160	12	4.35E-02	8.0	
22	0	608.95	419	46	1.37	1218.04	1213	13	5.82E-02	6.0	
23	0	726.27	84	65	1.54	1452.80	1446	13	1.17E-02	22.6	
24	0	769.13	87	82	7.56	1538.57	1528	24	1.20E-02	29.9	
25	0	795.86	10	75	1.00	1592.07	1587	10	1.39E-03	166.6	
26	0	860.92	53	58	0.89	1722.28	1713	18	7.32E-03	36.7	
27	0	910.46*	197	79	1.39	1821.43	1814	15	2.74E-02	12.3	
28	2	963.76	42	33	2.01	1928.09	1919	27	5.82E-03	33.9	9.27E-01
29	2	967.99*	120	35	1.89	1936.55	1919	27	1.67E-02	13.6	
30	0	1119.38	66	68	1.48	2239.56	2235	11	9.21E-03	26.8	
31	0	1459.43*	779	15	1.98	2920.21	2913	15	1.08E-01	3.8	
32	0	1589.38	49	12	6.60	3180.36	3169	23	6.74E-03	23.2	
33	0	1762.75*	48	15	1.35	3527.43	3520	15	6.70E-03	23.6	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 13:25:10

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014514.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 8-JAN-2010 12:00:00 Acquisition date : 21-JAN-2010 11:24:27  
 Sample ID : G1202014514 Sample quantity : 128.27 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA17 Detector geometry: CAN  
 Elapsed live time: 0 02:00:00.00 Elapsed real time: 0 02:00:09.33 0.1%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	+	1460.81	*	2.744E+01	3.191E+00	6.959E-01	6.179E-02	39.431
CD-109	+	88.03	*	4.594E+00	9.402E-01	9.468E-01	9.243E-02	4.852
SN-126	+	64.28		3.239E-01	4.347E-01	4.100E-01	6.544E-02	0.790
	+	86.94		1.883E+00	8.537E-01	3.868E-01	1.610E-01	4.868
	+	87.57	*	4.530E-01	9.271E-02	9.323E-02	9.098E-03	4.859
TL-208		277.35		4.626E-01	4.083E-01	7.255E-01	9.237E-02	0.638
	+	510.84		5.492E-01	3.992E-01	2.409E-01	2.942E-02	2.280
	+	583.14	*	6.005E-01	1.112E-01	7.091E-02	6.707E-03	8.468
	+	860.37		9.940E-01	7.353E-01	5.956E-01	5.604E-02	1.669
BI-210	+	46.50	*	9.140E-01	9.972E-01	8.504E-01	9.226E-02	1.075
PB-210	+	46.50	*	9.140E-01	9.972E-01	8.504E-01	9.226E-02	1.075
PO-210	+	46.50	*	9.140E-01	9.966E-01	8.504E-01	8.592E-02	1.075
BI-211		72.87		1.958E+00	2.162E+00	3.398E+00	3.323E-01	0.576
	+	351.07	*	4.672E+00	6.784E-01	3.619E-01	3.378E-02	12.909
PB-212	+	74.81		2.391E+00	4.451E-01	3.650E-01	4.933E-02	6.550
	+	77.11		2.241E+00	3.084E-01	2.180E-01	2.125E-02	10.280
	+	87.30		2.095E+00	4.772E-01	4.308E-01	6.019E-02	4.863
	+	238.63	*	1.849E+00	2.254E-01	8.975E-02	9.048E-03	20.603
		300.09		9.504E-01	9.577E-01	1.525E+00	1.661E-01	0.623
PO-212	+	74.81		2.391E+00	4.451E-01	3.650E-01	4.933E-02	6.550
	+	77.11		2.241E+00	3.084E-01	2.180E-01	2.125E-02	10.280
	+	87.30		2.095E+00	4.772E-01	4.308E-01	6.019E-02	4.863
		115.19		5.190E-01	3.401E+00	5.675E+00	6.390E-01	0.091
	+	238.63	*	1.849E+00	2.254E-01	8.975E-02	9.048E-03	20.603
		300.09		9.504E-01	9.577E-01	1.525E+00	1.661E-01	0.623
BI-214	+	609.31	*	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
	+	1120.29		1.315E+00	7.182E-01	6.097E-01	6.518E-02	2.156
		1764.49		1.360E+00	5.179E-01	1.033E+00	8.733E-02	1.317
PB-214	+	74.81		4.120E+00	7.301E-01	6.290E-01	7.707E-02	6.550
	+	77.11		3.841E+00	6.044E-01	3.737E-01	4.623E-02	10.280
	+	87.30		3.589E+00	7.849E-01	7.380E-01	9.177E-02	4.863
	+	241.98		2.679E+00	8.685E-01	5.411E-01	5.760E-02	4.951
	+	295.21		1.328E+00	3.478E-01	2.591E-01	2.877E-02	5.128
	+	351.92	*	1.625E+00	2.508E-01	1.262E-01	1.349E-02	12.877

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PO-214	+	74.81		4.120E+00	7.301E-01	6.290E-01	7.707E-02	6.550
	+	77.11		3.841E+00	6.044E-01	3.737E-01	4.623E-02	10.280
	+	87.30		3.589E+00	7.849E-01	7.380E-01	9.177E-02	4.863
	+	241.98		2.679E+00	8.685E-01	5.411E-01	5.760E-02	4.951
	+	295.21		1.328E+00	3.478E-01	2.591E-01	2.877E-02	5.128
PO-216	+	351.92	*	1.625E+00	2.508E-01	1.262E-01	1.349E-02	12.877
	+	74.81		2.391E+00	4.451E-01	3.650E-01	4.933E-02	6.550
	+	77.11		2.241E+00	3.084E-01	2.180E-01	2.125E-02	10.280
	+	87.30		2.095E+00	4.772E-01	4.308E-01	6.019E-02	4.863
	+	238.63	*	1.849E+00	2.254E-01	8.975E-02	9.048E-03	20.603
PO-218	+	300.09		9.504E-01	9.577E-01	1.525E+00	1.661E-01	0.623
	+	74.81		4.120E+00	7.301E-01	6.290E-01	7.707E-02	6.550
	+	77.11		3.841E+00	6.044E-01	3.737E-01	4.623E-02	10.280
	+	87.30		3.589E+00	7.849E-01	7.380E-01	9.177E-02	4.863
	+	241.98		2.679E+00	8.685E-01	5.411E-01	5.760E-02	4.951
RA-224	+	295.21		1.328E+00	3.478E-01	2.591E-01	2.877E-02	5.128
	+	351.92	*	1.625E+00	2.508E-01	1.262E-01	1.349E-02	12.877
	+	240.98	*	5.080E+00	1.622E+00	1.022E+00	9.244E-02	4.969
	+	609.31	*	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
	+	1120.29		1.315E+00	7.182E-01	6.097E-01	6.518E-02	2.156
AC-228	+	1764.49		1.360E+00	5.179E-01	1.033E+00	8.733E-02	1.317
	+	338.32		1.479E+00	7.799E-01	4.188E-01	1.732E-01	3.531
	+	911.07	*	1.764E+00	4.774E-01	2.853E-01	3.237E-02	6.181
	+	969.11		1.898E+00	6.811E-01	4.411E-01	1.031E-01	4.302
	+	338.32		1.479E+00	7.799E-01	4.188E-01	1.732E-01	3.531
RA-228	+	911.07	*	1.764E+00	4.774E-01	2.853E-01	3.237E-02	6.181
	+	969.11		1.898E+00	6.811E-01	4.411E-01	1.031E-01	4.302
	+	74.81		2.422E+00	3.909E-01	3.698E-01	3.633E-02	6.550
	+	77.11		2.270E+00	3.125E-01	2.208E-01	2.152E-02	10.280
	+	87.30		2.122E+00	4.343E-01	4.364E-01	4.258E-02	4.863
TH-228	+	238.63	*	1.873E+00	2.284E-01	9.091E-02	9.166E-03	20.603
	+	300.09		9.628E-01	1.121E+00	1.545E+00	9.171E-01	0.623
	+	609.31	*	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
	+	1120.29		1.315E+00	7.181E-01	6.097E-01	6.518E-02	2.156
	+	1764.49		1.360E+00	5.179E-01	1.033E+00	8.733E-02	1.317
TH-232	+	338.32		1.479E+00	5.022E-01	4.188E-01	3.774E-02	3.531
	+	911.07	*	1.764E+00	4.774E-01	2.853E-01	3.237E-02	6.181
	+	969.11		1.898E+00	6.811E-01	4.411E-01	1.031E-01	4.302
	+	63.29	*	8.183E-01	1.101E+00	1.028E+00	1.918E-01	0.796
	+	92.38		2.439E+00	8.208E-01	6.475E-01	1.215E-01	3.767
U-234	+	609.31	*	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
	+	1120.29		1.315E+00	7.181E-01	6.097E-01	6.518E-02	2.156
	+	1764.49		1.360E+00	5.179E-01	1.033E+00	8.733E-02	1.317
	+	86.50	*	1.330E+00	3.866E-01	2.729E-01	6.228E-02	4.875
	+	95.87		9.342E-02	8.649E-01	1.305E+00	3.289E-01	0.072
U-238	+	63.29	*	8.183E-01	1.101E+00	1.028E+00	1.918E-01	0.796
	+	92.38		2.439E+00	7.235E-01	6.475E-01	6.453E-02	3.767
	+	74.67	*	3.876E-01	6.240E-02	5.916E-02	5.776E-03	6.552
	+	86.72		4.988E+01	1.021E+01	1.024E+01	9.988E-01	4.871

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
		117.66		-1.761E+00	3.640E+00	5.884E+00	6.719E-01	-0.299
		142.18		1.429E+01	1.786E+01	3.029E+01	3.124E+00	0.472
ANH-511	+	511.00	*	1.186E-01	8.566E-02	5.205E-02	4.648E-03	2.279

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-1.174E-01	3.547E-01	5.644E-01	5.370E-02	-0.208
NA-22		1274.54	*	-4.221E-02	6.547E-02	9.702E-02	8.173E-03	-0.435
NA-24		1368.53	*	-5.057E-02	6.547E-02	Half-Life too short		
AL-26		1129.67		-1.177E+00	2.367E+00	3.628E+00	3.032E-01	-0.324
		1808.65	*	-2.260E-03	3.343E-02	5.353E-02	4.487E-03	-0.042
TI-44		67.85		-4.616E-03	2.672E-02	4.303E-02	4.238E-03	-0.107
	+	78.38	*	4.135E-01	5.692E-02	6.302E-02	6.141E-03	6.561
SC-46		889.25	*	1.190E-02	5.250E-02	8.883E-02	7.776E-03	0.134
	+	1120.51		2.211E-01	1.199E-01	1.786E-01	1.499E-02	1.238
V-48		944.10		-3.978E-01	1.090E+00	1.724E+00	1.508E-01	-0.231
		983.50	*	-1.846E-02	7.640E-02	1.216E-01	1.061E-02	-0.152
		1312.09		4.051E-02	9.591E-02	1.687E-01	1.432E-02	0.240
CR-51		320.08	*	2.651E-01	3.544E-01	6.240E-01	5.959E-02	0.425
MN-52		744.21		-1.356E-01	2.197E-01	3.455E-01	3.003E-02	-0.393
		848.13		-3.954E+00	6.591E+00	1.024E+01	9.002E-01	-0.386
		935.52		-3.649E-02	2.746E-01	4.469E-01	3.910E-02	-0.082
		1246.25		1.081E+00	7.859E+00	1.284E+01	1.072E+00	0.084
		1333.61		-2.026E+00	5.033E+00	7.983E+00	6.805E-01	-0.254
		1434.06	*	-9.654E-02	1.841E-01	2.737E-01	2.359E-02	-0.353
MN-54		834.83	*	-1.927E-02	5.237E-02	8.427E-02	7.410E-03	-0.229
CO-56		846.75	*	-3.212E-02	4.849E-02	7.475E-02	6.571E-03	-0.430
		977.42		-5.037E-01	3.683E+00	5.786E+00	5.050E-01	-0.087
		1037.82		-1.904E-01	4.162E-01	6.448E-01	5.863E-02	-0.295
		1175.09		1.266E+00	3.218E+00	5.408E+00	4.421E-01	0.234
		1238.25		9.553E-02	1.221E-01	2.106E-01	1.810E-02	0.454
		1360.21		2.164E-01	1.227E+00	2.102E+00	1.799E-01	0.103
		1771.40		-1.649E-01	2.487E-01	3.286E-01	2.775E-02	-0.502
CO-57		122.06	*	-1.903E-03	2.463E-02	4.057E-02	4.753E-03	-0.047
		136.48		4.410E-02	2.116E-01	3.512E-01	3.953E-02	0.126
CO-58		810.76	*	-2.230E-02	5.206E-02	8.322E-02	7.329E-03	-0.268
FE-59		142.65		7.142E-01	2.730E+00	4.485E+00	4.609E-01	0.159
		192.34		-2.472E-01	9.560E-01	1.520E+00	2.042E-01	-0.163
		1099.22	*	1.275E-02	1.161E-01	1.913E-01	1.756E-02	0.067
		1291.56		5.287E-02	1.473E-01	2.481E-01	2.390E-02	0.213
CO-60		1173.22		1.612E-02	6.759E-02	1.117E-01	9.124E-03	0.144
		1332.49	*	1.427E-02	4.886E-02	8.495E-02	7.240E-03	0.168
ZN-65		1115.52	*	4.685E-02	1.378E-01	2.032E-01	1.711E-02	0.231
GE-68		1077.35	*	1.177E+00	1.867E+00	3.226E+00	2.754E-01	0.365
AS-73		53.44	*	1.989E-01	2.275E-01	3.962E-01	3.963E-02	0.502
AS-74		595.88	*	1.589E-02	1.190E-01	1.941E-01	1.710E-02	0.082
		634.78		-1.891E-01	4.357E-01	6.476E-01	5.577E-02	-0.292

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SE-75		66.05		-1.592E+00	2.788E+00	4.100E+00	4.716E-01	-0.388
		96.73		-4.110E-01	7.040E-01	1.016E+00	1.491E-01	-0.404
		121.11		-6.212E-03	1.308E-01	2.159E-01	2.955E-02	-0.029
		136.00		-1.136E-03	3.949E-02	6.486E-02	7.014E-03	-0.018
		198.60		5.136E-01	1.841E+00	3.011E+00	2.901E-01	0.171
		264.65	*	-1.806E-02	5.456E-02	7.433E-02	6.829E-03	-0.243
		279.53		-3.342E-02	1.161E-01	1.937E-01	1.837E-02	-0.173
		303.91		-1.005E+00	2.367E+00	3.897E+00	4.634E-01	-0.258
		400.65		2.574E-01	2.679E-01	4.739E-01	5.217E-02	0.543
BR-77	+	87.88		5.332E+02	1.091E+02	1.567E+02	1.530E+01	3.402
		200.40		-2.129E+01	9.404E+01	1.496E+02	1.304E+01	-0.142
	+	239.00		1.590E+02	1.803E+01	2.408E+01	2.175E+00	6.602
		249.79		1.830E+01	3.808E+01	6.238E+01	5.671E+00	0.293
		281.68		-1.783E+01	5.000E+01	8.298E+01	7.620E+00	-0.215
		297.23		1.917E+01	3.862E+01	5.950E+01	5.462E+00	0.322
		303.76		-4.140E+01	1.096E+02	1.810E+02	1.659E+01	-0.229
		439.47		1.984E+01	9.155E+01	1.534E+02	1.337E+01	0.129
		484.57		-9.434E+01	1.375E+02	2.105E+02	1.870E+01	-0.448
		520.65	*	2.255E-01	6.610E+00	1.080E+01	9.656E-01	0.021
		574.64		9.756E+00	1.368E+02	2.227E+02	1.977E+01	0.044
		578.91		-2.840E+01	6.364E+01	8.446E+01	7.489E+00	-0.336
		585.48		2.776E+02	1.368E+02	2.313E+02	2.047E+01	1.200
		755.35		2.574E+01	1.159E+02	1.979E+02	1.725E+01	0.130
		817.79		-1.040E+01	9.373E+01	1.544E+02	1.357E+01	-0.067
SR-82		698.33		-1.455E+01	4.217E+01	6.907E+01	5.915E+00	-0.211
		776.49	*	-5.856E-01	5.472E-01	6.735E-01	5.894E-02	-0.870
		1395.20		-6.483E+00	1.278E+01	1.962E+01	1.686E+00	-0.330
RB-83		520.41	*	2.739E-03	8.020E-02	1.311E-01	1.172E-02	0.021
		529.64		-7.373E-02	1.276E-01	1.965E-01	1.757E-02	-0.375
		552.65		1.585E-02	2.520E-01	4.018E-01	3.586E-02	0.039
RB-84		881.50	*	-4.547E-02	9.012E-02	1.410E-01	1.236E-02	-0.322
KR-85		513.99	*	8.669E+00	9.209E+00	1.450E+01	1.295E+00	0.598
SR-85		513.99	*	4.346E-02	4.617E-02	7.269E-02	6.494E-03	0.598
RB-86		1076.63	*	7.232E-01	1.091E+00	1.891E+00	1.615E-01	0.382
Y-88		898.02		1.252E-02	5.498E-02	9.299E-02	8.168E-03	0.135
		1836.01	*	3.534E-02	3.011E-02	6.554E-02	5.465E-03	0.539
ZR-88		392.90	*	-7.198E-03	3.543E-02	5.802E-02	4.888E-03	-0.124
Y-91		1204.90	*	-8.520E-01	2.718E+01	4.375E+01	3.611E+00	-0.019
NB-94		702.63	*	-7.379E-03	4.422E-02	7.349E-02	6.304E-03	-0.100
		871.10		-5.308E-03	4.670E-02	7.655E-02	6.718E-03	-0.069
NB-95		765.79	*	7.049E-02	6.370E-02	1.038E-01	9.066E-03	0.679
NB-95M		235.69	*	-8.798E-02	1.439E-01	1.937E-01	1.978E-02	-0.454
ZR-95		724.18		2.109E-01	1.385E-01	2.339E-01	2.196E-02	0.902
		756.15	*	-2.649E-03	9.132E-02	1.526E-01	1.462E-02	-0.017
NB-97		657.90	*	-1.463E-02	9.132E-02	Half-Life	too short	
		1024.50		-5.709E-01	9.132E-02	Half-Life	too short	
ZR-97		254.15		-8.669E-01	9.132E-02	Half-Life	too short	
		355.39		-1.768E-01	9.132E-02	Half-Life	too short	
		507.63	*	2.717E-01	9.132E-02	Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	602.52			-5.563E-01	9.132E-02	Half-Life	too short	
	1021.30			4.335E-01	9.132E-02	Half-Life	too short	
	1147.95			-2.816E-01	9.132E-02	Half-Life	too short	
	1362.66			-1.465E-01	9.132E-02	Half-Life	too short	
	1750.46			2.988E-01	9.132E-02	Half-Life	too short	
MO-99	140.51			-7.246E+00	1.622E+01	2.541E+01	7.195E+00	-0.285
	181.06			-3.943E+00	1.110E+01	1.558E+01	2.842E+00	-0.253
	366.43			-1.637E+01	5.733E+01	9.379E+01	8.209E+00	-0.175
	739.58	*		5.050E+00	7.864E+00	1.395E+01	2.123E+00	0.362
	778.00			1.885E+00	2.769E+01	4.065E+01	3.559E+00	0.046
TC-99M	140.51	*		-4.861E+07	2.769E+01	Half-Life	too short	
RH-101	127.23			-2.163E-03	3.269E-02	5.379E-02	6.118E-03	-0.040
	198.01	*		6.970E-03	3.445E-02	5.613E-02	4.880E-03	0.124
	325.23			1.115E-01	2.786E-01	4.263E-01	3.875E-02	0.261
RH-102	418.52			2.981E-01	3.271E-01	5.755E-01	4.949E-02	0.518
	475.06	*		1.719E-04	3.240E-02	5.316E-02	4.709E-03	0.003
	631.29			-3.396E-02	7.149E-02	1.093E-01	9.440E-03	-0.311
	697.49			2.565E-02	9.685E-02	1.667E-01	1.427E-02	0.154
	766.84			2.105E-01	1.457E-01	2.687E-01	2.348E-02	0.783
	1046.59			-8.905E-02	1.541E-01	2.348E-01	2.023E-02	-0.379
	1112.84			-1.721E-02	3.155E-01	4.606E-01	3.878E-02	-0.037
RU-103	497.08	*		-1.115E-02	4.793E-02	7.677E-02	1.101E-02	-0.145
+	610.33			1.586E+01	3.269E+00	3.501E+00	5.864E-01	4.529
RH-106	+	511.85		5.901E-01	4.262E-01	5.156E-01	4.605E-02	1.145
	621.84	*		1.248E-02	4.110E-01	6.628E-01	8.883E-02	0.019
	1050.47			1.501E-01	2.955E+00	4.854E+00	4.178E-01	0.031
RU-106	+	511.85		5.901E-01	4.262E-01	5.156E-01	4.605E-02	1.145
	621.84	*		1.248E-02	4.110E-01	6.628E-01	5.758E-02	0.019
	1050.47			1.501E-01	2.955E+00	4.854E+00	4.178E-01	0.031
AG-108M	433.93	*		7.194E-03	3.586E-02	6.013E-02	5.427E-03	0.120
	614.37			-2.249E-02	5.180E-02	6.817E-02	6.177E-03	-0.330
	722.95			2.084E-02	5.636E-02	8.638E-02	7.754E-03	0.241
AG-110M	657.75	*		-4.373E-02	4.683E-02	6.778E-02	5.907E-03	-0.645
	677.61			-1.998E-01	4.158E-01	6.315E-01	5.516E-02	-0.316
	706.67			-7.772E-02	2.684E-01	4.410E-01	3.894E-02	-0.176
	763.93			1.056E-01	2.218E-01	3.431E-01	3.079E-02	0.308
	884.67			1.025E-02	6.431E-02	1.082E-01	9.776E-03	0.095
	937.48			-1.590E-01	1.500E-01	2.176E-01	1.971E-02	-0.731
	1384.27			-1.637E-02	1.628E-01	2.670E-01	2.357E-02	-0.061
IN-111	171.28			4.270E-01	6.061E-01	1.020E+00	8.562E-02	0.419
	245.39	*		3.584E-01	6.750E-01	1.001E+00	9.079E-02	0.358
IN-113M	391.69	*		-2.353E-02	4.996E-02	8.012E-02	6.962E-03	-0.294
SN-113	391.69	*		-2.353E-02	4.996E-02	8.012E-02	6.962E-03	-0.294
IN-114M	190.27	*		-5.235E-03	1.931E-01	2.964E-01	2.553E-02	-0.018
CD-115	260.90			2.980E+01	7.341E+01	1.194E+02	1.091E+01	0.249
	492.35			5.137E+00	2.076E+01	3.471E+01	3.090E+00	0.148
	527.90	*		-4.016E+00	6.466E+00	9.880E+00	8.833E-01	-0.406
SN-117M	156.02			-2.088E+00	2.158E+00	3.342E+00	3.077E-01	-0.625
	158.56	*		3.808E-02	5.269E-02	8.876E-02	7.978E-03	0.429

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-122	563.90	*		-7.229E-01	1.491E+00	2.306E+00	2.053E-01	-0.314
	692.80			-4.920E+00	3.101E+01	5.158E+01	4.407E+00	-0.095
I-123	159.00	*		2.461E-01	3.101E+01	Half-Life too short		
	528.96			-1.736E+01	3.101E+01	Half-Life too short		
TE-123M	159.00	*		1.811E-02	2.993E-02	5.018E-02	4.517E-03	0.361
I-124	602.71	*		-2.592E-01	6.688E-01	9.531E-01	8.369E-02	-0.272
	722.78			1.882E+00	4.041E+00	6.270E+00	5.416E-01	0.300
	1325.50			-6.152E+00	3.155E+01	5.157E+01	4.389E+00	-0.119
	1376.25			1.833E+01	2.647E+01	4.813E+01	4.127E+00	0.381
	1509.49			1.042E+01	1.515E+01	2.749E+01	2.378E+00	0.379
	1691.02			2.522E+00	3.382E+00	6.604E+00	5.649E-01	0.382
SB-124	602.71			-2.097E-02	5.409E-02	7.709E-02	6.771E-03	-0.272
	645.85			2.481E-01	6.196E-01	1.032E+00	9.354E-02	0.240
	709.31			-5.468E-01	3.532E+00	5.877E+00	5.053E-01	-0.093
	713.82			-8.924E-01	2.080E+00	3.367E+00	4.052E-01	-0.265
	722.78			2.206E-01	4.738E-01	7.351E-01	6.487E-02	0.300
+	968.20			1.906E+01	5.450E+00	9.418E+00	8.228E-01	2.024
	1045.16			-7.116E-01	3.204E+00	5.102E+00	4.397E-01	-0.139
	1325.50			-7.703E-01	3.951E+00	6.458E+00	5.496E-01	-0.119
	1368.21			-1.002E+00	2.160E+00	3.356E+00	4.511E-01	-0.299
	1436.60			-3.486E+00	4.258E+00	6.010E+00	5.183E-01	-0.580
	1691.02	*		6.975E-02	9.354E-02	1.826E-01	1.625E-02	0.382
SB-125	427.89	*		6.678E-02	1.129E-01	1.939E-01	1.711E-02	0.344
+	463.38			7.160E-01	4.565E-01	6.769E-01	6.417E-02	1.058
	600.56			-3.444E-02	2.435E-01	3.879E-01	3.652E-02	-0.089
	635.90			-8.556E-02	3.697E-01	5.632E-01	5.239E-02	-0.152
TE-125M	109.28	*		3.764E+00	8.310E+00	1.406E+01	1.728E+00	0.268
I-126	388.63			2.871E-01	2.065E-01	3.731E-01	3.158E-02	0.769
	666.33	*		1.194E-01	1.966E-01	3.333E-01	2.814E-02	0.358
	753.82			6.650E-01	1.722E+00	2.980E+00	2.596E-01	0.223
SB-126	223.80			-3.788E+00	3.882E+00	5.816E+00	5.192E-01	-0.651
	278.60			4.252E+00	2.357E+00	4.312E+00	3.959E-01	0.986
+	296.50			1.173E+01	2.983E+00	3.477E+00	3.192E-01	3.375
	414.70			-1.731E-02	8.026E-02	1.206E-01	1.034E-02	-0.144
	415.30			1.425E+00	6.123E+00	1.031E+01	8.846E-01	0.138
	555.20			8.752E-01	4.277E+00	7.066E+00	6.303E-01	0.124
	573.80			1.536E-01	1.134E+00	1.857E+00	1.649E-01	0.083
	593.00			-4.150E-01	1.109E+00	1.728E+00	1.524E-01	-0.240
	656.30			-2.716E+00	4.000E+00	5.966E+00	5.050E-01	-0.455
	666.33			4.966E-02	8.173E-02	1.386E-01	1.170E-02	0.358
	675.00			-7.388E-02	2.433E+00	3.876E+00	3.286E-01	-0.019
	695.00			-2.583E-02	8.858E-02	1.457E-01	1.246E-02	-0.177
	697.00			1.153E-01	2.983E-01	5.183E-01	4.436E-02	0.222
	720.50	*		-1.220E-01	1.862E-01	2.491E-01	2.150E-02	-0.490
	856.80			6.615E-02	5.571E-01	8.177E-01	7.184E-02	0.081
	989.30			-3.843E-01	1.344E+00	2.126E+00	1.853E-01	-0.181
	1034.80			-5.140E-01	1.043E+01	1.697E+01	1.466E+00	-0.030
	1213.00			-4.398E+00	6.125E+00	9.142E+00	7.564E-01	-0.481
SB-127	61.10			1.514E+00	1.839E+01	2.829E+01	3.317E+00	0.054



---- Non-Identified Nuclides ----

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	252.40			1.584E+00	3.356E+00	5.386E+00	2.261E+00	0.294
	290.80			-7.772E+00	1.714E+01	2.463E+01	2.714E+00	-0.316
	411.60			2.271E+00	9.801E+00	1.462E+01	2.231E+00	0.155
	444.90			2.125E+00	8.171E+00	1.372E+01	1.657E+00	0.155
	473.00			-3.259E-01	1.314E+00	2.109E+00	2.637E-01	-0.155
	543.00			7.565E+00	1.366E+01	2.322E+01	3.281E+00	0.326
	603.60			-4.140E+00	1.193E+01	1.607E+01	1.941E+00	-0.258
	685.20	*		-1.028E+00	1.198E+00	1.725E+00	1.846E-01	-0.596
	698.50			-2.110E+00	1.333E+01	2.217E+01	3.406E+00	-0.095
	722.20			1.128E+00	2.826E+01	4.159E+01	4.394E+00	0.027
	783.80			1.053E+00	3.377E+00	5.786E+00	6.929E-01	0.182
XE-127	57.60			8.281E-01	2.055E+00	3.552E+00	3.567E-01	0.233
	145.22			9.887E-02	6.880E-01	1.123E+00	1.132E-01	0.088
	172.10			1.978E-02	1.199E-01	1.964E-01	1.651E-02	0.101
	202.84	*		-6.032E-03	4.813E-02	7.691E-02	6.724E-03	-0.078
	374.96			-7.561E-02	2.214E-01	3.601E-01	3.115E-02	-0.210
I-131	80.18			1.833E+00	3.563E+00	4.459E+00	4.359E-01	0.411
	284.30			4.223E-01	1.297E+00	2.238E+00	2.147E-01	0.189
	364.48	*		-2.251E-02	1.108E-01	1.823E-01	1.681E-02	-0.123
	636.97			2.141E+00	1.586E+00	2.861E+00	2.594E-01	0.748
	722.89			3.781E+00	7.744E+00	1.204E+01	1.045E+00	0.314
TE-132	49.72			-1.489E+00	2.706E+00	4.057E+00	4.672E-01	-0.367
	111.76			-6.681E+00	1.797E+01	2.933E+01	3.640E+00	-0.228
	116.30			-8.781E+00	1.687E+01	2.723E+01	3.449E+00	-0.323
	228.16	*		3.184E-01	4.849E-01	8.004E-01	1.244E-01	0.398
BA-133	53.15			7.724E-01	9.885E-01	1.717E+00	1.718E-01	0.450
	79.62			5.959E-01	1.030E+00	1.472E+00	2.338E-01	0.405
	81.00			3.687E-02	9.001E-02	1.117E-01	1.845E-02	0.330
	276.40			2.902E-01	3.996E-01	6.995E-01	1.034E-01	0.415
	302.84			-1.012E-01	1.651E-01	2.684E-01	3.684E-02	-0.377
	356.01	*		3.315E-03	5.393E-02	7.984E-02	1.067E-02	0.042
	383.85			-1.860E-01	3.220E-01	5.107E-01	6.406E-02	-0.364
I-133	510.53	+		2.177E-01	3.220E-01	Half-Life	too short	
	529.87	*		-9.193E-05	3.220E-01	Half-Life	too short	
	706.58			-2.943E-02	3.220E-01	Half-Life	too short	
	856.28			-6.480E-02	3.220E-01	Half-Life	too short	
	875.33			-9.080E-03	3.220E-01	Half-Life	too short	
	1236.41			1.718E-01	3.220E-01	Half-Life	too short	
	1298.22			3.545E-02	3.220E-01	Half-Life	too short	
CS-134	475.35			-1.085E+00	2.170E+00	3.398E+00	3.010E-01	-0.319
	563.23			-1.157E-01	4.434E-01	7.010E-01	6.299E-02	-0.165
	569.32			6.959E-03	2.421E-01	3.929E-01	3.539E-02	0.018
	604.70			-7.664E-03	4.836E-02	6.667E-02	5.863E-03	-0.115
	795.84	+	*	2.877E-02	9.587E-02	1.176E-01	1.040E-02	0.245
	801.93			-5.794E-02	5.565E-01	8.707E-01	7.686E-02	-0.067
	1038.57			-4.092E+00	5.290E+00	7.861E+00	6.787E-01	-0.520
	1167.94			9.660E-01	3.455E+00	5.757E+00	4.717E-01	0.168
	1365.15			1.263E+00	1.494E+00	2.786E+00	2.496E-01	0.453
CS-135	268.24	*		8.435E-02	1.982E-01	2.882E-01	3.008E-02	0.293

## ---- Non-Identified Nuclides ----

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I-135	288.45			5.858E+07	1.982E-01	Half-Life	too short	
	417.63			7.864E+07	1.982E-01	Half-Life	too short	
	546.56			-5.364E+07	1.982E-01	Half-Life	too short	
	836.80			4.233E+07	1.982E-01	Half-Life	too short	
	1038.76			-8.402E+07	1.982E-01	Half-Life	too short	
	1124.00			-1.607E+08	1.982E-01	Half-Life	too short	
	1131.51			-1.176E+07	1.982E-01	Half-Life	too short	
	1260.41	*		1.074E+07	1.982E-01	Half-Life	too short	
	1457.56			5.045E+09	1.982E-01	Half-Life	too short	
	1678.03			-4.879E+06	1.982E-01	Half-Life	too short	
	1706.46			5.141E+07	1.982E-01	Half-Life	too short	
	1791.20			6.711E+07	1.982E-01	Half-Life	too short	
CS-136	66.91			-7.747E-02	4.136E-01	6.195E-01	1.001E-01	-0.125
	86.29	+		5.281E+00	1.192E+00	1.523E+00	2.076E-01	3.468
	153.22			5.037E-01	6.043E-01	1.024E+00	1.062E-01	0.492
	163.89			2.602E-01	1.027E+00	1.692E+00	1.618E-01	0.154
	176.55			3.263E-01	3.459E-01	5.863E-01	5.256E-02	0.557
	273.65			-6.930E-01	5.412E-01	6.676E-01	6.480E-02	-1.038
	340.57			1.356E-01	1.308E-01	2.097E-01	1.936E-02	0.647
	818.51			-6.788E-03	8.753E-02	1.447E-01	1.273E-02	-0.047
	1048.07	*		-4.843E-02	1.278E-01	1.995E-01	1.791E-02	-0.243
	1235.34			3.395E-01	7.640E-01	1.279E+00	1.489E-01	0.265
BA-137M	661.65	*		7.902E-03	5.098E-02	8.212E-02	6.918E-03	0.096
CS-137	661.65	*		8.354E-03	5.389E-02	8.681E-02	7.328E-03	0.096
CE-139	165.85	*		1.438E-02	3.167E-02	5.266E-02	4.391E-03	0.273
BA-140	162.64			-5.250E-02	7.118E-01	1.156E+00	1.055E-01	-0.045
LA-140	304.84			-4.348E-01	1.230E+00	2.022E+00	5.701E-01	-0.215
	423.70			-1.355E+00	2.101E+00	3.231E+00	1.047E+00	-0.419
	537.32	*		1.962E-01	2.874E-01	4.829E-01	1.605E-01	0.406
	328.77	+		4.484E-01	3.606E-01	5.503E-01	5.245E-02	0.815
	432.53			-9.013E-01	2.088E+00	3.324E+00	3.023E-01	-0.271
	487.03			9.514E-02	1.330E-01	2.313E-01	2.176E-02	0.411
	751.79			-8.201E-01	2.061E+00	3.333E+00	3.207E-01	-0.246
	815.85			1.549E-01	3.994E-01	6.881E-01	6.719E-02	0.225
	867.82			1.470E+00	1.822E+00	2.916E+00	2.691E-01	0.504
	919.63			-1.997E+00	3.559E+00	5.589E+00	6.010E-01	-0.357
	925.24			-7.153E-01	1.286E+00	1.985E+00	1.843E-01	-0.360
	1596.49	*		3.440E-02	8.859E-02	1.406E-01	1.213E-02	0.245
CE-141	145.44	*		-1.163E-02	6.283E-02	1.010E-01	1.030E-02	-0.115
CE-143	57.37			4.001E-05	6.283E-02	Half-Life	too short	
	231.56			-3.498E-05	6.283E-02	Half-Life	too short	
	293.26	*		2.507E-04	6.283E-02	Half-Life	too short	
	350.59	+		1.258E-02	6.283E-02	Half-Life	too short	
	490.36			-1.537E-03	6.283E-02	Half-Life	too short	
	664.57			2.583E-05	6.283E-02	Half-Life	too short	
	721.93			1.146E-05	6.283E-02	Half-Life	too short	
CE-144	80.11			1.052E+00	1.961E+00	2.459E+00	2.395E-01	0.428
PM-144	133.54	*		4.288E-02	2.117E-01	3.515E-01	5.962E-02	0.122
	476.78			-3.612E-02	7.629E-02	1.197E-01	1.155E-02	-0.302

---- Non-Identified Nuclides ----

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		618.01		1.791E-02	4.029E-02	6.747E-02	6.035E-03	0.265
		696.49	*	2.479E-02	4.317E-02	7.606E-02	6.510E-03	0.326
		778.57		4.967E-01	3.314E+00	4.916E+00	4.305E-01	0.101
PR-144		696.49	*	1.678E+00	2.922E+00	5.148E+00	4.405E-01	0.326
		1489.15		-5.384E+00	1.609E+01	2.526E+01	2.183E+00	-0.213
PM-146		453.90	*	3.939E-02	5.311E-02	9.193E-02	9.977E-03	0.429
		633.02		-1.487E+00	1.863E+00	2.609E+00	9.750E-01	-0.570
		735.90		-7.062E-02	1.703E-01	2.718E-01	7.778E-02	-0.260
		747.13		2.972E-02	1.148E-01	1.969E-01	2.773E-02	0.151
ND-147	+	91.11		8.984E-01	2.500E-01	3.740E-01	3.939E-02	2.402
		319.41		2.014E+00	2.926E+00	5.136E+00	4.683E-01	0.392
		439.89		3.378E+00	6.000E+00	1.030E+01	8.981E-01	0.328
		531.02	*	5.834E-01	5.941E-01	1.039E+00	1.572E-01	0.562
PM-149		285.90	*	-2.136E+01	4.858E+01	7.994E+01	1.268E+01	-0.267
EU-152		121.78		-1.005E-02	7.202E-02	1.183E-01	1.501E-02	-0.085
		244.69		1.278E-01	3.584E-01	5.234E-01	4.744E-02	0.244
		344.27	*	-3.900E-02	1.093E-01	1.723E-01	1.630E-02	-0.226
		443.98		6.840E-01	1.157E+00	1.989E+00	1.737E-01	0.344
		778.89		1.447E-01	3.801E-01	5.807E-01	5.084E-02	0.249
		867.32		5.531E-01	1.243E+00	1.902E+00	1.670E-01	0.291
	+	964.01		7.608E-01	5.206E-01	7.498E-01	6.553E-02	1.015
		1085.78		-4.949E-01	5.449E-01	7.898E-01	6.721E-02	-0.627
		1112.02		-1.525E-02	4.248E-01	6.687E-01	5.632E-02	-0.023
		1407.95		4.368E-02	2.547E-01	4.342E-01	3.736E-02	0.101
GD-153		69.67		4.381E-01	1.055E+00	1.635E+00	1.605E-01	0.268
	+	83.37		3.353E+01	1.362E+01	1.859E+01	1.811E+00	1.803
		97.43	*	-3.439E-02	7.562E-02	1.096E-01	1.121E-02	-0.314
		103.18		-2.852E-02	9.487E-02	1.560E-01	1.643E-02	-0.183
EU-154		123.07		4.008E-03	5.027E-02	8.339E-02	1.151E-02	0.048
		247.94		-1.303E-01	3.754E-01	5.817E-01	6.880E-02	-0.224
		591.81		-4.523E-01	8.463E-01	1.298E+00	1.535E-01	-0.348
		723.30		1.155E-01	2.381E-01	3.696E-01	3.528E-02	0.313
		756.87		2.477E-02	9.892E-01	1.661E+00	2.001E-01	0.015
		873.19		-1.082E-01	3.899E-01	6.270E-01	7.745E-02	-0.173
		996.32		5.026E-02	4.660E-01	7.735E-01	1.377E-01	0.065
		1004.76		1.685E-01	2.899E-01	5.026E-01	5.877E-02	0.335
		1274.45	*	-1.077E-01	1.820E-01	2.713E-01	3.026E-02	-0.397
EU-155		48.70		-1.246E-01	4.755E-01	7.254E-01	7.287E-02	-0.172
		60.01		-1.128E+00	2.275E+00	3.408E+00	3.429E-01	-0.331
	+	86.54		5.451E-01	1.118E-01	1.642E-01	1.614E-02	3.320
		105.31	*	3.043E-02	9.803E-02	1.653E-01	1.776E-02	0.184
TB-160	+	86.79		1.428E+00	2.922E-01	4.275E-01	4.170E-02	3.339
		197.04		-3.713E-01	5.858E-01	9.100E-01	7.902E-02	-0.408
		215.65		2.893E-01	7.764E-01	1.271E+00	1.126E-01	0.228
		298.57		1.062E-01	1.399E-01	2.197E-01	2.016E-02	0.483
		879.36	*	1.133E-01	1.774E-01	3.123E-01	2.738E-02	0.363
	+	962.29		1.377E+00	9.420E-01	1.384E+00	1.209E-01	0.995
		966.15		1.557E+00	3.714E-01	7.274E-01	6.356E-02	2.140
		1177.93		-5.323E-02	4.798E-01	7.666E-01	6.272E-02	-0.069

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
HO-166M	1271.85			6.837E-01	9.654E-01	1.678E+00	1.411E-01	0.407
	80.57			1.015E-01	2.532E-01	3.144E-01	3.063E-02	0.323
	184.41		+	1.597E-01	6.030E-02	7.137E-02	6.101E-03	2.238
	280.46			-1.240E-01	9.452E-02	1.476E-01	1.355E-02	-0.840
	410.95			2.799E-01	2.890E-01	4.623E-01	3.953E-02	0.605
	711.68		*	-2.607E-02	7.620E-02	1.243E-01	1.070E-02	-0.210
TM-171	752.31			3.256E-02	3.644E-01	6.154E-01	5.360E-02	0.053
	810.29			-5.986E-02	8.112E-02	1.255E-01	1.103E-02	-0.477
	51.35			-1.477E+00	7.444E+00	1.209E+01	1.210E+00	-0.122
	52.39			2.737E+00	4.108E+00	7.116E+00	7.120E-01	0.385
	59.40			3.047E+00	1.139E+01	1.769E+01	1.783E+00	0.172
	66.72		*	-1.015E+01	1.707E+01	2.508E+01	2.475E+00	-0.405
LU-176	88.36		+	1.074E+00	2.199E-01	3.123E-01	3.053E-02	3.440
	201.83			-6.296E-03	3.028E-02	4.816E-02	4.206E-03	-0.131
	306.84		*	-8.290E-04	2.636E-02	4.437E-02	4.065E-03	-0.019
	401.10			4.529E+00	6.963E+00	1.211E+01	1.027E+00	0.374
LU-177	112.95			-4.532E-01	1.248E+00	2.036E+00	2.263E-01	-0.223
	208.36		+	2.322E+00	1.400E+00	1.781E+00	1.566E-01	1.304
LU-177M	52.97			3.324E-01	4.375E-01	7.596E-01	7.600E-02	0.438
	54.07			1.624E-01	2.425E-01	4.197E-01	4.200E-02	0.387
	61.30			2.485E-01	6.973E-01	1.085E+00	1.087E-01	0.229
	121.62			-3.985E-02	3.664E-01	6.027E-01	7.039E-02	-0.066
	147.16			1.410E-01	6.490E-01	1.074E+00	1.066E-01	0.131
	171.86			7.393E-02	4.968E-01	8.133E-01	6.834E-02	0.091
	218.09			-4.626E-01	9.286E-01	1.444E+00	1.282E-01	-0.320
	268.79		+	1.850E+00	1.320E+00	1.559E+00	1.428E-01	1.186
	319.02			8.337E-02	2.573E-01	4.422E-01	4.033E-02	0.189
	367.43			-6.911E-01	1.038E+00	1.650E+00	1.442E-01	-0.419
	413.65		*	-1.297E-01	2.221E-01	3.020E-01	2.588E-02	-0.430
	56.28			-1.753E-01	2.917E-01	4.857E-01	4.869E-02	-0.361
HF-181	57.53			6.546E-02	1.731E-01	2.990E-01	3.002E-02	0.219
	65.20			1.225E-01	5.143E-01	7.860E-01	7.784E-02	0.156
	133.02			1.701E-02	6.504E-02	1.083E-01	1.189E-02	0.157
	136.25			8.175E-03	4.516E-01	7.433E-01	7.990E-02	0.011
	345.85			-7.801E-02	2.324E-01	3.321E-01	2.973E-02	-0.235
	482.03		*	-9.400E-03	4.661E-02	7.500E-02	6.658E-03	-0.125
W-181	56.28			-6.995E-02	1.168E-01	1.946E-01	1.951E-02	-0.360
	57.53			2.618E-02	6.936E-02	1.198E-01	1.203E-02	0.219
	65.20		*	4.871E-02	2.045E-01	3.125E-01	3.095E-02	0.156
TA-182	67.75			-1.726E-02	6.696E-02	1.010E-01	9.948E-03	-0.171
	100.10			2.267E-02	1.591E-01	2.641E-01	2.738E-02	0.086
	152.43			3.544E-01	3.403E-01	5.815E-01	5.528E-02	0.609
	222.10			9.638E-02	3.681E-01	5.982E-01	5.331E-02	0.161
	1001.68			-1.618E+00	2.692E+00	4.119E+00	3.583E-01	-0.393
	1121.28			6.383E-01	2.666E-01	4.642E-01	3.894E-02	1.375
RE-183	1189.05			-1.457E-02	4.075E-01	6.560E-01	5.387E-02	-0.022
	1221.42		*	-1.733E-01	2.845E-01	4.300E-01	3.567E-02	-0.403
	1230.97			-7.237E-02	6.998E-01	1.117E+00	9.287E-02	-0.065
	57.98			4.097E-02	7.093E-02	1.232E-01	1.238E-02	0.333

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RE-184		59.32		1.117E-02	4.575E-02	7.101E-02	7.155E-03	0.157
		67.20		2.868E-02	1.145E-01	1.748E-01	1.723E-02	0.164
		162.32	*	-1.776E-02	1.145E-01	1.851E-01	1.602E-02	-0.096
	+	208.81		2.550E+00	1.537E+00	1.950E+00	1.716E-01	1.308
		291.72		1.999E-02	1.082E+00	1.619E+00	1.487E-01	0.012
		57.98		1.528E-01	2.646E-01	4.595E-01	4.618E-02	0.333
		59.32		4.165E-02	1.705E-01	2.647E-01	2.667E-02	0.157
		67.20		1.070E-01	4.270E-01	6.518E-01	6.427E-02	0.164
		161.27		-3.318E-01	3.786E-01	5.883E-01	5.148E-02	-0.564
		216.55		-9.601E-02	2.826E-01	4.438E-01	3.935E-02	-0.216
		252.85	*	7.337E-02	2.571E-01	4.157E-01	3.785E-02	0.177
		318.01		-5.214E-01	4.584E-01	7.075E-01	6.456E-02	-0.737
		792.07		1.279E+00	1.547E+00	2.458E+00	2.156E-01	0.520
		903.28		-5.563E-01	1.516E+00	2.053E+00	1.795E-01	-0.271
OS-185		920.93		2.690E-01	6.310E-01	1.084E+00	9.486E-02	0.248
		59.72		-1.127E-02	1.281E-01	1.957E-01	1.971E-02	-0.058
		61.14		7.230E-03	7.585E-02	1.168E-01	1.170E-02	0.062
		69.30		5.504E-02	1.734E-01	2.840E-01	2.790E-02	0.194
		592.07		-1.041E+00	3.336E+00	5.231E+00	4.616E-01	-0.199
		646.12	*	3.040E-02	5.248E-02	8.892E-02	7.592E-03	0.342
		717.42		5.970E-01	1.103E+00	1.939E+00	1.672E-01	0.308
		874.81		-3.642E-01	7.706E-01	1.213E+00	1.064E-01	-0.300
		880.27		3.669E-01	1.005E+00	1.722E+00	1.509E-01	0.213
		155.03	*	-1.091E-01	1.769E-01	2.799E-01	2.600E-02	-0.390
		477.96		2.011E-01	3.381E+00	5.572E+00	4.940E-01	0.036
		633.10		-2.766E+00	3.544E+00	5.223E+00	4.504E-01	-0.530
	+	63.58		3.219E+01	4.301E+01	4.786E+01	4.760E+00	0.673
		227.08		8.887E+00	1.351E+01	2.239E+01	2.004E+00	0.397
W-188	+	290.67	*	-4.129E+00	8.526E+00	1.222E+01	1.122E+00	-0.338
		295.96		9.928E-01	2.526E-01	3.185E-01	2.943E-02	3.117
		308.46		-1.141E-02	1.015E-01	1.700E-01	1.564E-02	-0.067
		316.51	*	-2.882E-02	3.469E-02	5.497E-02	5.029E-03	-0.524
IR-192		468.07		-5.367E-03	8.320E-02	1.188E-01	1.122E-02	-0.045
		604.41		-9.943E-02	6.423E-01	8.859E-01	1.162E-01	-0.112
		612.46		-2.100E-02	8.686E-01	1.216E+00	1.217E-01	-0.017
		65.12		3.605E-02	9.534E-02	1.465E-01	1.452E-02	0.246
		66.83		-9.006E-03	5.508E-02	8.261E-02	8.151E-03	-0.109
	+	75.70		1.244E+00	2.003E-01	3.528E-01	3.441E-02	3.527
		98.88	*	1.875E-01	2.065E-01	3.388E-01	3.489E-02	0.553
		129.76		2.103E+00	2.978E+00	5.041E+00	5.647E-01	0.417
		367.94	*	-3.336E-05	2.978E+00	Half-Life	too short	
		579.30		-2.919E-04	2.978E+00	Half-Life	too short	
		828.27		-1.386E-04	2.978E+00	Half-Life	too short	
		1205.75		-3.900E-04	2.978E+00	Half-Life	too short	
		68.90		-1.947E-01	1.662E+00	2.805E+00	2.757E-01	-0.069
		70.82		-3.784E-01	1.112E+00	1.667E+00	1.634E-01	-0.227
TL-201		80.30		1.371E+00	2.869E+00	3.582E+00	3.489E-01	0.383
		135.34		-5.582E+00	1.633E+01	2.643E+01	2.857E+00	-0.211
		167.43	*	-1.427E-01	4.435E+00	7.203E+00	6.015E-01	-0.020

## ---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-202		68.90		-2.525E-02	2.156E-01	3.638E-01	3.576E-02	-0.069
		70.82		-4.896E-02	1.438E-01	2.157E-01	2.114E-02	-0.227
		80.30		1.774E-01	3.713E-01	4.636E-01	4.515E-02	0.383
		439.56	*	1.741E-02	7.342E-02	1.232E-01	1.074E-02	0.141
HG-203		70.83		-2.312E-01	6.822E-01	1.023E+00	1.471E-01	-0.226
		72.87		3.773E-01	4.182E-01	6.547E-01	9.157E-02	0.576
		82.60		2.878E-02	8.146E-01	1.234E+00	1.785E-01	0.023
		279.20	*	-8.843E-03	4.274E-02	7.167E-02	6.745E-03	-0.123
BI-207		72.80		1.006E-01	1.255E-01	1.966E-01	1.923E-02	0.511
	+	74.97		6.957E-01	1.120E-01	1.717E-01	1.676E-02	4.052
	+	84.90		4.363E-01	1.773E-01	2.534E-01	2.470E-02	1.721
		569.67		4.776E-03	3.904E-02	6.386E-02	5.678E-03	0.075
		1063.62	*	-9.906E-03	7.056E-02	1.133E-01	9.713E-03	-0.087
		1770.23		-1.085E+00	6.631E-01	6.289E-01	5.312E-02	-1.725
TL-207		81.07		7.252E-02	1.983E-01	2.458E-01	2.394E-02	0.295
	+	83.78		2.877E-01	1.169E-01	1.638E-01	1.596E-02	1.756
		94.90		2.233E-01	1.991E-01	3.446E-01	3.478E-02	0.648
		122.32		-2.691E-02	1.719E+00	2.839E+00	3.455E-01	-0.009
		144.24		-7.656E-01	7.337E-01	1.125E+00	1.241E-01	-0.681
		154.21		-1.482E-01	4.132E-01	6.629E-01	6.732E-02	-0.224
	+	269.46		4.371E-01	3.119E-01	3.911E-01	3.649E-02	1.118
		323.87	*	-1.733E-01	8.176E-01	1.189E+00	2.133E-01	-0.146
	+	338.28		6.175E+00	2.166E+00	2.806E+00	3.533E-01	2.201
		445.03		7.001E-01	2.797E+00	4.691E+00	5.712E-01	0.149
PO-209		260.50		7.314E-02	1.072E+01	1.700E+01	1.553E+00	0.004
		262.80		4.852E+00	2.981E+01	4.772E+01	4.363E+00	0.102
		896.60	*	-1.805E+00	9.910E+00	1.608E+01	1.406E+00	-0.112
PB-211		404.84	*	-1.472E-01	1.133E+00	1.621E+00	1.016E+00	-0.091
		427.08		2.403E+00	2.880E+00	4.351E+00	2.704E+00	0.552
		831.96		1.088E+00	1.823E+00	2.969E+00	1.861E+00	0.366
BI-212	+	727.18	*	1.420E+00	6.579E-01	8.697E-01	8.726E-02	1.632
		785.46		8.277E-01	2.431E+00	4.174E+00	3.658E-01	0.198
		1620.62		8.403E-01	1.499E+00	2.726E+00	2.348E-01	0.308
PO-215		81.07		7.252E-02	1.983E-01	2.458E-01	2.394E-02	0.295
	+	83.78		2.877E-01	1.169E-01	1.638E-01	1.596E-02	1.756
		94.90		2.233E-01	1.991E-01	3.446E-01	3.478E-02	0.648
		122.32		-2.691E-02	1.719E+00	2.839E+00	3.455E-01	-0.009
		144.24		-7.656E-01	7.337E-01	1.125E+00	1.241E-01	-0.681
		154.21		-1.482E-01	4.132E-01	6.629E-01	6.732E-02	-0.224
	+	269.46		4.371E-01	3.119E-01	3.911E-01	3.649E-02	1.118
		323.87	*	-1.733E-01	8.176E-01	1.189E+00	2.133E-01	-0.146
	+	338.28		6.175E+00	2.166E+00	2.806E+00	3.533E-01	2.201
		445.03		7.001E-01	2.797E+00	4.691E+00	5.712E-01	0.149
RN-219	+	271.23		5.608E-01	4.014E-01	4.928E-01	5.309E-02	1.138
		401.81	*	-4.322E-02	4.374E-01	7.199E-01	1.076E-01	-0.060
RN-220		549.76	*	-7.279E+00	3.227E+01	5.129E+01	4.579E+00	-0.142
RA-223		81.07		7.252E-02	1.983E-01	2.458E-01	2.394E-02	0.295
	+	83.78		2.877E-01	1.169E-01	1.638E-01	1.596E-02	1.756
		94.90		2.233E-01	1.991E-01	3.446E-01	3.478E-02	0.648

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
AC-227		122.32		-2.691E-02	1.719E+00	2.839E+00	3.455E-01	-0.009
		144.24		-7.656E-01	7.337E-01	1.125E+00	1.241E-01	-0.681
		154.21		-1.482E-01	4.132E-01	6.629E-01	6.732E-02	-0.224
	+	269.46		4.371E-01	3.119E-01	3.911E-01	3.649E-02	1.118
		323.87	*	-1.733E-01	8.176E-01	1.189E+00	2.133E-01	-0.146
	+	338.28		6.175E+00	2.166E+00	2.806E+00	3.533E-01	2.201
		445.03		7.001E-01	2.797E+00	4.691E+00	5.712E-01	0.149
		79.80		8.224E-01	1.320E+00	1.881E+00	4.134E-01	0.437
		236.00		9.096E-02	2.834E-01	4.111E-01	5.148E-02	0.221
		256.20	*	2.729E-01	4.170E-01	6.867E-01	1.074E-01	0.397
		286.10		-4.862E-01	1.576E+00	2.618E+00	3.554E-01	-0.186
		299.80		1.259E+00	1.812E+00	2.819E+00	5.010E-01	0.447
		304.40		3.347E-01	2.023E+00	3.445E+00	6.441E-01	0.097
		334.20		-2.327E+00	2.929E+00	3.976E+00	7.792E-01	-0.585
TH-227		79.80		8.224E-01	1.320E+00	1.881E+00	4.184E-01	0.437
	+	94.00		9.425E+00	3.372E+00	3.414E+00	7.642E-01	2.760
		236.00		9.096E-02	2.834E-01	4.111E-01	4.680E-02	0.221
		256.20	*	2.729E-01	4.178E-01	6.867E-01	1.257E-01	0.397
		286.10		-4.862E-01	1.648E+00	2.618E+00	2.629E+00	-0.186
		299.80		1.259E+00	1.812E+00	2.819E+00	5.010E-01	0.447
		304.40		3.347E-01	2.023E+00	3.445E+00	6.441E-01	0.097
		334.20		-2.327E+00	2.929E+00	3.976E+00	7.792E-01	-0.585
	+	85.43		4.307E-01	1.750E-01	2.559E-01	2.494E-02	1.683
	+	88.47		6.185E-01	1.266E-01	1.779E-01	1.740E-02	3.476
TH-229		100.00		8.015E-02	1.666E-01	2.801E-01	2.902E-02	0.286
		193.63	*	1.171E-01	5.372E-01	8.770E-01	7.585E-02	0.134
		210.97		1.112E+00	8.858E-01	1.374E+00	1.212E-01	0.809
		283.67	*	8.465E-02	1.576E+00	2.678E+00	4.154E-01	0.032
		301.29		9.736E-01	6.900E-01	1.164E+00	1.471E-01	0.837
TH-231		81.07		7.252E-02	1.983E-01	2.458E-01	2.394E-02	0.295
	+	83.78		2.877E-01	1.169E-01	1.638E-01	1.596E-02	1.756
		94.90		2.233E-01	1.991E-01	3.446E-01	3.478E-02	0.648
		122.32		-2.691E-02	1.719E+00	2.839E+00	3.455E-01	-0.009
PA-231		144.24		-7.656E-01	7.337E-01	1.125E+00	1.241E-01	-0.681
		154.21		-1.482E-01	4.132E-01	6.629E-01	6.732E-02	-0.224
	+	269.46		4.371E-01	3.119E-01	3.911E-01	3.649E-02	1.118
		323.87	*	-1.733E-01	8.176E-01	1.189E+00	2.133E-01	-0.146
	+	338.28		6.175E+00	2.166E+00	2.806E+00	3.533E-01	2.201
		445.03		7.001E-01	2.797E+00	4.691E+00	5.712E-01	0.149
	+	84.21		8.699E+00	3.535E+00	5.037E+00	4.908E-01	1.727
	+	92.29		6.537E+00	1.939E+00	2.448E+00	2.439E-01	2.670
		95.87	*	7.435E-02	6.880E-01	1.038E+00	1.053E-01	0.072
		108.00		-1.098E-01	1.340E+00	2.220E+00	2.402E-01	-0.049
PA-233	+	75.28		2.030E+01	4.163E+00	5.249E+00	8.406E-01	3.868
	+	86.59		8.868E+00	2.892E+00	2.671E+00	7.266E-01	3.321
		300.12		4.863E-01	4.972E-01	7.872E-01	1.197E-01	0.618
		311.98	*	8.401E-03	6.744E-02	1.145E-01	1.074E-02	0.073
		340.50		8.668E-01	7.443E-01	1.165E+00	2.793E-01	0.744
		398.62		-9.653E-01	2.306E+00	3.682E+00	9.787E-01	-0.262

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	415.76		4.408E-01	1.853E+00	3.118E+00	6.715E-01	0.141
		63.00		9.538E-01	1.280E+00	1.415E+00	2.305E-01	0.674
		94.67		2.851E-01	1.509E-01	2.609E-01	3.511E-02	1.093
		98.44		3.145E-02	9.200E-02	1.371E-01	7.684E-02	0.230
		99.86		2.389E-01	4.233E-01	7.136E-01	7.388E-02	0.335
		111.00		-6.558E-02	1.748E-01	2.852E-01	3.960E-02	-0.230
		131.20		-5.066E-02	1.103E-01	1.778E-01	1.974E-02	-0.285
		152.70		4.194E-01	3.350E-01	5.675E-01	9.930E-02	0.739
		186.00		5.750E+00	2.773E+00	2.865E+00	8.938E-01	2.007
		226.40		2.241E-03	4.355E-01	6.965E-01	9.345E-02	0.003
		227.20		2.905E-01	4.700E-01	7.773E-01	6.958E-02	0.374
		248.90		-6.112E-01	8.990E-01	1.346E+00	3.041E-01	-0.454
		293.70		6.376E+00	1.882E+00	1.955E+00	3.439E-01	3.261
		369.80		6.819E-02	9.695E-01	1.624E+00	3.544E-01	0.042
		568.70		1.437E-01	1.258E+00	2.056E+00	1.829E-01	0.070
		569.50		-4.926E-02	3.493E-01	5.583E-01	4.964E-02	-0.088
		574.00		1.364E-01	1.856E+00	3.022E+00	2.684E-01	0.045
		699.00		-3.496E-01	9.389E-01	1.531E+00	2.917E-01	-0.228
	706.10		-5.404E-01	1.365E+00	2.187E+00	9.751E-01	-0.247	
	733.00		1.130E-01	4.491E-01	7.324E-01	1.627E-01	0.154	
	742.81		-4.379E-01	1.627E+00	2.611E+00	1.756E+00	-0.168	
	796.30		5.602E-01	1.872E+00	2.228E+00	6.039E-01	0.251	
	805.60		-9.195E-02	1.294E+00	2.143E+00	6.577E-01	-0.043	
	819.60		-1.515E+00	1.714E+00	2.430E+00	9.251E-01	-0.623	
	826.30		1.960E-01	1.106E+00	1.866E+00	8.353E-01	0.105	
	831.60		4.991E-01	8.819E-01	1.518E+00	4.539E-01	0.329	
	876.40		-2.367E-01	1.117E+00	1.765E+00	1.815E+00	-0.134	
	880.51		7.366E-02	3.705E-01	6.247E-01	5.476E-02	0.118	
	883.24		-2.139E-01	4.045E-01	5.885E-01	3.957E-01	-0.363	
	899.00		2.864E-01	1.100E+00	1.855E+00	8.115E-01	0.154	
	925.00		2.513E-01	1.510E+00	2.537E+00	2.220E-01	0.099	
	926.50		-2.568E-01	2.389E-01	3.309E-01	8.380E-02	-0.776	
	946.00	*	8.204E-02	3.898E-01	6.561E-01	1.235E-01	0.125	
	949.00		5.627E-01	5.495E-01	1.002E+00	8.763E-02	0.562	
	980.50		2.413E-01	9.066E-01	1.535E+00	1.339E-01	0.157	
	1394.10		-3.733E-01	1.508E+00	2.390E+00	1.555E+00	-0.156	
PA-234M		766.42		2.345E+01	1.941E+01	2.862E+01	1.453E+01	0.820
		1001.03	*	-3.104E+00	6.114E+00	9.454E+00	9.487E-01	-0.328
U-235	+	89.95		4.096E+00	1.659E+00	1.655E+00	5.168E-01	2.475
		93.35		2.932E+00	1.170E+00	1.146E+00	3.265E-01	2.558
	+	105.00		4.743E-01	9.784E-01	1.645E+00	5.014E-01	0.288
		143.76	*	-1.584E-01	2.252E-01	3.505E-01	6.426E-02	-0.452
		163.35		-1.080E-01	5.022E-01	8.088E-01	1.541E-01	-0.134
		185.71		2.129E-01	8.039E-02	1.054E-01	9.026E-03	2.020
NP-236	+	205.31		9.906E-02	6.110E-01	8.851E-01	1.695E-01	0.112
		94.67		2.186E-01	1.130E-01	1.982E-01	1.997E-02	1.103
		98.44		2.377E-02	6.830E-02	1.036E-01	1.065E-02	0.229
		111.00		-4.960E-02	1.322E-01	2.157E-01	2.372E-02	-0.230
		160.31	*	-1.261E-02	8.554E-02	1.385E-01	1.224E-02	-0.091



---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239		99.55		1.553E-01	1.407E-01	2.413E-01	2.494E-02	0.644
		117.00	*	-1.515E-01	1.837E-01	2.913E-01	3.314E-02	-0.520
	+	209.75		2.055E+00	1.239E+00	1.581E+00	1.393E-01	1.299
		228.18		1.645E-01	2.493E-01	4.129E-01	3.699E-02	0.398
		277.60		2.543E-01	1.948E-01	3.503E-01	3.215E-02	0.726
AM-241		334.30		-1.261E+00	1.647E+00	2.266E+00	2.048E-01	-0.557
		59.54	*	2.059E-02	6.682E-02	1.040E-01	1.104E-02	0.198
CM-243		99.55		1.598E-01	1.448E-01	2.483E-01	2.566E-02	0.644
		103.76	*	4.924E-02	8.673E-02	1.477E-01	1.562E-02	0.333
		117.00		-1.559E-01	1.890E-01	2.997E-01	3.409E-02	-0.520
	+	209.75		2.025E+00	1.221E+00	1.559E+00	1.373E-01	1.299
		228.18		1.662E-01	2.519E-01	4.172E-01	3.737E-02	0.398
AM-246		277.60		2.563E-01	1.964E-01	3.531E-01	3.241E-02	0.726
		798.80		-9.541E-02	2.076E-01	2.818E-01	2.474E-02	-0.339
		1036.00		-1.573E-01	3.873E-01	6.023E-01	5.203E-02	-0.261
		1062.04		1.513E-01	2.993E-01	5.155E-01	4.421E-02	0.294
		1078.86	*	5.952E-02	2.112E-01	3.538E-01	3.018E-02	0.168
CM-247		278.00		1.197E+00	8.121E-01	1.468E+00	1.348E-01	0.815
		287.40		4.725E-01	1.272E+00	2.199E+00	2.020E-01	0.215
		402.60	*	-2.737E-02	4.004E-02	6.276E-02	5.332E-03	-0.436
CF-249		252.85		2.777E-01	9.733E-01	1.573E+00	1.433E-01	0.177
		333.44		-7.521E-02	2.081E-01	2.977E-01	2.692E-02	-0.253
		387.95	*	4.957E-02	4.527E-02	8.054E-02	6.824E-03	0.615
CF-251		176.60	*	1.256E-01	1.335E-01	2.263E-01	1.914E-02	0.555
		227.00		1.949E-01	4.166E-01	6.837E-01	6.120E-02	0.285
		285.00		1.587E-01	1.820E+00	3.099E+00	2.846E-01	0.051

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014514
* Acquisition date   : 21-JAN-2010 11:24:27 Detector SN# :
* Detector ID        : GAM17 Sensitivity : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 02:00:09.33 Half life ratio : 8.000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 8-JAN-2010 12:00:00 Nuclide Library : SOLID
* Sample ID          : G1202014514 Analyst initials: MXR1
* Batch Number       : 941242 Sample Quantity : 1.2827E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*                                     QC DATA                               *
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36 MS Isotope :
* MSD DPM             : 0.000 MSD Isotope :
* LCS DPM             : 0.000 LCS Isotope :
* LCSD DPM           : 0.000 LCSD Isotope :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
K-40	2.744E+01	3.127E+00	6.960E-01	0.000E+00
CD-109	4.594E+00	9.214E-01	9.884E-01	0.000E+00
SN-126	4.530E-01	9.085E-02	9.733E-02	0.000E+00
TL-208	6.005E-01	1.089E-01	7.195E-02	0.000E+00
BI-210	9.140E-01	9.773E-01	8.960E-01	0.000E+00
PB-210	9.140E-01	9.773E-01	8.960E-01	0.000E+00
PO-210	9.140E-01	9.766E-01	8.960E-01	0.000E+00
BI-211	4.672E+00	6.649E-01	3.701E-01	0.000E+00
PB-212	1.849E+00	2.209E-01	9.231E-02	0.000E+00
PO-212	1.849E+00	2.209E-01	9.231E-02	0.000E+00
BI-214	1.525E+00	2.353E-01	1.349E-01	0.000E+00
PB-214	1.625E+00	2.458E-01	1.291E-01	0.000E+00
PO-214	1.625E+00	2.458E-01	1.291E-01	0.000E+00
PO-216	1.849E+00	2.209E-01	9.231E-02	0.000E+00
PO-218	1.625E+00	2.458E-01	1.291E-01	0.000E+00
RA-224	5.080E+00	1.590E+00	1.051E+00	0.000E+00
RA-226	1.525E+00	2.353E-01	1.349E-01	0.000E+00
AC-228	1.764E+00	4.678E-01	2.875E-01	0.000E+00
RA-228	1.764E+00	4.678E-01	2.875E-01	0.000E+00
TH-228	1.873E+00	2.238E-01	9.351E-02	0.000E+00
TH-230	1.525E+00	2.353E-01	1.349E-01	0.000E+00
TH-232	1.764E+00	4.678E-01	2.875E-01	0.000E+00
TH-234	8.183E-01	1.079E+00	1.078E+00	0.000E+00
U-234	1.525E+00	2.353E-01	1.349E-01	0.000E+00
NP-237	1.330E+00	3.789E-01	2.849E-01	0.000E+00
U-238	8.183E-01	1.079E+00	1.078E+00	0.000E+00
AM-243	3.876E-01	6.116E-02	6.191E-02	0.000E+00
ANH-511	1.186E-01	8.395E-02	5.292E-02	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	-1.174E-01	3.476E-01	5.744E-01	0.000E+00	NOT IDENT.
NA-22	-4.221E-02	6.416E-02	9.724E-02	0.000E+00	NOT IDENT.
NA-24	0.000E+00	8.537E+04	0.000E+00	0.000E+00	SHORT HLIF
AL-26	-2.260E-03	3.276E-02	5.336E-02	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.578E-02	6.590E-02	0.000E+00	FAIL ABUN
SC-46	1.190E-02	5.145E-02	8.954E-02	0.000E+00	FAIL ABUN
V-48	-1.846E-02	7.488E-02	1.224E-01	0.000E+00	NOT IDENT.
CR-51	2.651E-01	3.473E-01	6.390E-01	0.000E+00	NOT IDENT.
MN-52	-9.654E-02	1.804E-01	2.738E-01	0.000E+00	NOT IDENT.
MN-54	-1.927E-02	5.133E-02	8.503E-02	0.000E+00	NOT IDENT.
CO-56	-3.212E-02	4.752E-02	7.541E-02	0.000E+00	NOT IDENT.
CO-57	-1.903E-03	2.413E-02	4.215E-02	0.000E+00	NOT IDENT.
CO-58	-2.230E-02	5.102E-02	8.401E-02	0.000E+00	NOT IDENT.
FE-59	1.275E-02	1.138E-01	1.922E-01	0.000E+00	NOT IDENT.
CO-60	1.427E-02	4.788E-02	8.509E-02	0.000E+00	NOT IDENT.
ZN-65	4.685E-02	1.350E-01	2.041E-01	0.000E+00	NOT IDENT.
GE-68	1.177E+00	1.830E+00	3.242E+00	0.000E+00	NOT IDENT.
AS-73	1.989E-01	2.230E-01	4.166E-01	0.000E+00	NOT IDENT.
AS-74	1.589E-02	1.166E-01	1.969E-01	0.000E+00	NOT IDENT.
SE-75	-1.806E-02	5.347E-02	7.634E-02	0.000E+00	NOT IDENT.
BR-77	2.255E-01	6.478E+00	1.098E+01	0.000E+00	FAIL ABUN
SR-82	-5.856E-01	5.362E-01	6.803E-01	0.000E+00	NOT IDENT.
RB-83	2.739E-03	7.860E-02	1.332E-01	0.000E+00	NOT IDENT.
RB-84	-4.547E-02	8.832E-02	1.422E-01	0.000E+00	NOT IDENT.
KR-85	8.669E+00	9.025E+00	1.474E+01	0.000E+00	NOT IDENT.
SR-85	4.346E-02	4.524E-02	7.390E-02	0.000E+00	NOT IDENT.
RB-86	7.232E-01	1.069E+00	1.901E+00	0.000E+00	NOT IDENT.
Y-88	3.534E-02	2.951E-02	6.531E-02	0.000E+00	NOT IDENT.
ZR-88	-7.198E-03	3.472E-02	5.922E-02	0.000E+00	NOT IDENT.
Y-91	-8.520E-01	2.664E+01	4.389E+01	0.000E+00	NOT IDENT.
NB-94	-7.379E-03	4.333E-02	7.435E-02	0.000E+00	NOT IDENT.
NB-95	7.049E-02	6.243E-02	1.049E-01	0.000E+00	NOT IDENT.
NB-95M	-8.798E-02	1.410E-01	1.993E-01	0.000E+00	NOT IDENT.
ZR-95	-2.649E-03	8.949E-02	1.542E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	1.566E+04	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.649E+05	0.000E+00	0.000E+00	SHORT HLIF
MO-99	5.050E+00	7.707E+00	1.410E+01	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	1.065E+14	0.000E+00	0.000E+00	SHORT HLIF
RH-101	6.970E-03	3.376E-02	5.790E-02	0.000E+00	NOT IDENT.
RH-102	1.719E-04	3.175E-02	5.411E-02	0.000E+00	NOT IDENT.
RU-103	-1.115E-02	4.697E-02	7.808E-02	0.000E+00	FAIL ABUN
RH-106	1.248E-02	4.028E-01	6.718E-01	0.000E+00	FAIL ABUN
RU-106	1.248E-02	4.028E-01	6.718E-01	0.000E+00	FAIL ABUN
AG-108M	7.194E-03	3.514E-02	6.129E-02	0.000E+00	NOT IDENT.
AG-110M	-4.373E-02	4.590E-02	6.864E-02	0.000E+00	NOT IDENT.
IN-111	3.584E-01	6.615E-01	1.029E+00	0.000E+00	NOT IDENT.
IN-113M	-2.353E-02	4.897E-02	8.180E-02	0.000E+00	NOT IDENT.
SN-113	-2.353E-02	4.897E-02	8.180E-02	0.000E+00	NOT IDENT.
IN-114M	-5.235E-03	1.892E-01	3.059E-01	0.000E+00	NOT IDENT.
CD-115	-4.016E+00	6.337E+00	1.004E+01	0.000E+00	NOT IDENT.
SN-117M	3.808E-02	5.164E-02	9.186E-02	0.000E+00	NOT IDENT.
SB-122	-7.229E-01	1.461E+00	2.341E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	3.987E+05	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	1.811E-02	2.933E-02	5.193E-02	0.000E+00	NOT IDENT.
I-124	-2.592E-01	6.554E-01	9.666E-01	0.000E+00	NOT IDENT.
SB-124	6.975E-02	9.167E-02	1.822E-01	0.000E+00	FAIL ABUN
SB-125	6.678E-02	1.106E-01	1.977E-01	0.000E+00	FAIL ABUN
TE-125M	3.764E+00	8.144E+00	1.464E+01	0.000E+00	NOT IDENT.
I-126	1.194E-01	1.926E-01	3.374E-01	0.000E+00	NOT IDENT.
SB-126	-1.220E-01	1.825E-01	2.519E-01	0.000E+00	FAIL ABUN
SB-127	-1.028E+00	1.174E+00	1.746E+00	0.000E+00	NOT IDENT.
XE-127	-6.032E-03	4.716E-02	7.931E-02	0.000E+00	NOT IDENT.
I-131	-2.251E-02	1.086E-01	1.863E-01	0.000E+00	NOT IDENT.
TE-132	3.184E-01	4.752E-01	8.238E-01	0.000E+00	NOT IDENT.
BA-133	3.315E-03	5.286E-02	8.163E-02	0.000E+00	NOT IDENT.
I-133	0.000E+00	1.289E+03	0.000E+00	0.000E+00	SHORT HLIF
CS-134	2.877E-02	9.396E-02	1.188E-01	0.000E+00	FAIL ABUN
CS-135	8.435E-02	1.942E-01	2.960E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.687E+13	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-4.843E-02	1.253E-01	2.006E-01	0.000E+00	FAIL ABUN
BA-137M	7.902E-03	4.996E-02	8.316E-02	0.000E+00	NOT IDENT.
CS-137	8.354E-03	5.281E-02	8.791E-02	0.000E+00	NOT IDENT.
CE-139	1.438E-02	3.104E-02	5.446E-02	0.000E+00	NOT IDENT.
BA-140	1.962E-01	2.816E-01	4.906E-01	0.000E+00	NOT IDENT.
LA-140	3.440E-02	8.682E-02	1.404E-01	0.000E+00	FAIL ABUN
CE-141	-1.163E-02	6.157E-02	1.046E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	8.249E+01	0.000E+00	0.000E+00	SHORT HLIF

CE-144	4.288E-02	2.075E-01	3.647E-01	0.000E+00	NOT IDENT.
PM-144	2.479E-02	4.231E-02	7.696E-02	0.000E+00	NOT IDENT.
PR-144	1.678E+00	2.864E+00	5.209E+00	0.000E+00	NOT IDENT.
PM-146	3.939E-02	5.204E-02	9.363E-02	0.000E+00	NOT IDENT.
ND-147	5.834E-01	5.822E-01	1.055E+00	0.000E+00	FAIL ABUN
PM-149	-2.136E+01	4.761E+01	8.200E+01	0.000E+00	NOT IDENT.
EU-152	-3.900E-02	1.071E-01	1.762E-01	0.000E+00	FAIL ABUN
GD-153	-3.439E-02	7.410E-02	1.143E-01	0.000E+00	FAIL ABUN
EU-154	-1.077E-01	1.784E-01	2.719E-01	0.000E+00	NOT IDENT.
EU-155	3.043E-02	9.607E-02	1.721E-01	0.000E+00	FAIL ABUN
TB-160	1.133E-01	1.738E-01	3.149E-01	0.000E+00	FAIL ABUN
HO-166M	-2.607E-02	7.467E-02	1.258E-01	0.000E+00	FAIL ABUN
TM-171	-1.015E+01	1.672E+01	2.629E+01	0.000E+00	NOT IDENT.
LU-176	-8.290E-04	2.583E-02	4.547E-02	0.000E+00	FAIL ABUN
LU-177	0.000E+00	1.372E+00	1.835E+00	0.000E+00	FAIL ABUN
LU-177M	-1.297E-01	2.177E-01	3.081E-01	0.000E+00	FAIL ABUN
HF-181	-9.400E-03	4.568E-02	7.632E-02	0.000E+00	NOT IDENT.
W-181	4.871E-02	2.004E-01	3.276E-01	0.000E+00	NOT IDENT.
TA-182	-1.733E-01	2.788E-01	4.313E-01	0.000E+00	NOT IDENT.
RE-183	-1.776E-02	1.122E-01	1.915E-01	0.000E+00	FAIL ABUN
RE-184	7.337E-02	2.520E-01	4.272E-01	0.000E+00	NOT IDENT.
OS-185	3.040E-02	5.143E-02	9.008E-02	0.000E+00	NOT IDENT.
RE-188	-1.091E-01	1.734E-01	2.898E-01	0.000E+00	NOT IDENT.
W-188	-4.129E+00	8.356E+00	1.253E+01	0.000E+00	FAIL ABUN
IR-192	-2.882E-02	3.400E-02	5.630E-02	0.000E+00	FAIL ABUN
AU-195	1.875E-01	2.023E-01	3.531E-01	0.000E+00	FAIL ABUN
TL-200	0.000E+00	1.272E+02	0.000E+00	0.000E+00	SHORT HLIF
TL-201	-1.427E-01	4.346E+00	7.448E+00	0.000E+00	NOT IDENT.
TL-202	1.741E-02	7.195E-02	1.255E-01	0.000E+00	NOT IDENT.
HG-203	-8.843E-03	4.188E-02	7.355E-02	0.000E+00	NOT IDENT.
BI-207	-9.906E-03	6.915E-02	1.139E-01	0.000E+00	FAIL ABUN
TL-207	-1.733E-01	8.013E-01	1.217E+00	0.000E+00	FAIL ABUN
PO-209	-1.805E+00	9.712E+00	1.621E+01	0.000E+00	NOT IDENT.
PB-211	-1.472E-01	1.110E+00	1.654E+00	0.000E+00	NOT IDENT.
BI-212	0.000E+00	6.448E-01	8.794E-01	0.000E+00	FAIL ABUN
PO-215	-1.733E-01	8.013E-01	1.217E+00	0.000E+00	FAIL ABUN
RN-219	-4.322E-02	4.287E-01	7.347E-01	0.000E+00	FAIL ABUN
RN-220	-7.279E+00	3.163E+01	5.209E+01	0.000E+00	NOT IDENT.
RA-223	-1.733E-01	8.013E-01	1.217E+00	0.000E+00	FAIL ABUN
AC-227	2.729E-01	4.087E-01	7.056E-01	0.000E+00	NOT IDENT.
TH-227	2.729E-01	4.095E-01	7.056E-01	0.000E+00	FAIL ABUN
TH-229	1.171E-01	5.265E-01	9.049E-01	0.000E+00	FAIL ABUN
PA-231	8.465E-02	1.544E+00	2.748E+00	0.000E+00	NOT IDENT.
TH-231	-1.733E-01	8.013E-01	1.217E+00	0.000E+00	FAIL ABUN
U-231	7.435E-02	6.743E-01	1.083E+00	0.000E+00	FAIL ABUN
PA-233	8.401E-03	6.609E-02	1.173E-01	0.000E+00	FAIL ABUN
PA-234	8.204E-02	3.820E-01	6.607E-01	0.000E+00	FAIL ABUN
PA-234M	-3.104E+00	5.992E+00	9.512E+00	0.000E+00	NOT IDENT.
U-235	-1.584E-01	2.207E-01	3.633E-01	0.000E+00	FAIL ABUN
NP-236	-1.261E-02	8.383E-02	1.433E-01	0.000E+00	NOT IDENT.
NP-239	-1.515E-01	1.800E-01	3.029E-01	0.000E+00	FAIL ABUN
AM-241	2.059E-02	6.548E-02	1.092E-01	0.000E+00	NOT IDENT.
CM-243	4.924E-02	8.499E-02	1.539E-01	0.000E+00	FAIL ABUN
AM-246	5.952E-02	2.069E-01	3.555E-01	0.000E+00	NOT IDENT.
CM-247	-2.737E-02	3.924E-02	6.405E-02	0.000E+00	NOT IDENT.
CF-249	4.957E-02	4.436E-02	8.224E-02	0.000E+00	NOT IDENT.
CF-251	1.256E-01	1.308E-01	2.338E-01	0.000E+00	NOT IDENT.

## VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 13:25:08.98

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*****
*                               GEL Laboratories LLC                               *
*                               2040 Savage Road                               *
*                               Charleston, SC 29414                           *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014514.CNF;1
Sample date        : 8-JAN-2010 12:00:00. Acquisition date : 21-JAN-2010 11:24:27
Sample ID          : G1202014514          Sample quantity  : 1.28270E+02 GRAM
Detector name      : GAM17                Detector geometry: CAN
Elapsed live time  : 0 02:00:00.00        Elapsed real time: 0 02:00:09.33  0.1%
Energy tolerance   : 1.50000 keV          Analyst Initials : MXR1
Abundance limit    : 75.00000             Sensitivity       : 5.00000
Batch ID           : 941242               Detector SN#      :
Matrix Spike ID    :                     LCS ID           : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
K-40	1460.81	779	10.67*	7.784E-01	2.744E+01	2.744E+01	11.63
CD-109	88.03	382	3.72*	6.674E+00	4.506E+00	4.594E+00	20.47
SN-126	64.28	72	9.60	6.778E+00	3.239E-01	3.239E-01	134.20
	86.94	382	8.90	6.674E+00	1.883E+00	1.883E+00	45.33
	87.57	382	37.00*	6.674E+00	4.530E-01	4.530E-01	20.47
TL-208	277.35	-----	6.80	3.568E+00	-----	Line Not Found	-----
	510.84	83	21.60	2.058E+00	5.492E-01	5.492E-01	72.70
	583.14	313	84.20*	1.812E+00	6.005E-01	6.005E-01	18.51
	860.37	53	12.46	1.246E+00	9.940E-01	9.940E-01	73.98
BI-210	46.50	80	4.05*	6.328E+00	9.129E-01	9.140E-01	109.11
PB-210	46.50	80	4.05*	6.328E+00	9.129E-01	9.140E-01	109.11
PO-210	46.50	80	4.05*	6.328E+00	9.129E-01	9.140E-01	109.04
BI-211	72.87	-----	1.27	6.803E+00	-----	Line Not Found	-----
	351.07	601	12.94*	2.909E+00	4.672E+00	4.672E+00	14.52
PB-212	74.81	594	10.70	6.795E+00	2.391E+00	2.391E+00	18.62
	77.11	935	18.00	6.782E+00	2.241E+00	2.241E+00	13.77
	87.30	382	8.00	6.674E+00	2.095E+00	2.095E+00	22.78
	238.63	1134	44.60*	4.023E+00	1.849E+00	1.849E+00	12.19
	300.09	-----	3.41	3.340E+00	-----	Line Not Found	-----
PO-212	74.81	594	10.70	6.795E+00	2.391E+00	2.391E+00	18.62
	77.11	935	18.00	6.782E+00	2.241E+00	2.241E+00	13.77
	87.30	382	8.00	6.674E+00	2.095E+00	2.095E+00	22.78
	115.19	-----	0.60	6.177E+00	-----	Line Not Found	-----
	238.63	1134	44.60*	4.023E+00	1.849E+00	1.849E+00	12.19
	300.09	-----	3.41	3.340E+00	-----	Line Not Found	-----
BI-214	609.31	419	46.30*	1.737E+00	1.525E+00	1.525E+00	15.74
	1120.29	66	15.10	9.776E-01	1.315E+00	1.315E+00	54.63
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
PB-214	74.81	594	6.21	6.795E+00	4.120E+00	4.120E+00	17.72
	77.11	935	10.50	6.782E+00	3.841E+00	3.841E+00	15.73
	87.30	382	4.67	6.674E+00	3.589E+00	3.589E+00	21.87
	241.98	273	7.49	3.986E+00	2.679E+00	2.679E+00	32.42

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
PO-214	295.21	295	19.20	3.389E+00	1.328E+00	1.328E+00	26.18
	351.92	601	37.20*	2.909E+00	1.625E+00	1.625E+00	15.43
	74.81	594	6.21	6.795E+00	4.120E+00	4.120E+00	17.72
	77.11	935	10.50	6.782E+00	3.841E+00	3.841E+00	15.73
	87.30	382	4.67	6.674E+00	3.589E+00	3.589E+00	21.87
PO-216	241.98	273	7.49	3.986E+00	2.679E+00	2.679E+00	32.42
	295.21	295	19.20	3.389E+00	1.328E+00	1.328E+00	26.18
	351.92	601	37.20*	2.909E+00	1.625E+00	1.625E+00	15.43
	74.81	594	10.70	6.795E+00	2.391E+00	2.391E+00	18.62
	77.11	935	18.00	6.782E+00	2.241E+00	2.241E+00	13.77
PO-218	87.30	382	8.00	6.674E+00	2.095E+00	2.095E+00	22.78
	238.63	1134	44.60*	4.023E+00	1.849E+00	1.849E+00	12.19
	300.09	-----	3.41	3.340E+00	-----	Line Not Found	-----
	74.81	594	6.21	6.795E+00	4.120E+00	4.120E+00	17.72
	77.11	935	10.50	6.782E+00	3.841E+00	3.841E+00	15.73
RA-224	87.30	382	4.67	6.674E+00	3.589E+00	3.589E+00	21.87
	241.98	273	7.49	3.986E+00	2.679E+00	2.679E+00	32.42
	295.21	295	19.20	3.389E+00	1.328E+00	1.328E+00	26.18
	351.92	601	37.20*	2.909E+00	1.625E+00	1.625E+00	15.43
	240.98	273	3.95*	3.986E+00	5.080E+00	5.080E+00	31.93
RA-226	609.31	419	46.30*	1.737E+00	1.525E+00	1.525E+00	15.74
	1120.29	66	15.10	9.776E-01	1.315E+00	1.315E+00	54.63
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
	338.32	174	11.40	3.013E+00	1.479E+00	1.479E+00	52.74
	911.07	197	27.70*	1.182E+00	1.764E+00	1.764E+00	27.07
AC-228	969.11	120	16.60	1.116E+00	1.898E+00	1.898E+00	35.89
	338.32	174	11.40	3.013E+00	1.479E+00	1.479E+00	52.74
	911.07	197	27.70*	1.182E+00	1.764E+00	1.764E+00	27.07
	969.11	120	16.60	1.116E+00	1.898E+00	1.898E+00	35.89
	74.81	594	10.70	6.795E+00	2.391E+00	2.422E+00	16.14
TH-228	77.11	935	18.00	6.782E+00	2.241E+00	2.270E+00	13.77
	87.30	382	8.00	6.674E+00	2.095E+00	2.122E+00	20.47
	238.63	1134	44.60*	4.023E+00	1.849E+00	1.873E+00	12.19
	300.09	-----	3.41	3.340E+00	-----	Line Not Found	-----
	609.31	419	46.30*	1.737E+00	1.525E+00	1.525E+00	15.74
TH-230	1120.29	66	15.10	9.776E-01	1.315E+00	1.315E+00	54.63
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
	338.32	174	11.40	3.013E+00	1.479E+00	1.479E+00	33.96
	911.07	197	27.70*	1.182E+00	1.764E+00	1.764E+00	27.07
	969.11	120	16.60	1.116E+00	1.898E+00	1.898E+00	35.89
TH-232	63.29	72	3.80*	6.778E+00	8.183E-01	8.183E-01	134.55
	92.38	297	5.41	6.594E+00	2.439E+00	2.439E+00	33.65
	609.31	419	46.30*	1.737E+00	1.525E+00	1.525E+00	15.74
	1120.29	66	15.10	9.776E-01	1.315E+00	1.315E+00	54.63
	1764.49	-----	15.80	6.714E-01	-----	Line Not Found	-----
NP-237	86.50	382	12.60*	6.674E+00	1.330E+00	1.330E+00	29.06
	95.87	-----	2.60	6.543E+00	-----	Line Not Found	-----
	63.29	72	3.80*	6.778E+00	8.183E-01	8.183E-01	134.55
	92.38	297	5.41	6.594E+00	2.439E+00	2.439E+00	29.66

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
AM-243	74.67	594	66.00*	6.795E+00	3.876E-01	3.876E-01	16.10
	86.72	382	0.34	6.674E+00	4.988E+01	4.988E+01	20.47
	117.66	-----	0.55	6.127E+00	-----	Line Not Found	-----
	142.18	-----	0.13	5.624E+00	-----	Line Not Found	-----
ANH-511	511.00	83	100.00*	2.058E+00	1.186E-01	1.186E-01	72.22

Flag: "\*" = Keyline

Total number of lines in spectrum 33  
Number of unidentified lines 4  
Number of lines tentatively identified by NID 29 87.88%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
K-40	1.28E+09Y	1.00	2.744E+01	2.744E+01	0.319E+01	11.63	
CD-109	464.00D	1.02	4.506E+00	4.594E+00	0.940E+00	20.47	
SN-126	1.00E+05Y	1.00	4.530E-01	4.530E-01	0.927E-01	20.47	
TL-208	1.41E+10Y	1.00	6.005E-01	6.005E-01	1.112E-01	18.51	
BI-210	22.26Y	1.00	9.129E-01	9.140E-01	9.972E-01	109.11	
PB-210	22.26Y	1.00	9.129E-01	9.140E-01	9.972E-01	109.11	
PO-210	22.26Y	1.00	9.129E-01	9.140E-01	9.966E-01	109.04	
BI-211	7.04E+08Y	1.00	4.672E+00	4.672E+00	0.678E+00	14.52	
PB-212	1.41E+10Y	1.00	1.849E+00	1.849E+00	0.225E+00	12.19	
PO-212	1.41E+10Y	1.00	1.849E+00	1.849E+00	0.225E+00	12.19	
BI-214	1600.00Y	1.00	1.525E+00	1.525E+00	0.240E+00	15.74	
PB-214	1600.00Y	1.00	1.625E+00	1.625E+00	0.251E+00	15.43	
PO-214	1600.00Y	1.00	1.625E+00	1.625E+00	0.251E+00	15.43	
PO-216	1.41E+10Y	1.00	1.849E+00	1.849E+00	0.225E+00	12.19	
PO-218	1600.00Y	1.00	1.625E+00	1.625E+00	0.251E+00	15.43	
RA-224	1.41E+10Y	1.00	5.080E+00	5.080E+00	1.622E+00	31.93	
RA-226	1600.00Y	1.00	1.525E+00	1.525E+00	0.240E+00	15.74	
AC-228	1.41E+10Y	1.00	1.764E+00	1.764E+00	0.477E+00	27.07	
RA-228	1.41E+10Y	1.00	1.764E+00	1.764E+00	0.477E+00	27.07	
TH-228	1.91Y	1.01	1.849E+00	1.873E+00	0.228E+00	12.19	
TH-230	4.47E+09Y	1.00	1.525E+00	1.525E+00	0.240E+00	15.74	
TH-232	1.41E+10Y	1.00	1.764E+00	1.764E+00	0.477E+00	27.07	
TH-234	4.47E+09Y	1.00	8.183E-01	8.183E-01	11.01E-01	134.55	
U-234	4.47E+09Y	1.00	1.525E+00	1.525E+00	0.240E+00	15.74	
NP-237	2.14E+06Y	1.00	1.330E+00	1.330E+00	0.387E+00	29.06	
U-238	4.47E+09Y	1.00	8.183E-01	8.183E-01	11.01E-01	134.55	
AM-243	7380.00Y	1.00	3.876E-01	3.876E-01	0.624E-01	16.10	
ANH-511	1.00E+09Y	1.00	1.186E-01	1.186E-01	0.857E-01	72.22	

Total Activity : 7.263E+01 7.274E+01

Grand Total Activity : 7.263E+01 7.274E+01

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit



It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
5	84.43	163	325	1.47	168.51	165	28	2.26E-02	39.4	6.71E+00	T
5	89.98	251	283	1.13	179.62	165	28	3.48E-02	25.8	6.64E+00	T
0	185.58	189	266	1.21	370.90	365	10	2.63E-02	36.8	4.81E+00	T
0	209.35	101	246	0.94	418.45	414	9	1.40E-02	59.7	4.43E+00	T
0	270.11	74	175	1.40	540.02	534	10	1.03E-02	70.8	3.65E+00	T
0	328.04	48	114	1.40	655.93	652	7	6.67E-03	79.9	3.09E+00	T
0	409.44	37	68	1.13	818.80	815	8	5.08E-03	84.9	2.53E+00	
0	463.01	57	80	1.07	926.00	922	9	7.87E-03	63.1	2.26E+00	T
0	726.27	84	65	1.54	1452.80	1446	13	1.17E-02	45.2	1.47E+00	T
0	769.13	87	82	7.56	1538.57	1528	24	1.20E-02	59.9	1.39E+00	
0	795.86	10	75	1.00	1592.07	1587	10	1.39E-03	****	1.34E+00	T
2	963.76	42	33	2.01	1928.09	1919	27	5.82E-03	67.9	1.12E+00	T
0	1589.38	49	12	6.60	3180.36	3169	23	6.74E-03	46.3	7.27E-01	
0	1762.75	48	15	1.35	3527.43	3520	15	6.70E-03	47.3	6.72E-01	

Flags: "T" = Tentatively associated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014514.CNF;1
* Acquisition date   : 21-JAN-2010 11:24:27  Detector SN#      :
* Detector ID        : GAM17                      Sensitivity    : 5.00000
* Geometry           : CAN                      Energy tolerance: 1.50000
* Elapsed live time  : 0 02:00:00.00             Abundance limit : 75.00000
* Elapsed real time  : 0 02:00:09.33             Half life ratio : 8.00000
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 8-JAN-2010 12:00:00.  Nuclide Library : SOLID
* Sample ID          : G1202014514           Analyst initials: MXR1
* Batch Number       : 941242                Sample Quantity : 1.28270E+02 GRAM
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36.18MS Isotope      :
* MSD ID             :                      MSD Isotope       :
* LCS ID             : 1032-A                LCS Isotope      :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
K-40	2.744E+01	3.191E+00	6.959E-01	6.179E-02	39.431
CD-109	4.594E+00	9.402E-01	9.468E-01	9.243E-02	4.852
SN-126	4.530E-01	9.271E-02	9.323E-02	9.098E-03	4.859
TL-208	6.005E-01	1.112E-01	7.091E-02	6.707E-03	8.468
BI-210	9.140E-01	9.972E-01	8.504E-01	9.226E-02	1.075
PB-210	9.140E-01	9.972E-01	8.504E-01	9.226E-02	1.075
PO-210	9.140E-01	9.966E-01	8.504E-01	8.592E-02	1.075
BI-211	4.672E+00	6.784E-01	3.619E-01	3.378E-02	12.909
PB-212	1.849E+00	2.254E-01	8.975E-02	9.048E-03	20.603
PO-212	1.849E+00	2.254E-01	8.975E-02	9.048E-03	20.603
BI-214	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
PB-214	1.625E+00	2.508E-01	1.262E-01	1.349E-02	12.877
PO-214	1.625E+00	2.508E-01	1.262E-01	1.349E-02	12.877
PO-216	1.849E+00	2.254E-01	8.975E-02	9.048E-03	20.603
PO-218	1.625E+00	2.508E-01	1.262E-01	1.349E-02	12.877
RA-224	5.080E+00	1.622E+00	1.022E+00	9.244E-02	4.969
RA-226	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
AC-228	1.764E+00	4.774E-01	2.853E-01	3.237E-02	6.181

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
RA-228	1.764E+00	4.774E-01	2.853E-01	3.237E-02	6.181
TH-228	1.873E+00	2.284E-01	9.091E-02	9.166E-03	20.603
TH-230	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
TH-232	1.764E+00	4.774E-01	2.853E-01	3.237E-02	6.181
TH-234	8.183E-01	1.101E+00	1.028E+00	1.918E-01	0.796
U-234	1.525E+00	2.401E-01	1.331E-01	1.354E-02	11.458
NP-237	1.330E+00	3.866E-01	2.729E-01	6.228E-02	4.875
U-238	8.183E-01	1.101E+00	1.028E+00	1.918E-01	0.796
AM-243	3.876E-01	6.240E-02	5.916E-02	5.776E-03	6.552
ANH-511	1.186E-01	8.566E-02	5.205E-02	4.648E-03	2.279

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-1.174E-01		3.547E-01	5.644E-01	5.370E-02	-0.208
NA-22	-4.221E-02		6.547E-02	9.702E-02	8.173E-03	-0.435
NA-24	-5.057E-02		4.355E-02	Half-Life too short		
AL-26	-2.260E-03		3.343E-02	5.353E-02	4.487E-03	-0.042
TI-44	4.135E-01	+	5.692E-02	6.302E-02	6.141E-03	6.561
SC-46	1.190E-02		5.250E-02	8.883E-02	7.776E-03	0.134
V-48	-1.846E-02		7.640E-02	1.216E-01	1.061E-02	-0.152
CR-51	2.651E-01		3.544E-01	6.240E-01	5.959E-02	0.425
MN-52	-9.654E-02		1.841E-01	2.737E-01	2.359E-02	-0.353
MN-54	-1.927E-02		5.237E-02	8.427E-02	7.410E-03	-0.229
CO-56	-3.212E-02		4.849E-02	7.475E-02	6.571E-03	-0.430
CO-57	-1.903E-03		2.463E-02	4.057E-02	4.753E-03	-0.047
CO-58	-2.230E-02		5.206E-02	8.322E-02	7.329E-03	-0.268
FE-59	1.275E-02		1.161E-01	1.913E-01	1.756E-02	0.067
CO-60	1.427E-02		4.886E-02	8.495E-02	7.240E-03	0.168
ZN-65	4.685E-02		1.378E-01	2.032E-01	1.711E-02	0.231
GE-68	1.177E+00		1.867E+00	3.226E+00	2.754E-01	0.365
AS-73	1.989E-01		2.275E-01	3.962E-01	3.963E-02	0.502
AS-74	1.589E-02		1.190E-01	1.941E-01	1.710E-02	0.082
SE-75	-1.806E-02		5.456E-02	7.433E-02	6.829E-03	-0.243
BR-77	2.255E-01		6.610E+00	1.080E+01	9.656E-01	0.021
SR-82	-5.856E-01		5.472E-01	6.735E-01	5.894E-02	-0.870
RB-83	2.739E-03		8.020E-02	1.311E-01	1.172E-02	0.021
RB-84	-4.547E-02		9.012E-02	1.410E-01	1.236E-02	-0.322
KR-85	8.669E+00		9.209E+00	1.450E+01	1.295E+00	0.598
SR-85	4.346E-02		4.617E-02	7.269E-02	6.494E-03	0.598
RB-86	7.232E-01		1.091E+00	1.891E+00	1.615E-01	0.382
Y-88	3.534E-02		3.011E-02	6.554E-02	5.465E-03	0.539
ZR-88	-7.198E-03		3.543E-02	5.802E-02	4.888E-03	-0.124
Y-91	-8.520E-01		2.718E+01	4.375E+01	3.611E+00	-0.019
NB-94	-7.379E-03		4.422E-02	7.349E-02	6.304E-03	-0.100
NB-95	7.049E-02		6.370E-02	1.038E-01	9.066E-03	0.679
NB-95M	-8.798E-02		1.439E-01	1.937E-01	1.978E-02	-0.454

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ZR-95	-2.649E-03		9.132E-02	1.526E-01	1.462E-02	-0.017
NE-97	-1.463E-02		7.988E-03	Half-Life too short		
ZR-97	2.717E-01		1.351E-01	Half-Life too short		
MO-99	5.050E+00		7.864E+00	1.395E+01	2.123E+00	0.362
TC-99M	-4.861E+07		5.433E+07	Half-Life too short		
RH-101	6.970E-03		3.445E-02	5.613E-02	4.880E-03	0.124
RH-102	1.719E-04		3.240E-02	5.316E-02	4.709E-03	0.003
RU-103	-1.115E-02		4.793E-02	7.677E-02	1.101E-02	-0.145
RH-106	1.248E-02		4.110E-01	6.628E-01	8.883E-02	0.019
RU-106	1.248E-02		4.110E-01	6.628E-01	5.758E-02	0.019
AG-108M	7.194E-03		3.586E-02	6.013E-02	5.427E-03	0.120
AG-110M	-4.373E-02		4.683E-02	6.778E-02	5.907E-03	-0.645
IN-111	3.584E-01		6.750E-01	1.001E+00	9.079E-02	0.358
IN-113M	-2.353E-02		4.996E-02	8.012E-02	6.962E-03	-0.294
SN-113	-2.353E-02		4.996E-02	8.012E-02	6.962E-03	-0.294
IN-114M	-5.235E-03		1.931E-01	2.964E-01	2.553E-02	-0.018
CD-115	-4.016E+00		6.466E+00	9.880E+00	8.833E-01	-0.406
SN-117M	3.808E-02		5.269E-02	8.876E-02	7.978E-03	0.429
SB-122	-7.229E-01		1.491E+00	2.306E+00	2.053E-01	-0.314
I-123	2.461E-01		2.034E-01	Half-Life too short		
TE-123M	1.811E-02		2.993E-02	5.018E-02	4.517E-03	0.361
I-124	-2.592E-01		6.688E-01	9.531E-01	8.369E-02	-0.272
SB-124	6.975E-02		9.354E-02	1.826E-01	1.625E-02	0.382
SB-125	6.678E-02		1.129E-01	1.939E-01	1.711E-02	0.344
TE-125M	3.764E+00		8.310E+00	1.406E+01	1.728E+00	0.268
I-126	1.194E-01		1.966E-01	3.333E-01	2.814E-02	0.358
SB-126	-1.220E-01		1.862E-01	2.491E-01	2.150E-02	-0.490
SB-127	-1.028E+00		1.198E+00	1.725E+00	1.846E-01	-0.596
XE-127	-6.032E-03		4.813E-02	7.691E-02	6.724E-03	-0.078
I-131	-2.251E-02		1.108E-01	1.823E-01	1.681E-02	-0.123
TE-132	3.184E-01		4.849E-01	8.004E-01	1.244E-01	0.398
BA-133	3.315E-03		5.393E-02	7.984E-02	1.067E-02	0.042
I-133	-9.193E-05		6.575E-04	Half-Life too short		
CS-134	2.877E-02	+	9.587E-02	1.176E-01	1.040E-02	0.245
CS-135	8.435E-02		1.982E-01	2.882E-01	3.008E-02	0.293
I-135	1.074E+07		1.881E+07	Half-Life too short		
CS-136	-4.843E-02		1.278E-01	1.995E-01	1.791E-02	-0.243
BA-137M	7.902E-03		5.098E-02	8.212E-02	6.918E-03	0.096
CS-137	8.354E-03		5.389E-02	8.681E-02	7.328E-03	0.096
CE-139	1.438E-02		3.167E-02	5.266E-02	4.391E-03	0.273
BA-140	1.962E-01		2.874E-01	4.829E-01	1.605E-01	0.406
LA-140	3.440E-02		8.859E-02	1.406E-01	1.213E-02	0.245
CE-141	-1.163E-02		6.283E-02	1.010E-01	1.030E-02	-0.115
CE-143	2.507E-04		4.209E-05	Half-Life too short		
CE-144	4.288E-02		2.117E-01	3.515E-01	5.962E-02	0.122
PM-144	2.479E-02		4.317E-02	7.606E-02	6.510E-03	0.326
PR-144	1.678E+00		2.922E+00	5.148E+00	4.405E-01	0.326
PM-146	3.939E-02		5.311E-02	9.193E-02	9.977E-03	0.429

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	5.834E-01		5.941E-01	1.039E+00	1.572E-01	0.562
PM-149	-2.136E+01		4.858E+01	7.994E+01	1.268E+01	-0.267
EU-152	-3.900E-02		1.093E-01	1.723E-01	1.630E-02	-0.226
GD-153	-3.439E-02		7.562E-02	1.096E-01	1.121E-02	-0.314
EU-154	-1.077E-01		1.820E-01	2.713E-01	3.026E-02	-0.397
EU-155	3.043E-02		9.803E-02	1.653E-01	1.776E-02	0.184
TB-160	1.133E-01		1.774E-01	3.123E-01	2.738E-02	0.363
HO-166M	-2.607E-02		7.620E-02	1.243E-01	1.070E-02	-0.210
TM-171	-1.015E+01		1.707E+01	2.508E+01	2.475E+00	-0.405
LU-176	-8.290E-04		2.636E-02	4.437E-02	4.065E-03	-0.019
LU-177	2.322E+00	+	1.400E+00	1.781E+00	1.566E-01	1.304
LU-177M	-1.297E-01		2.221E-01	3.020E-01	2.588E-02	-0.430
HF-181	-9.400E-03		4.661E-02	7.500E-02	6.658E-03	-0.125
W-181	4.871E-02		2.045E-01	3.125E-01	3.095E-02	0.156
TA-182	-1.733E-01		2.845E-01	4.300E-01	3.567E-02	-0.403
RE-183	-1.776E-02		1.145E-01	1.851E-01	1.602E-02	-0.096
RE-184	7.337E-02		2.571E-01	4.157E-01	3.785E-02	0.177
OS-185	3.040E-02		5.248E-02	8.892E-02	7.592E-03	0.342
RE-188	-1.091E-01		1.769E-01	2.799E-01	2.600E-02	-0.390
W-188	-4.129E+00		8.526E+00	1.222E+01	1.122E+00	-0.338
IR-192	-2.882E-02		3.469E-02	5.497E-02	5.029E-03	-0.524
AU-195	1.875E-01		2.065E-01	3.388E-01	3.489E-02	0.553
TL-200	-3.336E-05		6.488E-05	Half-Life too short		
TL-201	-1.427E-01		4.435E+00	7.203E+00	6.015E-01	-0.020
TL-202	1.741E-02		7.342E-02	1.232E-01	1.074E-02	0.141
HG-203	-8.843E-03		4.274E-02	7.167E-02	6.745E-03	-0.123
BI-207	-9.906E-03		7.056E-02	1.133E-01	9.713E-03	-0.087
TL-207	-1.733E-01		8.176E-01	1.189E+00	2.133E-01	-0.146
PO-209	-1.805E+00		9.910E+00	1.608E+01	1.406E+00	-0.112
PB-211	-1.472E-01		1.133E+00	1.621E+00	1.016E+00	-0.091
BI-212	1.420E+00	+	6.579E-01	8.697E-01	8.726E-02	1.632
PO-215	-1.733E-01		8.176E-01	1.189E+00	2.133E-01	-0.146
RN-219	-4.322E-02		4.374E-01	7.199E-01	1.076E-01	-0.060
RN-220	-7.279E+00		3.227E+01	5.129E+01	4.579E+00	-0.142
RA-223	-1.733E-01		8.176E-01	1.189E+00	2.133E-01	-0.146
AC-227	2.729E-01		4.170E-01	6.867E-01	1.074E-01	0.397
TH-227	2.729E-01		4.178E-01	6.867E-01	1.257E-01	0.397
TH-229	1.171E-01		5.372E-01	8.770E-01	7.585E-02	0.134
PA-231	8.465E-02		1.576E+00	2.678E+00	4.154E-01	0.032
TH-231	-1.733E-01		8.176E-01	1.189E+00	2.133E-01	-0.146
U-231	7.435E-02		6.880E-01	1.038E+00	1.053E-01	0.072
PA-233	8.401E-03		6.744E-02	1.145E-01	1.074E-02	0.073
PA-234	8.204E-02		3.898E-01	6.561E-01	1.235E-01	0.125
PA-234M	-3.104E+00		6.114E+00	9.454E+00	9.487E-01	-0.328
U-235	-1.584E-01		2.252E-01	3.505E-01	6.426E-02	-0.452
NP-236	-1.261E-02		8.554E-02	1.385E-01	1.224E-02	-0.091
NP-239	-1.515E-01		1.837E-01	2.913E-01	3.314E-02	-0.520
AM-241	2.059E-02		6.682E-02	1.040E-01	1.104E-02	0.198

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.924E-02		8.673E-02	1.477E-01	1.562E-02	0.333
AM-246	5.952E-02		2.112E-01	3.538E-01	3.018E-02	0.168
CM-247	-2.737E-02		4.004E-02	6.276E-02	5.332E-03	-0.436
CF-249	4.957E-02		4.527E-02	8.054E-02	6.824E-03	0.615
CF-251	1.256E-01		1.335E-01	2.263E-01	1.914E-02	0.555

# VAX/VMS Nuclide Identification Report Generated

```

*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
*                                     DETECTOR DATA                          *
*
* Configuration      : SYSSYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202014514          *
* Acquisition date   : 21-JAN-2010 11:24:27 Detector SN#      :              *
* Detector ID        : GAM17 Sensitivity      : 5.000           *
* Geometry           : CAN Energy tolerance: 1.500           *
* Elapsed live time  : 0 02:00:00.00 Abundance limit : 75.000  *
* Elapsed real time  : 0 02:00:09.33 Half life ratio : 8.000   *
*****
*                                     SAMPLE DATA                            *
*
* Sample date        : 8-JAN-2010 12:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202014514 Analyst initials: MXR1         *
* Batch Number       : 941242 Sample Quantity : 1.2827E+02 GRAM      *
* Recovery           : 1.00000 Carrier Weight : 0.00000           *
*****
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 6-JAN-2010 11:41:36 MS Isotope         :              *
* MSD DPM             : 0.000 MSD Isotope                     :              *
* LCS DPM             : 0.000 LCS Isotope                      :              *
* LCSD DPM            : 0.000 LCSD Isotope                    :              *
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## Combined Activity-MDA Report

### ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
K-40	2.744E+01	3.127E+00	3.482E-01	1.595E+00
CD-109	4.594E+00	9.214E-01	4.945E-01	4.701E-01
SN-126	4.530E-01	9.085E-02	4.869E-02	4.635E-02
TL-208	6.005E-01	1.089E-01	3.600E-02	5.558E-02
BI-210	9.140E-01	9.773E-01	4.483E-01	4.986E-01
PB-210	9.140E-01	9.773E-01	4.483E-01	4.986E-01
PO-210	9.140E-01	9.766E-01	4.483E-01	4.983E-01
BI-211	4.672E+00	6.649E-01	1.852E-01	3.392E-01
PB-212	1.849E+00	2.209E-01	4.618E-02	1.127E-01
PO-212	1.849E+00	2.209E-01	4.618E-02	1.127E-01
BI-214	1.525E+00	2.353E-01	6.751E-02	1.200E-01
PB-214	1.625E+00	2.458E-01	6.457E-02	1.254E-01
PO-214	1.625E+00	2.458E-01	6.457E-02	1.254E-01
PO-216	1.849E+00	2.209E-01	4.618E-02	1.127E-01
PO-218	1.625E+00	2.458E-01	6.457E-02	1.254E-01
RA-224	5.080E+00	1.590E+00	5.259E-01	8.110E-01
RA-226	1.525E+00	2.353E-01	6.751E-02	1.200E-01
AC-228	1.764E+00	4.678E-01	1.438E-01	2.387E-01
RA-228	1.764E+00	4.678E-01	1.438E-01	2.387E-01
TH-228	1.873E+00	2.238E-01	4.678E-02	1.142E-01
TH-230	1.525E+00	2.353E-01	6.751E-02	1.200E-01
TH-232	1.764E+00	4.678E-01	1.438E-01	2.387E-01
TH-234	8.183E-01	1.079E+00	5.393E-01	5.505E-01
U-234	1.525E+00	2.353E-01	6.751E-02	1.200E-01
NP-237	1.330E+00	3.789E-01	1.426E-01	1.933E-01
U-238	8.183E-01	1.079E+00	5.393E-01	5.505E-01
AM-243	3.876E-01	6.116E-02	3.097E-02	3.120E-02
ANH-511	1.186E-01	8.395E-02	2.647E-02	4.283E-02

### ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-1.174E-01	3.476E-01	2.874E-01	1.774E-01	NOT IDENT.
NA-22	-4.221E-02	6.416E-02	4.865E-02	3.273E-02	NOT IDENT.
NA-24	-5.057E+04	8.537E+04	0.000E+00	4.355E+04	SHORT HLIF
AL-26	-2.260E-03	3.276E-02	2.670E-02	1.671E-02	NOT IDENT.
TI-44	4.135E-01	5.578E-02	3.297E-02	2.846E-02	FAIL ABUN
SC-46	1.190E-02	5.145E-02	4.480E-02	2.625E-02	FAIL ABUN
V-48	-1.846E-02	7.488E-02	6.124E-02	3.820E-02	NOT IDENT.
CR-51	2.651E-01	3.473E-01	3.197E-01	1.772E-01	NOT IDENT.
MN-52	-9.654E-02	1.804E-01	1.370E-01	9.206E-02	NOT IDENT.
MN-54	-1.927E-02	5.133E-02	4.254E-02	2.619E-02	NOT IDENT.
CO-56	-3.212E-02	4.752E-02	3.773E-02	2.425E-02	NOT IDENT.
CO-57	-1.903E-03	2.413E-02	2.109E-02	1.231E-02	NOT IDENT.
CO-58	-2.230E-02	5.102E-02	4.203E-02	2.603E-02	NOT IDENT.
FE-59	1.275E-02	1.138E-01	9.617E-02	5.807E-02	NOT IDENT.
CO-60	1.427E-02	4.788E-02	4.257E-02	2.443E-02	NOT IDENT.
ZN-65	4.685E-02	1.350E-01	1.021E-01	6.890E-02	NOT IDENT.
GE-68	1.177E+00	1.830E+00	1.622E+00	9.337E-01	NOT IDENT.
AS-73	1.989E-01	2.230E-01	2.084E-01	1.138E-01	NOT IDENT.
AS-74	1.589E-02	1.166E-01	9.849E-02	5.950E-02	NOT IDENT.
SE-75	-1.806E-02	5.347E-02	3.819E-02	2.728E-02	NOT IDENT.
BR-77	2.255E-01	6.478E+00	5.494E+00	3.305E+00	FAIL ABUN
SR-82	-5.856E-01	5.362E-01	3.403E-01	2.736E-01	NOT IDENT.
RB-83	2.739E-03	7.860E-02	6.666E-02	4.010E-02	NOT IDENT.
RB-84	-4.547E-02	8.832E-02	7.113E-02	4.506E-02	NOT IDENT.
KR-85	8.669E+00	9.025E+00	7.375E+00	4.605E+00	NOT IDENT.
SR-85	4.346E-02	4.524E-02	3.697E-02	2.308E-02	NOT IDENT.
RB-86	7.232E-01	1.069E+00	9.510E-01	5.456E-01	NOT IDENT.
Y-88	3.534E-02	2.951E-02	3.267E-02	1.506E-02	NOT IDENT.
ZR-88	-7.198E-03	3.472E-02	2.963E-02	1.772E-02	NOT IDENT.
Y-91	-8.520E-01	2.664E+01	2.196E+01	1.359E+01	NOT IDENT.
NB-94	-7.379E-03	4.333E-02	3.720E-02	2.211E-02	NOT IDENT.
NB-95	7.049E-02	6.243E-02	5.246E-02	3.185E-02	NOT IDENT.
NB-95M	-8.798E-02	1.410E-01	9.970E-02	7.195E-02	NOT IDENT.
ZR-95	-2.649E-03	8.949E-02	7.716E-02	4.566E-02	NOT IDENT.
NB-97	-1.463E+04	1.566E+04	0.000E+00	7.988E+03	SHORT HLIF
ZR-97	2.717E+05	2.649E+05	0.000E+00	1.351E+05	SHORT HLIF
MO-99	5.050E+00	7.707E+00	7.055E+00	3.932E+00	NOT IDENT.
TC-99M	-4.861E+13	1.065E+14	0.000E+00	5.433E+13	SHORT HLIF
RH-101	6.970E-03	3.376E-02	2.897E-02	1.723E-02	NOT IDENT.
RH-102	1.719E-04	3.175E-02	2.707E-02	1.620E-02	NOT IDENT.
RU-103	-1.115E-02	4.697E-02	3.906E-02	2.396E-02	FAIL ABUN
RH-106	1.248E-02	4.028E-01	3.361E-01	2.055E-01	FAIL ABUN
RU-106	1.248E-02	4.028E-01	3.361E-01	2.055E-01	FAIL ABUN
AG-108M	7.194E-03	3.514E-02	3.066E-02	1.793E-02	NOT IDENT.
AG-110M	-4.373E-02	4.590E-02	3.434E-02	2.342E-02	NOT IDENT.
IN-111	3.584E-01	6.615E-01	5.150E-01	3.375E-01	NOT IDENT.
IN-113M	-2.353E-02	4.897E-02	4.092E-02	2.498E-02	NOT IDENT.
SN-113	-2.353E-02	4.897E-02	4.092E-02	2.498E-02	NOT IDENT.
IN-114M	-5.235E-03	1.892E-01	1.530E-01	9.654E-02	NOT IDENT.
CD-115	-4.016E+00	6.337E+00	5.023E+00	3.233E+00	NOT IDENT.
SN-117M	3.808E-02	5.164E-02	4.596E-02	2.634E-02	NOT IDENT.
SB-122	-7.229E-01	1.461E+00	1.171E+00	7.454E-01	NOT IDENT.
I-123	2.461E+05	3.987E+05	0.000E+00	2.034E+05	SHORT HLIF
TE-123M	1.811E-02	2.933E-02	2.598E-02	1.497E-02	NOT IDENT.
I-124	-2.592E-01	6.554E-01	4.836E-01	3.344E-01	NOT IDENT.
SB-124	6.975E-02	9.167E-02	9.117E-02	4.677E-02	FAIL ABUN
SB-125	6.678E-02	1.106E-01	9.892E-02	5.643E-02	FAIL ABUN
TE-125M	3.764E+00	8.144E+00	7.322E+00	4.155E+00	NOT IDENT.
I-126	1.194E-01	1.926E-01	1.688E-01	9.828E-02	NOT IDENT.
SB-126	-1.220E-01	1.825E-01	1.260E-01	9.311E-02	FAIL ABUN
SB-127	-1.028E+00	1.174E+00	8.733E-01	5.989E-01	NOT IDENT.
XE-127	-6.032E-03	4.716E-02	3.968E-02	2.406E-02	NOT IDENT.
I-131	-2.251E-02	1.086E-01	9.323E-02	5.538E-02	NOT IDENT.
TE-132	3.184E-01	4.752E-01	4.122E-01	2.425E-01	NOT IDENT.
BA-133	3.315E-03	5.286E-02	4.084E-02	2.697E-02	NOT IDENT.
I-133	-9.193E+01	1.289E+03	0.000E+00	6.575E+02	SHORT HLIF
CS-134	2.877E-02	9.396E-02	5.943E-02	4.794E-02	FAIL ABUN
CS-135	8.435E-02	1.942E-01	1.481E-01	9.909E-02	NOT IDENT.
I-135	1.074E+13	3.687E+13	0.000E+00	1.881E+13	SHORT HLIF
CS-136	-4.843E-02	1.253E-01	1.004E-01	6.391E-02	FAIL ABUN
BA-137M	7.902E-03	4.996E-02	4.161E-02	2.549E-02	NOT IDENT.
CS-137	8.354E-03	5.281E-02	4.398E-02	2.694E-02	NOT IDENT.
CE-139	1.438E-02	3.104E-02	2.725E-02	1.584E-02	NOT IDENT.
BA-140	1.962E-01	2.816E-01	2.455E-01	1.437E-01	NOT IDENT.
LA-140	3.440E-02	8.682E-02	7.024E-02	4.429E-02	FAIL ABUN
CE-141	-1.163E-02	6.157E-02	5.235E-02	3.141E-02	NOT IDENT.
CE-143	2.507E+02	8.249E+01	0.000E+00	4.209E+01	SHORT HLIF



CE-144	4.288E-02	2.075E-01	1.824E-01	1.058E-01	NOT IDENT.
PM-144	2.479E-02	4.231E-02	3.850E-02	2.158E-02	NOT IDENT.
PR-144	1.678E+00	2.864E+00	2.606E+00	1.461E+00	NOT IDENT.
PM-146	3.939E-02	5.204E-02	4.684E-02	2.655E-02	NOT IDENT.
ND-147	5.834E-01	5.822E-01	5.280E-01	2.970E-01	FAIL ABUN
PM-149	-2.136E+01	4.761E+01	4.103E+01	2.429E+01	NOT IDENT.
EU-152	-3.900E-02	1.071E-01	8.818E-02	5.463E-02	FAIL ABUN
GD-153	-3.439E-02	7.410E-02	5.717E-02	3.781E-02	FAIL ABUN
EU-154	-1.077E-01	1.784E-01	1.360E-01	9.100E-02	NOT IDENT.
EU-155	3.043E-02	9.607E-02	8.610E-02	4.902E-02	FAIL ABUN
TB-160	1.133E-01	1.738E-01	1.575E-01	8.868E-02	FAIL ABUN
HO-166M	-2.607E-02	7.467E-02	6.292E-02	3.810E-02	FAIL ABUN
TM-171	-1.015E+01	1.672E+01	1.315E+01	8.533E+00	NOT IDENT.
LU-176	-8.290E-04	2.583E-02	2.275E-02	1.318E-02	FAIL ABUN
LU-177	2.322E+00	1.372E+00	9.183E-01	7.001E-01	FAIL ABUN
LU-177M	-1.297E-01	2.177E-01	1.541E-01	1.111E-01	FAIL ABUN
HF-181	-9.400E-03	4.568E-02	3.818E-02	2.331E-02	NOT IDENT.
W-181	4.871E-02	2.004E-01	1.639E-01	1.022E-01	NOT IDENT.
TA-182	-1.733E-01	2.788E-01	2.158E-01	1.423E-01	NOT IDENT.
RE-183	-1.776E-02	1.122E-01	9.579E-02	5.723E-02	FAIL ABUN
RE-184	7.337E-02	2.520E-01	2.137E-01	1.286E-01	NOT IDENT.
OS-185	3.040E-02	5.143E-02	4.507E-02	2.624E-02	NOT IDENT.
RE-188	-1.091E-01	1.734E-01	1.450E-01	8.847E-02	NOT IDENT.
W-188	-4.129E+00	8.356E+00	6.269E+00	4.263E+00	FAIL ABUN
IR-192	-2.882E-02	3.400E-02	2.817E-02	1.734E-02	FAIL ABUN
AU-195	1.875E-01	2.023E-01	1.766E-01	1.032E-01	FAIL ABUN
TL-200	-3.336E+01	1.272E+02	0.000E+00	6.488E+01	SHORT HLIF
TL-201	-1.427E-01	4.346E+00	3.726E+00	2.217E+00	NOT IDENT.
TL-202	1.741E-02	7.195E-02	6.281E-02	3.671E-02	NOT IDENT.
HG-203	-8.843E-03	4.188E-02	3.680E-02	2.137E-02	NOT IDENT.
BI-207	-9.906E-03	6.915E-02	5.698E-02	3.528E-02	FAIL ABUN
TL-207	-1.733E-01	8.013E-01	6.090E-01	4.088E-01	FAIL ABUN
PO-209	-1.805E+00	9.712E+00	8.109E+00	4.955E+00	NOT IDENT.
PB-211	-1.472E-01	1.110E+00	8.277E-01	5.664E-01	NOT IDENT.
BI-212	1.420E+00	6.448E-01	4.400E-01	3.290E-01	FAIL ABUN
PO-215	-1.733E-01	8.013E-01	6.090E-01	4.088E-01	FAIL ABUN
RN-219	-4.322E-02	4.287E-01	3.675E-01	2.187E-01	FAIL ABUN
RN-220	-7.279E+00	3.163E+01	2.606E+01	1.614E+01	NOT IDENT.
RA-223	-1.733E-01	8.013E-01	6.090E-01	4.088E-01	FAIL ABUN
AC-227	2.729E-01	4.087E-01	3.530E-01	2.085E-01	NOT IDENT.
TH-227	2.729E-01	4.095E-01	3.530E-01	2.089E-01	FAIL ABUN
TH-229	1.171E-01	5.265E-01	4.527E-01	2.686E-01	FAIL ABUN
PA-231	8.465E-02	1.544E+00	1.375E+00	7.878E-01	NOT IDENT.
TH-231	-1.733E-01	8.013E-01	6.090E-01	4.088E-01	FAIL ABUN
U-231	7.435E-02	6.743E-01	5.417E-01	3.440E-01	FAIL ABUN
PA-233	8.401E-03	6.609E-02	5.870E-02	3.372E-02	FAIL ABUN
PA-234	8.204E-02	3.820E-01	3.306E-01	1.949E-01	FAIL ABUN
PA-234M	-3.104E+00	5.992E+00	4.759E+00	3.057E+00	NOT IDENT.
U-235	-1.584E-01	2.207E-01	1.817E-01	1.126E-01	FAIL ABUN
NP-236	-1.261E-02	8.383E-02	7.168E-02	4.277E-02	NOT IDENT.
NP-239	-1.515E-01	1.800E-01	1.515E-01	9.185E-02	FAIL ABUN
AM-241	2.059E-02	6.548E-02	5.461E-02	3.341E-02	NOT IDENT.
CM-243	4.924E-02	8.499E-02	7.698E-02	4.336E-02	FAIL ABUN
AM-246	5.952E-02	2.069E-01	1.779E-01	1.056E-01	NOT IDENT.
CM-247	-2.737E-02	3.924E-02	3.204E-02	2.002E-02	NOT IDENT.
CF-249	4.957E-02	4.436E-02	4.114E-02	2.263E-02	NOT IDENT.
CF-251	1.256E-01	1.308E-01	1.170E-01	6.673E-02	NOT IDENT.

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*                               GEL Laboratories LLC                               *
*                               2040 SAVAGE ROAD                               *
*                               CHARLESTON ,SC 29417                           *
*                               GAMMA SPECTROSCOPY BACKGROUND REPORT             *
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ENERGY          MDA COUNTS
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46.50	254.6685
46.50	254.6685
46.50	254.6685
48.70	257.6005
49.72	277.2726
51.35	284.6497
52.39	266.6905
52.97	265.4271
53.15	265.5592
53.44	258.9804
54.07	257.7291
56.28	301.2038
56.28	301.2056
57.37	0.0000
57.53	299.6317
57.53	299.6334
57.60	299.6867
57.98	304.2845
57.98	304.2845
59.32	323.4615
59.32	323.4615
59.40	323.5283
59.54	323.6456
59.72	345.8134
60.01	375.8824
61.10	361.3319
61.14	361.3680
61.30	353.7119
63.00	377.8599
63.29	378.1314
63.29	378.1314
63.58	378.4029
64.28	385.1685
65.12	382.0213
65.20	382.0951
65.20	382.0951
66.05	407.8802
66.72	416.4424
66.83	388.8710
66.91	388.9453
67.20	360.1891
67.20	360.1891
67.75	405.5749
67.85	400.6519
68.90	400.0523
68.90	400.0523
69.30	381.8650
69.67	384.8509
70.82	421.7992
70.82	421.7992
70.83	421.8089
72.80	407.6680
72.87	407.7309
72.87	407.7309
74.67	380.2968
74.81	380.4136
74.81	380.4136
74.81	380.4136
74.81	380.4136
74.81	380.4136
74.81	380.4136
74.81	380.4136
74.97	380.5498
75.28	380.8092
75.70	381.1637
77.11	382.3396
77.11	382.3396

77.11	382.3396
77.11	382.3396
77.11	382.3396
77.11	382.3396
77.11	382.3396
78.38	361.2888
79.62	311.1446
79.80	311.2636
79.80	311.2636
80.11	320.5226
80.18	320.5712
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80.30	320.6523
80.57	320.8341
81.00	304.7974
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81.07	304.8418
81.07	304.8418
81.07	304.8418
82.60	316.7397
83.37	335.0189
83.78	335.3049
83.78	335.3049
83.78	335.3049
83.78	335.3049
84.21	284.0045
84.90	284.4047
85.43	284.7116
86.29	285.2083
86.50	285.3285
86.54	285.3506
86.59	285.3807
86.72	285.4550
86.79	285.4930
86.94	285.5800
87.30	285.7872
87.30	285.7872
87.30	285.7872
87.30	285.7872
87.30	285.7872
87.30	285.7872
87.30	285.7872
87.57	285.9407
87.88	286.1178
88.03	286.2032
88.36	286.3899
88.47	286.4532
89.95	287.2900
91.11	287.9401
92.29	288.5981
92.38	288.6488
92.38	288.6488
93.35	289.1866
94.00	289.5441
94.67	289.9095
94.67	289.9127
94.90	290.0392
94.90	290.0392
94.90	290.0392
94.90	290.0392
95.87	260.6713
95.87	260.6713
96.73	266.7077
97.43	265.6486
98.44	250.6547
98.44	250.6547
98.88	230.0005
99.55	226.7085
99.55	226.7085
99.86	242.8382
100.00	242.8999
100.10	253.3040
103.18	260.3945
103.76	230.3314
105.00	240.3376
105.31	240.4689
108.00	252.1044
109.28	228.7353

111.00	256.2838
111.00	256.2838
111.76	260.4582
112.95	257.1285
115.19	233.9242
116.30	246.9418
117.00	248.1953
117.00	248.1953
117.66	235.8463
121.11	223.4989
121.62	227.5888
121.78	227.6469
122.06	224.8153
122.32	224.9077
122.32	224.9077
122.32	224.9077
122.32	224.9077
123.07	218.3224
127.23	253.2497
129.76	249.2878
131.20	263.7135
133.02	231.6300
133.54	236.7846
135.34	249.3896
136.00	227.6660
136.25	227.7495
136.48	221.8306
140.51	237.2076
140.51	0.0000
142.18	210.5754
142.65	214.7486
143.76	244.3731
144.24	254.6429
144.24	254.6429
144.24	254.6429
144.24	254.6429
145.22	208.4497
145.44	220.6589
147.16	211.0448
152.43	192.1423
152.70	183.0114
153.22	198.4877
154.21	229.4892
154.21	229.4892
154.21	229.4892
154.21	229.4892
155.03	237.9473
156.02	245.4525
158.56	206.0954
159.00	0.0000
159.00	206.2154
160.31	225.1629
161.27	238.8885
162.32	220.5771
162.64	218.5961
163.35	220.8718
163.89	214.7996
165.85	207.0204
167.43	198.0558
171.28	171.7876
171.86	189.7311
172.10	190.8367
176.55	176.0751
176.60	176.0869
181.06	186.0528
184.41	189.4618
185.71	189.7533
186.00	219.1444
190.27	187.7683
192.34	188.0043
193.63	182.9043
197.04	204.1367
198.01	181.6548
198.60	176.3645
200.40	195.1538
201.83	187.8637
202.84	190.2491
205.31	181.5022

208.36	195.2326
208.81	171.8018
209.75	154.4511
209.75	154.4511
210.97	156.3000
215.65	162.0433
216.55	177.6464
218.09	186.7761
222.10	162.0356
223.80	183.4430
226.40	164.9839
227.00	157.2767
227.08	151.7120
227.20	155.0784
228.16	157.4632
228.18	157.4661
228.18	157.4661
231.56	0.0000
235.69	183.9774
236.00	184.0356
236.00	184.0356
238.63	139.9377
238.63	139.9377
238.63	139.9377
238.63	139.9377
239.00	139.9882
240.98	140.2606
241.98	140.3969
241.98	140.3969
241.98	140.3969
244.69	115.7928
245.39	107.3507
247.94	132.0977
248.90	148.1768
249.79	125.4867
252.40	133.8030
252.85	137.2925
252.85	137.2925
254.15	0.0000
256.20	123.9521
256.20	123.9521
260.50	137.1241
260.90	125.6476
262.80	132.7956
264.65	138.8037
268.24	137.5171
268.79	135.8430
269.46	135.9240
269.46	135.9240
269.46	135.9240
269.46	135.9240
271.23	134.3952
273.65	181.9143
276.40	135.8923
277.35	128.9861
277.60	123.7494
277.60	123.7494
278.00	121.1585
278.60	110.6807
279.20	148.5326
279.53	148.5738
280.46	170.6913
281.68	133.0005
283.67	119.9940
284.30	118.2948
285.00	121.0164
285.90	128.1826
286.10	123.7839
286.10	123.7839
287.40	114.1859
288.45	0.0000
290.67	133.5002
290.80	133.5140
291.72	127.9336
293.26	0.0000
293.70	116.7579
295.21	153.2610
295.21	153.2610

295.21	153.2610
295.96	153.3581
296.50	153.4263
297.23	168.5159
298.57	138.6821
299.80	135.9595
299.80	135.9595
300.09	125.9736
300.09	125.9736
300.09	125.9736
300.09	125.9736
300.12	125.9758
301.29	120.6053
302.84	155.1340
303.76	148.0735
303.91	148.0911
304.40	122.1128
304.40	122.1128
304.84	129.3420
306.84	115.1602
308.46	118.0131
311.98	106.6062
316.51	112.4355
318.01	117.1090
319.02	91.7640
319.41	87.2476
320.08	85.4744
323.87	119.6587
323.87	119.6587
323.87	119.6587
323.87	119.6587
325.23	116.8652
328.77	118.6524
333.44	119.0795
334.20	132.3875
334.20	132.3875
334.30	132.3984
338.28	111.5893
338.28	111.5893
338.28	111.5893
338.28	111.5893
338.32	111.5930
338.32	111.5930
338.32	111.5930
340.50	93.1173
340.57	93.1219
344.27	109.0513
345.85	111.3007
350.59	0.0000
351.07	100.5595
351.92	100.6221
351.92	100.6221
351.92	100.6221
355.39	0.0000
356.01	100.1761
364.48	105.3059
366.43	107.3360
367.43	111.1814
367.94	0.0000
369.80	97.2116
374.96	107.0393
383.85	91.5000
387.95	78.3765
388.63	73.6315
391.69	99.6582
391.69	99.6582
392.90	101.6588
398.62	90.4974
400.65	66.5195
401.10	68.4682
401.81	81.0430
402.60	91.7036
404.84	81.9792
410.95	65.2261
411.60	73.0221
413.65	91.7899
414.70	85.6246
415.30	77.8711

415.76	79.8416
417.63	0.0000
418.52	72.1809
423.70	102.7602
427.08	76.5004
427.89	85.3711
432.53	83.6537
433.93	69.9372
439.47	82.0413
439.56	82.0451
439.89	75.1418
443.98	77.3145
444.90	84.3009
445.03	84.3074
445.03	84.3074
445.03	84.3074
445.03	84.3074
453.90	74.7929
463.38	72.2109
468.07	70.8039
473.00	73.6327
475.06	65.6417
475.35	74.7441
476.78	73.7953
477.59	71.8071
477.96	65.7528
482.03	68.9504
484.57	72.0985
487.03	51.8622
490.36	0.0000
492.35	59.1602
497.08	76.7052
507.63	0.0000
510.53	0.0000
510.84	61.8379
511.00	61.8434
511.85	61.8727
511.85	61.8727
513.99	62.7710
513.99	62.7710
520.41	64.2365
520.65	64.2440
527.90	67.6184
528.96	0.0000
529.64	74.9707
529.87	0.0000
531.02	53.1432
537.32	57.5043
543.00	57.6772
546.56	0.0000
549.76	68.4059
552.65	64.2931
555.20	60.1572
563.23	69.9437
563.90	74.2084
568.70	68.0137
569.32	65.9091
569.50	73.3567
569.67	69.1101
573.80	62.8622
574.00	64.9987
574.64	62.8892
578.91	68.3652
579.30	0.0000
583.14	63.1574
585.48	56.5866
591.81	80.6305
592.07	75.2637
593.00	76.3735
595.88	79.7135
600.56	82.0558
602.52	0.0000
602.71	80.7005
602.71	80.7005
603.60	81.3114
604.41	72.6899
604.70	72.7002
609.31	61.8028

609.31	61.8028
609.31	61.8028
609.31	61.8028
610.33	61.8323
612.46	53.8610
614.37	60.8655
618.01	56.6163
621.84	62.1733
621.84	62.1733
631.29	66.8323
633.02	67.9828
633.10	67.9866
634.78	60.3577
635.90	61.4875
636.97	39.5475
645.85	51.8437
646.12	48.5399
656.30	72.0399
657.75	75.4147
657.90	0.0000
661.65	67.7705
661.65	67.7705
664.57	0.0000
666.33	47.8737
666.33	47.8737
675.00	64.8234
677.61	67.1356
685.20	63.9928
692.80	61.2764
695.00	68.5521
696.49	55.9589
696.49	55.9589
697.00	57.7781
697.49	60.4979
698.33	73.1670
698.50	68.6561
699.00	73.1867
702.63	70.5866
706.10	68.8806
706.58	0.0000
706.67	67.9907
709.31	56.2677
711.68	61.7761
713.82	66.3790
717.42	50.0881
720.50	65.3503
721.93	0.0000
722.20	56.2723
722.78	47.1584
722.78	47.1584
722.89	47.1610
722.95	50.2036
723.30	50.2117
724.18	51.7526
727.18	47.2455
733.00	42.3951
735.90	47.7229
739.58	38.6039
742.81	48.7792
744.21	54.3330
747.13	49.7878
751.79	65.5866
752.31	58.2089
753.82	53.6217
755.35	54.5793
756.15	58.2996
756.87	54.6139
763.93	46.4148
765.79	55.7388
766.42	52.0365
766.84	52.0447
776.49	66.8621
778.00	46.6760
778.57	49.7982
778.89	46.6919
783.80	59.8813
785.46	59.9203
792.07	54.7559



795.84	47.9432
796.30	53.2799
798.80	58.0368
801.93	51.8257
805.60	51.8982
810.29	63.3359
810.76	58.6200
815.85	51.1550
817.79	50.2452
818.51	50.2594
819.60	57.8696
826.30	49.4559
828.27	0.0000
831.60	52.4138
831.96	52.4205
834.83	67.7429
836.80	0.0000
846.75	50.7925
848.13	50.8184
856.28	0.0000
856.80	38.4766
860.37	46.2316
867.32	41.8427
867.82	37.0212
871.10	50.2798
873.19	47.4149
874.81	51.3153
875.33	0.0000
876.40	46.5012
879.36	37.8222
880.27	38.8047
880.51	40.7480
881.50	49.4971
883.24	50.4994
884.67	42.7518
889.25	45.7412
896.60	47.8121
898.02	44.9073
899.00	41.9932
903.28	50.5327
911.07	47.0742
911.07	47.0742
911.07	47.0742
919.63	52.1318
920.93	45.2667
925.00	39.4180
925.24	45.3340
926.50	53.2419
935.52	53.4067
937.48	57.4010
944.10	47.6109
946.00	39.7012
949.00	28.8124
962.29	35.9262
964.01	35.9473
966.15	35.9728
968.20	35.9965
969.11	36.0079
969.11	36.0079
969.11	36.0079
977.42	37.8894
980.50	34.1353
983.50	35.1735
989.30	36.2470
996.32	38.3479
1001.03	49.5240
1001.68	51.5566
1004.76	39.4646
1021.30	0.0000
1024.50	0.0000
1034.80	40.8633
1036.00	41.9009
1037.82	47.0377
1038.57	50.1173
1038.76	0.0000
1045.16	43.0459
1046.59	47.1657
1048.07	44.1107

1050.47	37.9846
1050.47	37.9846
1062.04	35.0293
1063.62	43.2920
1076.63	44.4991
1077.35	45.5447
1078.86	47.6352
1085.78	50.8495
1099.22	39.5920
1112.02	41.8359
1112.84	40.3512
1115.52	43.6239
1120.29	43.6849
1120.29	43.6849
1120.29	43.6849
1120.29	43.6849
1120.51	43.6869
1121.28	47.1929
1124.00	0.0000
1129.67	51.5146
1131.51	0.0000
1147.95	0.0000
1167.94	44.6435
1173.22	50.0339
1175.09	48.9940
1177.93	46.9025
1189.05	45.9793
1204.90	57.9946
1205.75	0.0000
1213.00	65.6614
1221.42	64.7314
1230.97	63.8197
1235.34	59.5627
1236.41	0.0000
1238.25	50.9404
1246.25	46.7058
1260.41	0.0000
1271.85	31.7145
1274.45	49.2451
1274.54	50.3417
1291.56	25.2832
1298.22	0.0000
1312.09	27.6282
1325.50	29.5716
1325.50	29.5716
1332.49	23.1435
1333.61	30.5588
1360.21	21.4418
1362.66	0.0000
1365.15	14.9342
1368.21	25.2202
1368.53	0.0000
1376.25	19.6550
1384.27	15.0052
1394.10	22.5615
1395.20	23.5087
1407.95	25.4674
1434.06	15.1875
1436.60	20.8953
1457.56	0.0000
1460.81	18.0131
1489.15	21.1549
1509.49	17.3892
1596.49	8.4431
1620.62	9.9019
1678.03	0.0000
1691.02	5.0252
1691.02	5.0252
1706.46	0.0000
1750.46	0.0000
1764.49	8.7448
1764.49	8.7448
1764.49	8.7448
1764.49	8.7448
1770.23	21.4495
1771.40	10.2165
1791.20	0.0000
1808.65	7.2042

1836.01

1.0347

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202014514

Total Uranium Activity	2.3610E+00	ug/g
Total Uranium Counting Unc.	3.2115E+00	ug/g
Total Uranium Tpu	1.6385E-06	ug/g
Total Uranium Mda	1.6065E+00	ug/g

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*****
*
*                               GEL Laboratories LLC
*                               2040 SAVAGE ROAD
*                               CHARLESTON ,SC 29417
*                               GROSS GAMMA REPORT
*
*****
*
*  BATCH ID      : 941242          SAMPLE ID   : G1202014514
*  ANALYST       : MXR1           DETECTOR    : GAM17
*  SAMPLE DATE   : 8-JAN-2010 12:00:00.00  COUNT TIME : 0 02:00:00.00
*  ANALYSIS DATE: 21-JAN-2010 11:24:27.61  SAMPLE ALQT: 128.270 GRAM
*
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 9.935E+00
GROSS GAMMA ERROR  (pCi/GRAM ) : 1.655E+00
GROSS GAMMA MDA    (pCi/GRAM ) : 4.313E+00
GROSS GAMMA DLC    (pCi/GRAM ) : 2.091E+00

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VAX/VMS Nuclide Identification Report Generated 21-JAN-2010 12:09:29.32

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*****
*                               GEL Laboratories LLC                      *
*                               2040 Savage Road                        *
*                               Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014515.CNF;1
Sample date        : 14-JAN-2010 00:00:00 Acquisition date : 21-JAN-2010 11:09:01
Sample ID          : G1202014515 Sample quantity : 1.51730E+02 GRAM
Detector name      : GAM13 Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00 Elapsed real time: 0 01:00:01.75 0.0%
Energy tolerance   : 1.50000 keV Analyst Initials : MXR1
Abundance limit    : 75.00000 Sensitivity : 5.00000
Batch ID           : 941242 Detector SN# :
Matrix Spike ID    : LCS ID : 1032-A
*****

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Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	9	49.64	497	1103	1.98	99.05	94	30	1.38E-01	12.6	2.31E+01
2	9	51.91*	282	1063	1.59	103.59	94	30	7.84E-02	22.8	
3	9	53.54*	287	1039	1.72	106.85	94	30	7.98E-02	22.3	
4	9	59.43	7763	558	1.19	118.62	94	30	2.16E+00	1.3	
5	0	63.19*	85	456	1.13	126.14	124	7	2.35E-02	46.2	
6	2	74.75	271	471	1.04	149.28	143	16	7.54E-02	14.0	1.09E+00
7	2	77.01*	428	442	1.08	153.80	143	16	1.19E-01	9.3	
8	3	87.89	2097	434	1.18	175.57	171	19	5.83E-01	2.7	2.01E+00
9	3	90.03	78	357	1.16	179.84	171	19	2.16E-02	60.8	
10	3	92.54*	116	327	1.24	184.87	171	19	3.23E-02	32.8	
11	0	121.93	330	447	1.19	243.66	238	12	9.17E-02	13.9	
12	0	185.70*	92	373	1.72	371.23	366	11	2.56E-02	43.7	
13	0	238.33*	502	411	1.25	476.50	470	11	1.40E-01	9.1	
14	0	295.12*	125	224	1.45	590.12	586	10	3.49E-02	24.2	
15	0	338.12*	90	251	1.32	676.16	670	11	2.49E-02	36.1	
16	0	351.72*	237	222	1.47	703.35	697	12	6.57E-02	14.3	
17	0	510.61*	27	244	1.34	1021.22	1016	15	7.61E-03	131.7	
18	0	582.64*	171	143	1.93	1165.34	1159	13	4.75E-02	16.6	
19	0	609.27*	201	139	1.18	1218.61	1212	14	5.59E-02	14.4	
20	0	661.29	2033	164	1.57	1322.68	1316	15	5.65E-01	2.6	
21	0	910.94*	86	203	1.47	1822.18	1815	15	2.38E-02	38.2	
22	0	1172.58	1644	113	2.08	2345.66	2336	20	4.57E-01	2.9	
23	0	1331.77	1544	35	2.16	2664.20	2654	20	4.29E-01	2.7	
24	0	1764.08	35	16	2.35	3529.26	3522	13	9.76E-03	29.0	

Flag: "\*" = Peak area was modified by background subtraction

## VMS Nuclide Identification Report V3.1 Generated 21-JAN-2010 12:09:32

Configuration : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014515.CNF;1  
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4,MINACT V2.8  
 Sample title : MXR1  
 Sample date : 14-JAN-2010 00:00:00 Acquisition date : 21-JAN-2010 11:09:01  
 Sample ID : G1202014515 Sample quantity : 151.73 GRAM  
 Sample type : SOLID Sample geometry :  
 Detector name : GAMMA13 Detector geometry: CAN  
 Elapsed live time: 0 01:00:00.00 Elapsed real time: 0 01:00:01.75 0.0%  
 Peak Width (FWHM): 3.00 Confidence level : 5.00 %  
 Energy tolerance : 1.50 keV Half life ratio : 8.00  
 Errors propagated: Yes Systematic Error : 0.00 %  
 Efficiency type : Empirical Efficiencies at : Peak Energy  
 Abundance limit : 75.00 WTM error limit : 3.00

## Full Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	+	122.06	*	2.907E-01	8.894E-02	6.579E-02	8.322E-03	4.418
		136.48		2.061E-01	3.403E-01	5.646E-01	6.609E-02	0.365
CO-60	+	1173.22		6.577E+00	5.294E-01	1.547E-01	8.502E-03	42.518
	+	1332.49	*	6.840E+00	5.377E-01	1.333E-01	7.580E-03	51.325
AS-73	+	53.44	*	2.000E+00	9.071E-01	7.671E-01	6.480E-02	2.607
CD-109	+	88.03	*	3.897E+01	3.738E+00	1.682E+00	1.327E-01	23.165
SN-126	+	64.28		5.897E-01	5.527E-01	6.789E-01	1.057E-01	0.869
	+	86.94		1.611E+01	6.696E+00	6.930E-01	2.857E-01	23.241
	+	87.57	*	3.874E+00	3.717E-01	1.670E-01	1.321E-02	23.197
BA-137M	+	661.65	*	5.540E+00	5.368E-01	1.361E-01	1.110E-02	40.721
CS-137	+	661.65	*	5.857E+00	5.683E-01	1.438E-01	1.176E-02	40.722
TM-171	+	51.35		6.603E+01	3.053E+01	2.568E+01	2.067E+00	2.571
	+	52.39		3.682E+01	1.703E+01	1.433E+01	1.182E+00	2.569
	+	59.40		2.460E+03	2.439E+02	3.529E+01	3.383E+00	69.727
		66.72	*	1.795E+01	2.694E+01	4.201E+01	3.834E+00	0.427
TL-208		277.35		1.379E-01	7.214E-01	1.189E+00	1.393E-01	0.116
	+	510.84		2.474E-01	6.521E-01	4.876E-01	5.299E-02	0.507
	+	583.14	*	4.449E-01	1.520E-01	1.333E-01	1.103E-02	3.338
		860.37		1.222E+00	7.872E-01	1.414E+00	1.192E-01	0.864
BI-211		72.87		3.841E+00	3.109E+00	5.395E+00	4.718E-01	0.712
	+	351.07	*	2.586E+00	7.630E-01	7.069E-01	5.153E-02	3.659
PB-212	+	74.81		1.705E+00	5.236E-01	5.927E-01	7.540E-02	2.876
	+	77.11		1.604E+00	3.293E-01	3.543E-01	3.010E-02	4.527
	+	87.30		1.792E+01	2.483E+00	7.718E-01	9.848E-02	23.216
	+	238.63	*	1.182E+00	2.412E-01	2.074E-01	1.884E-02	5.698
		300.09		1.897E+00	1.661E+00	2.565E+00	2.440E-01	0.739
PO-212	+	74.81		1.705E+00	5.236E-01	5.927E-01	7.540E-02	2.876
	+	77.11		1.604E+00	3.293E-01	3.543E-01	3.010E-02	4.527
	+	87.30		1.792E+01	2.483E+00	7.718E-01	9.848E-02	23.216
		115.19		2.006E+00	5.486E+00	9.118E+00	1.057E+00	0.220
	+	238.63	*	1.182E+00	2.412E-01	2.074E-01	1.884E-02	5.698
		300.09		1.897E+00	1.661E+00	2.565E+00	2.440E-01	0.739
BI-214	+	609.31	*	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
		1120.29		6.885E-01	8.094E-01	1.377E+00	1.232E-01	0.500

---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PB-214	+	1764.49		1.225E+00	7.134E-01	6.119E-01	3.475E-02	2.001
	+	74.81		2.937E+00	8.865E-01	1.021E+00	1.162E-01	2.876
	+	77.11		2.750E+00	6.022E-01	6.074E-01	6.932E-02	4.527
	+	87.30		3.069E+01	3.778E+00	1.322E+00	1.462E-01	23.216
	+	241.98		6.082E-01	7.693E-01	1.176E+00	1.138E-01	0.517
PO-214	+	295.21		8.027E-01	3.972E-01	4.348E-01	4.259E-02	1.846
	+	351.92	*	8.997E-01	2.695E-01	2.465E-01	2.207E-02	3.650
	+	74.81		2.937E+00	8.865E-01	1.021E+00	1.162E-01	2.876
	+	77.11		2.750E+00	6.022E-01	6.074E-01	6.932E-02	4.527
	+	87.30		3.069E+01	3.778E+00	1.322E+00	1.462E-01	23.216
PO-216	+	241.98		6.082E-01	7.693E-01	1.176E+00	1.138E-01	0.517
	+	295.21		8.027E-01	3.972E-01	4.348E-01	4.259E-02	1.846
	+	351.92	*	8.997E-01	2.695E-01	2.465E-01	2.207E-02	3.650
	+	74.81		1.705E+00	5.236E-01	5.927E-01	7.540E-02	2.876
	+	77.11		1.604E+00	3.293E-01	3.543E-01	3.010E-02	4.527
PO-218	+	87.30		1.792E+01	2.483E+00	7.718E-01	9.848E-02	23.216
	+	238.63	*	1.182E+00	2.412E-01	2.074E-01	1.884E-02	5.698
	+	300.09		1.897E+00	1.661E+00	2.565E+00	2.440E-01	0.739
	+	74.81		2.937E+00	8.865E-01	1.021E+00	1.162E-01	2.876
	+	77.11		2.750E+00	6.022E-01	6.074E-01	6.932E-02	4.527
RA-226	+	87.30		3.069E+01	3.778E+00	1.322E+00	1.462E-01	23.216
	+	241.98		6.082E-01	7.693E-01	1.176E+00	1.138E-01	0.517
	+	295.21		8.027E-01	3.972E-01	4.348E-01	4.259E-02	1.846
	+	351.92	*	8.997E-01	2.695E-01	2.465E-01	2.207E-02	3.650
	+	609.31	*	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
TH-228	+	1120.29		6.885E-01	8.094E-01	1.377E+00	1.232E-01	0.500
	+	1764.49		1.225E+00	7.134E-01	6.119E-01	3.475E-02	2.001
	+	74.81		1.717E+00	5.028E-01	5.972E-01	5.197E-02	2.876
	+	77.11		1.616E+00	3.318E-01	3.570E-01	3.033E-02	4.527
	+	87.30		1.805E+01	1.732E+00	7.776E-01	6.162E-02	23.216
TH-230	+	238.63	*	1.190E+00	2.430E-01	2.089E-01	1.898E-02	5.698
	+	300.09		1.911E+00	2.011E+00	2.584E+00	1.528E+00	0.739
	+	609.31	*	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
	+	1120.29		6.885E-01	8.094E-01	1.377E+00	1.232E-01	0.500
	+	1764.49		1.225E+00	7.133E-01	6.119E-01	3.475E-02	2.001
TH-234	+	63.29	*	1.490E+00	1.404E+00	1.624E+00	2.981E-01	0.917
	+	92.38		1.482E+00	1.007E+00	1.159E+00	2.086E-01	1.278
	+	609.31	*	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
U-234	+	1120.29		6.885E-01	8.094E-01	1.377E+00	1.232E-01	0.500
	+	1764.49		1.225E+00	7.133E-01	6.119E-01	3.475E-02	2.001
	+	86.50	*	1.138E+01	2.589E+00	5.550E-01	1.228E-01	20.497
NP-237	+	95.87		-6.345E-02	1.341E+00	1.983E+00	4.904E-01	-0.032
	+	63.29	*	1.490E+00	1.404E+00	1.624E+00	2.981E-01	0.917
	+	92.38		1.482E+00	9.791E-01	1.159E+00	9.785E-02	1.278
AM-241	+	59.54	*	1.449E+01	1.516E+00	2.079E-01	2.114E-02	69.713
	+	74.67	*	2.764E-01	8.086E-02	9.607E-02	8.298E-03	2.877
	+	86.72		4.266E+02	4.093E+01	2.083E+01	1.657E+00	20.484
AM-243	+	117.66		-3.480E+00	6.713E+00	9.473E+00	1.134E+00	-0.367
	+	142.18		-1.646E+01	2.922E+01	4.598E+01	4.872E+00	-0.358



---- Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ANH-511	+	511.00	*	5.344E-02	1.408E-01	1.054E-01	7.352E-03	0.507

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7		477.59	*	-2.691E-02	7.096E-01	1.184E+00	8.901E-02	-0.023
NA-22		1274.54	*	6.782E-02	7.193E-02	1.317E-01	7.432E-03	0.515
NA-24		1368.53	*	1.649E-05	7.193E-02	Half-Life too short		
AL-26		1129.67		-5.658E-01	4.061E+00	6.498E+00	3.851E-01	-0.087
		1808.65	*	2.786E-02	5.036E-02	9.298E-02	5.247E-03	0.300
K-40		1460.81	*	6.881E-01	6.376E-01	1.200E+00	7.338E-02	0.573
TI-44		67.85		8.614E-03	4.353E-02	7.074E-02	6.404E-03	0.122
	+	78.38	*	2.959E-01	6.076E-02	8.097E-02	6.819E-03	3.655
SC-46		889.25	*	1.395E-01	1.120E-01	1.977E-01	1.497E-02	0.705
		1120.51		9.941E-02	1.308E-01	2.216E-01	1.332E-02	0.449
V-48		944.10		8.271E-01	2.045E+00	3.443E+00	2.514E-01	0.240
		983.50	*	-1.409E-01	1.446E-01	2.206E-01	1.561E-02	-0.639
		1312.09		-4.057E-03	1.020E-01	1.684E-01	9.546E-03	-0.024
CR-51		320.08	*	2.323E-01	6.173E-01	1.029E+00	8.005E-02	0.226
MN-52		744.21		-2.541E-03	2.332E-01	3.745E-01	3.040E-02	-0.007
		848.13		-5.156E+00	6.812E+00	1.073E+01	8.359E-01	-0.480
		935.52		2.028E-01	3.005E-01	5.138E-01	3.774E-02	0.395
		1246.25		-2.459E-03	4.046E+00	6.740E+00	3.773E-01	0.000
		1333.61		3.143E+02	2.473E+01	3.909E+01	2.224E+00	8.041
		1434.06	*	4.451E-02	1.532E-01	2.629E-01	1.511E-02	0.169
MN-54		834.83	*	-4.785E-02	9.132E-02	1.468E-01	1.152E-02	-0.326
CO-56		846.75	*	-2.692E-02	9.247E-02	1.507E-01	1.175E-02	-0.179
		977.42		6.151E+00	7.913E+00	1.362E+01	9.683E-01	0.452
		1037.82		-2.207E-02	8.090E-01	1.318E+00	9.597E-02	-0.017
		1175.09		2.419E+02	1.950E+01	3.196E+01	1.757E+00	7.569
		1238.25		1.312E-01	1.260E-01	2.305E-01	1.375E-02	0.569
		1360.21		9.805E-01	1.378E+00	2.520E+00	1.438E-01	0.389
		1771.40		-1.060E+00	5.220E-01	5.650E-01	3.206E-02	-1.877
CO-58		810.76	*	2.121E-02	9.440E-02	1.598E-01	1.273E-02	0.133
FE-59		142.65		2.231E+00	3.888E+00	6.449E+00	6.800E-01	0.346
		192.34		-3.698E-01	1.418E+00	2.379E+00	3.087E-01	-0.155
		1099.22	*	1.513E-02	2.190E-01	3.571E-01	2.551E-02	0.042
		1291.56		-4.029E-02	1.572E-01	2.517E-01	1.838E-02	-0.160
ZN-65		1115.52	*	-9.476E-02	2.382E-01	3.751E-01	2.278E-02	-0.253
GE-68		1077.35	*	-2.595E+00	3.495E+00	5.378E+00	3.437E-01	-0.483
AS-74		595.88	*	-4.054E-02	1.486E-01	2.391E-01	1.836E-02	-0.170
		634.78		-1.418E-01	6.091E-01	9.772E-01	7.787E-02	-0.145
SE-75		66.05		2.078E+00	4.228E+00	6.557E+00	7.143E-01	0.317
		96.73		-5.022E-01	1.091E+00	1.567E+00	2.174E-01	-0.321
	+	121.11		1.525E+00	4.792E-01	4.866E-01	7.013E-02	3.134
		136.00		5.929E-02	6.214E-02	1.044E-01	1.179E-02	0.568
		198.60		-1.006E+00	3.034E+00	5.042E+00	4.505E-01	-0.199
		264.65	*	2.060E-02	7.757E-02	1.303E-01	1.021E-02	0.158

----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BR-77	+	279.53		4.732E-02	1.944E-01	3.250E-01	2.614E-02	0.146
		303.91		-4.765E-01	3.954E+00	6.449E+00	6.852E-01	-0.074
		400.65		-4.722E-01	5.644E-01	8.542E-01	7.851E-02	-0.553
		87.88		9.086E+02	8.717E+01	9.939E+01	7.845E+00	9.141
		200.40		2.687E+00	3.075E+01	5.222E+01	4.136E+00	0.051
		239.00		2.024E+01	4.032E+00	5.450E+00	4.305E-01	3.714
		249.79		-6.507E+00	1.357E+01	2.210E+01	1.738E+00	-0.294
		281.68		-1.081E+01	1.842E+01	2.949E+01	2.262E+00	-0.367
		297.23		2.007E+00	1.311E+01	1.909E+01	1.436E+00	0.105
		303.76		-3.419E+01	3.901E+01	6.109E+01	4.551E+00	-0.560
		439.47		5.199E+00	3.685E+01	6.244E+01	3.945E+00	0.083
		484.57		3.803E+01	5.443E+01	9.433E+01	6.359E+00	0.403
		520.65	*	-2.966E+00	2.564E+00	3.940E+00	2.783E-01	-0.753
		574.64		-2.218E+01	5.175E+01	8.036E+01	6.038E+00	-0.276
		578.91		6.803E+00	2.341E+01	3.422E+01	2.583E+00	0.199
		585.48		8.056E+01	4.842E+01	7.762E+01	5.898E+00	1.038
		755.35		5.022E+01	4.590E+01	7.884E+01	6.384E+00	0.637
SR-82		817.79		-1.446E+01	3.759E+01	6.114E+01	4.840E+00	-0.237
		698.33		-1.848E+01	6.577E+01	1.042E+02	8.511E+00	-0.177
		776.49	*	3.981E-01	7.386E-01	1.279E+00	1.029E-01	0.311
RB-83		1395.20		-1.120E+01	1.385E+01	1.967E+01	1.127E+00	-0.569
		520.41	*	-1.816E-01	1.494E-01	2.285E-01	1.614E-02	-0.795
RB-84		529.64		-1.423E-01	2.432E-01	3.892E-01	2.779E-02	-0.366
		552.65		-1.085E-02	4.082E-01	6.728E-01	4.935E-02	-0.016
		881.50	*	-1.027E-01	1.800E-01	2.878E-01	2.192E-02	-0.357
KR-85		513.99	*	1.178E+01	1.838E+01	2.780E+01	1.947E+00	0.424
SR-85		513.99	*	5.571E-02	8.695E-02	1.315E-01	9.211E-03	0.424
RB-86		1076.63	*	-8.638E-01	1.683E+00	2.636E+00	1.686E-01	-0.328
Y-88		898.02		1.427E-02	1.102E-01	1.838E-01	1.391E-02	0.078
ZR-88		1836.01	*	3.782E-02	5.807E-02	1.080E-01	6.083E-03	0.350
		392.90	*	-2.470E-02	6.694E-02	1.053E-01	6.168E-03	-0.235
Y-91		1204.90	*	-8.355E+00	2.737E+01	4.430E+01	2.455E+00	-0.189
NB-94		702.63	*	7.885E-02	7.712E-02	1.331E-01	1.086E-02	0.593
NB-95		871.10		-4.312E-02	9.657E-02	1.556E-01	1.194E-02	-0.277
		765.79	*	5.722E-02	8.963E-02	1.561E-01	1.260E-02	0.367
NB-95M		235.69	*	2.104E-01	2.301E-01	3.556E-01	3.290E-02	0.592
ZR-95		724.18		1.232E-01	2.088E-01	3.494E-01	3.120E-02	0.353
NB-97		756.15	*	7.394E-02	1.691E-01	2.794E-01	2.520E-02	0.265
		657.90	*	1.225E-03	1.691E-01	Half-Life	too short	
ZR-97		1024.50		8.978E-03	1.691E-01	Half-Life	too short	
		254.15		8.690E-04	1.691E-01	Half-Life	too short	
MO-99		355.39		-3.060E-03	1.691E-01	Half-Life	too short	
		507.63	*	2.208E-03	1.691E-01	Half-Life	too short	
		602.52		-1.779E-03	1.691E-01	Half-Life	too short	
		1021.30		8.702E-04	1.691E-01	Half-Life	too short	
		1147.95		5.714E-03	1.691E-01	Half-Life	too short	
		1362.66		7.582E-03	1.691E-01	Half-Life	too short	
		1750.46		3.677E-03	1.691E-01	Half-Life	too short	
		140.51		-5.975E-01	6.097E+00	9.798E+00	2.786E+00	-0.061

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
	181.06			3.714E+00	4.726E+00	6.943E+00	1.246E+00	0.535
	366.43			-1.148E+00	2.702E+01	4.357E+01	2.802E+00	-0.026
	739.58	*		-7.809E-01	4.132E+00	6.551E+00	9.766E-01	-0.119
	778.00			-7.247E+00	1.203E+01	1.934E+01	1.556E+00	-0.375
TC-99M	140.51	*		-3.719E+00	1.203E+01	Half-Life	too short	
RH-101	127.23			-7.231E-02	6.126E-02	8.178E-02	9.931E-03	-0.884
	198.01	*		-2.640E-02	5.683E-02	9.391E-02	7.436E-03	-0.281
	325.23			-3.141E-01	4.476E-01	7.024E-01	5.036E-02	-0.447
RH-102	418.52			1.666E-01	6.645E-01	1.077E+00	6.585E-02	0.155
	475.06	*		-1.256E-05	7.200E-02	1.199E-01	7.977E-03	0.000
	631.29			8.739E-02	1.264E-01	2.155E-01	1.712E-02	0.405
	697.49			-1.215E-01	1.835E-01	2.826E-01	2.307E-02	-0.430
	766.84			2.297E-01	2.466E-01	4.357E-01	3.517E-02	0.527
	1046.59			-1.105E-02	3.184E-01	5.179E-01	3.437E-02	-0.021
	1112.84			-1.442E-01	6.019E-01	9.586E-01	5.831E-02	-0.150
RU-103	497.08	*		-1.213E-02	8.344E-02	1.379E-01	1.815E-02	-0.088
	610.33	+		9.353E+00	3.101E+00	3.777E+00	6.146E-01	2.476
RH-106	511.85	+		2.631E-01	6.931E-01	7.162E-01	5.003E-02	0.367
	621.84	*		1.291E-01	7.816E-01	1.290E+00	1.663E-01	0.100
	1050.47			8.500E-01	6.384E+00	1.050E+01	6.937E-01	0.081
RU-106	511.85	+		2.631E-01	6.931E-01	7.162E-01	5.003E-02	0.367
	621.84	*		1.291E-01	7.815E-01	1.290E+00	1.016E-01	0.100
	1050.47			8.500E-01	6.384E+00	1.050E+01	6.937E-01	0.081
AG-108M	433.93	*		-6.386E-02	7.675E-02	1.237E-01	8.323E-03	-0.516
	614.37			-5.398E-02	1.011E-01	1.355E-01	1.110E-02	-0.398
	722.95			-9.915E-02	1.053E-01	1.582E-01	1.345E-02	-0.627
AG-110M	657.75	*		6.335E-01	1.338E-01	2.295E-01	1.928E-02	2.761
	677.61			5.506E-01	7.091E-01	1.209E+00	1.018E-01	0.455
	706.67			-2.190E-01	4.810E-01	7.508E-01	6.315E-02	-0.292
	763.93			1.395E-01	3.835E-01	6.574E-01	5.482E-02	0.212
	884.67			-4.270E-02	1.493E-01	2.431E-01	1.924E-02	-0.176
	937.48			-1.026E-02	3.374E-01	5.541E-01	4.267E-02	-0.019
	1384.27			-8.997E-02	2.664E-01	4.178E-01	2.541E-02	-0.215
IN-111	171.28			2.867E-01	2.616E-01	4.379E-01	3.438E-02	0.655
	245.39	*		-3.690E-01	3.168E-01	4.994E-01	3.935E-02	-0.739
IN-113M	391.69	*		2.385E-03	9.738E-02	1.567E-01	9.765E-03	0.015
SN-113	391.69	*		2.385E-03	9.738E-02	1.567E-01	9.765E-03	0.015
IN-114M	190.27	*		6.540E-01	3.204E-01	5.036E-01	3.981E-02	1.299
CD-115	260.90			-8.106E+00	2.263E+01	3.692E+01	2.883E+00	-0.220
	492.35			2.769E+00	7.764E+00	1.320E+01	8.990E-01	0.210
	527.90	*		-2.424E+00	2.432E+00	3.788E+00	2.700E-01	-0.640
SN-117M	156.02			-1.034E+00	2.697E+00	4.244E+00	3.834E-01	-0.244
	158.56	*		3.241E-02	6.467E-02	1.059E-01	9.249E-03	0.306
SB-122	563.90	*		-2.773E-01	6.624E-01	1.063E+00	7.893E-02	-0.261
	692.80			3.716E+00	1.423E+01	2.344E+01	1.914E+00	0.159
I-123	159.00	*		2.700E-04	1.423E+01	Half-Life	too short	
	528.96			-5.442E-02	1.423E+01	Half-Life	too short	
TE-123M	159.00	*		2.127E-02	4.766E-02	7.785E-02	6.798E-03	0.273
I-124	602.71	*		1.365E-02	4.591E-01	6.530E-01	5.049E-02	0.021

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
SB-124		722.78		-3.829E+00	3.134E+00	4.604E+00	3.751E-01	-0.832
		1325.50		2.803E+01	2.453E+01	4.019E+01	2.284E+00	0.697
		1376.25		1.832E+01	1.504E+01	2.834E+01	1.621E+00	0.647
		1509.49		4.276E+00	7.742E+00	1.368E+01	7.889E-01	0.312
		1691.02		5.630E-01	2.129E+00	3.604E+00	2.064E-01	0.156
		602.71		2.593E-03	8.719E-02	1.240E-01	9.590E-03	0.021
		645.85		4.549E-01	1.095E+00	1.832E+00	1.575E-01	0.248
		709.31		-1.345E+00	5.941E+00	9.432E+00	7.696E-01	-0.143
		713.82		-2.934E-01	3.728E+00	5.982E+00	7.005E-01	-0.049
		722.78		-1.054E+00	8.630E-01	1.268E+00	1.058E-01	-0.832
		968.20		1.257E+01	7.175E+00	1.274E+01	9.132E-01	0.986
		1045.16		1.228E+00	6.162E+00	1.005E+01	6.682E-01	0.122
		1325.50		8.242E+00	7.212E+00	1.182E+01	6.714E-01	0.697
		1368.21		7.836E-02	2.692E+00	4.464E+00	5.280E-01	0.018
SB-125		1436.60		-1.151E+00	6.186E+00	9.887E+00	5.683E-01	-0.116
		1691.02	*	3.656E-02	1.382E-01	2.340E-01	1.458E-02	0.156
		427.89	*	-9.056E-03	2.015E-01	3.391E-01	2.182E-02	-0.027
		463.38		4.521E-01	6.694E-01	1.156E+00	8.570E-02	0.391
		600.56		1.227E-01	3.852E-01	6.445E-01	5.426E-02	0.190
TE-125M		635.90		1.435E-01	6.160E-01	1.021E+00	8.905E-02	0.141
		109.28	*	3.384E+00	1.237E+01	2.055E+01	2.494E+00	0.165
I-126		388.63		-1.143E-02	2.971E-01	4.767E-01	2.823E-02	-0.024
		666.33	*	3.121E-01	2.771E-01	4.348E-01	3.548E-02	0.718
SB-126		753.82		1.472E+00	2.576E+00	4.290E+00	3.476E-01	0.343
		223.80		-1.288E+00	4.582E+00	7.597E+00	6.022E-01	-0.169
		278.60		4.457E+00	2.950E+00	5.196E+00	3.997E-01	0.858
	+	296.50		5.205E+00	2.554E+00	3.322E+00	2.501E-01	1.567
		414.70		1.364E-02	1.122E-01	1.807E-01	1.098E-02	0.076
		415.30		-3.425E+00	9.244E+00	1.445E+01	8.786E-01	-0.237
		555.20		5.957E-01	5.890E+00	9.784E+00	7.197E-01	0.061
		573.80		-9.914E-01	1.527E+00	2.404E+00	1.805E-01	-0.412
		593.00		-1.124E-01	1.306E+00	2.131E+00	1.632E-01	-0.053
		656.30		1.360E+00	6.159E+00	8.830E+00	7.169E-01	0.154
SB-127		666.33		1.281E-01	1.138E-01	1.785E-01	1.457E-02	0.718
		675.00		1.239E+00	2.997E+00	5.002E+00	4.084E-01	0.248
		695.00		8.110E-02	1.164E-01	1.971E-01	1.609E-02	0.411
		697.00		-3.089E-01	4.189E-01	6.410E-01	5.234E-02	-0.482
		720.50	*	-9.751E-02	2.306E-01	3.605E-01	2.938E-02	-0.271
		856.80		-6.734E-01	8.473E-01	1.336E+00	1.035E-01	-0.504
		989.30		3.487E+00	2.312E+00	4.141E+00	2.914E-01	0.842
		1034.80		5.107E+00	1.677E+01	2.793E+01	1.878E+00	0.183
		1213.00		1.233E+00	4.693E+00	8.051E+00	4.471E-01	0.153
		61.10		3.211E+02	3.800E+01	3.860E+01	3.907E+00	8.317
		252.40		-4.518E-01	2.070E+00	3.396E+00	1.407E+00	-0.133
		290.80		-6.998E+00	1.130E+01	1.556E+01	1.300E+00	-0.450
		411.60		-1.399E-02	6.955E+00	1.113E+01	1.457E+00	-0.001
		444.90		4.153E+00	5.973E+00	1.035E+01	9.564E-01	0.401
		473.00		6.281E-02	1.038E+00	1.742E+00	1.718E-01	0.036
		543.00		-9.019E-01	9.634E+00	1.584E+01	1.924E+00	-0.057

## ----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
XE-127		603.60		-5.158E+00	7.395E+00	9.749E+00	9.943E-01	-0.529
		685.20	*	-4.903E-01	7.647E-01	1.175E+00	1.077E-01	-0.417
		698.50		8.817E-01	8.990E+00	1.463E+01	2.093E+00	0.060
		722.20		-2.044E+01	1.876E+01	2.780E+01	2.465E+00	-0.735
		783.80		1.137E+00	2.153E+00	3.720E+00	3.836E-01	0.306
		57.60		7.875E+01	9.477E+00	1.198E+01	1.107E+00	6.575
		145.22		1.430E-01	9.732E-01	1.579E+00	1.621E-01	0.091
		172.10		1.503E-01	1.780E-01	2.947E-01	2.315E-02	0.510
		202.84	*	5.171E-02	7.146E-02	1.241E-01	9.833E-03	0.417
		374.96		1.951E-01	3.742E-01	6.210E-01	3.878E-02	0.314
I-131		80.18		-1.150E+00	3.089E+00	4.559E+00	3.799E-01	-0.252
		284.30		5.909E-03	1.493E+00	2.463E+00	1.996E-01	0.002
		364.48	*	-3.936E-02	1.297E-01	2.061E-01	1.449E-02	-0.191
		636.97		-1.978E-01	1.818E+00	2.942E+00	2.489E-01	-0.067
TE-132	+	722.89		-8.618E+00	9.149E+00	1.375E+01	1.122E+00	-0.627
		49.72		1.260E+01	3.343E+00	3.722E+00	3.126E-01	3.385
		111.76		1.784E+00	8.972E+00	1.474E+01	1.704E+00	0.121
		116.30		1.771E-01	8.757E+00	1.367E+01	1.668E+00	0.013
BA-133	+	228.16	*	1.907E-01	2.451E-01	4.221E-01	6.007E-02	0.452
		53.15		9.037E+00	4.098E+00	4.488E+00	3.766E-01	2.014
		79.62		-2.073E-01	1.645E+00	2.457E+00	3.704E-01	-0.084
		81.00		-1.087E-01	1.341E-01	1.925E-01	3.020E-02	-0.565
		276.40		-1.942E-01	7.144E-01	1.152E+00	1.604E-01	-0.169
		302.84		-3.771E-01	2.944E-01	4.458E-01	5.602E-02	-0.846
I-133	+	356.01	*	-3.432E-02	1.045E-01	1.460E-01	1.753E-02	-0.235
		383.85		-1.370E-01	6.619E-01	1.053E+00	1.158E-01	-0.130
		510.53		1.175E-03	6.619E-01	Half-Life	too short	
		529.87	*	-8.960E-08	6.619E-01	Half-Life	too short	
		706.58		-9.307E-04	6.619E-01	Half-Life	too short	
		856.28		-2.326E-03	6.619E-01	Half-Life	too short	
		875.33		9.443E-04	6.619E-01	Half-Life	too short	
		1236.41		2.411E-03	6.619E-01	Half-Life	too short	
		1298.22		4.721E-04	6.619E-01	Half-Life	too short	
		475.35		-5.135E-01	4.682E+00	7.752E+00	5.160E-01	-0.066
CS-134		563.23		-4.482E-01	8.151E-01	1.296E+00	9.741E-02	-0.346
		569.32		3.397E-01	4.535E-01	7.775E-01	5.913E-02	0.437
		604.70		-3.458E-02	8.265E-02	1.123E-01	8.729E-03	-0.308
		795.84	*	1.133E-01	1.154E-01	2.036E-01	1.641E-02	0.556
		801.93		-7.083E-01	1.053E+00	1.670E+00	1.340E-01	-0.424
		1038.57		-3.661E+00	1.100E+01	1.752E+01	1.174E+00	-0.209
CS-135		1167.94		2.845E+01	8.335E+00	1.469E+01	8.156E-01	1.936
		1365.15		-1.047E+00	1.971E+00	2.986E+00	1.877E-01	-0.351
		268.24	*	1.186E-03	2.990E-01	4.956E-01	4.578E-02	0.002
		288.45		-6.964E+01	2.990E-01	Half-Life	too short	
		417.63		3.067E+01	2.990E-01	Half-Life	too short	
		546.56		-1.290E+01	2.990E-01	Half-Life	too short	
		836.80		2.881E+02	2.990E-01	Half-Life	too short	
		1038.76		5.948E+01	2.990E-01	Half-Life	too short	
		1124.00		-8.482E+01	2.990E-01	Half-Life	too short	
						Half-Life	too short	

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CS-136	1131.51			6.201E+00	2.990E-01	Half-Life	too short	
	1260.41	*		-1.387E+01	2.990E-01	Half-Life	too short	
	1457.56			8.882E+01	2.990E-01	Half-Life	too short	
	1678.03			2.773E+01	2.990E-01	Half-Life	too short	
	1706.46			1.916E+02	2.990E-01	Half-Life	too short	
	1791.20			-8.059E+01	2.990E-01	Half-Life	too short	
	66.91			3.890E-01	5.061E-01	7.882E-01	1.239E-01	0.494
	86.29			1.144E+01	1.992E+00	2.584E+00	3.212E-01	4.427
	153.22			2.412E-01	7.447E-01	1.213E+00	1.249E-01	0.199
	163.89			-3.030E-01	1.307E+00	2.054E+00	1.885E-01	-0.147
	176.55			6.696E-02	4.320E-01	6.916E-01	5.812E-02	0.097
	273.65			-7.583E-01	5.932E-01	9.179E-01	7.667E-02	-0.826
	340.57			1.720E-03	1.958E-01	2.788E-01	2.015E-02	0.006
	818.51			5.555E-02	1.286E-01	2.203E-01	1.744E-02	0.252
CE-139	1048.07	*		-1.253E-01	2.000E-01	3.111E-01	2.205E-02	-0.403
	1235.34			6.683E-01	5.834E-01	1.074E+00	1.059E-01	0.622
	165.85	*		2.567E-02	5.045E-02	8.243E-02	6.462E-03	0.311
	162.64			3.763E-01	8.876E-01	1.438E+00	1.260E-01	0.262
BA-140	304.84			2.221E+00	1.747E+00	2.865E+00	7.931E-01	0.775
	423.70			-1.878E-01	2.886E+00	4.587E+00	1.461E+00	-0.041
	537.32	*		-3.309E-01	4.101E-01	6.207E-01	2.036E-01	-0.533
	328.77			2.375E-01	3.932E-01	6.602E-01	5.079E-02	0.360
LA-140	432.53			-8.809E-01	3.145E+00	5.224E+00	3.561E-01	-0.169
	487.03			-7.613E-02	2.084E-01	3.405E-01	2.530E-02	-0.224
	751.79			-4.608E-01	2.945E+00	4.677E+00	4.246E-01	-0.099
	815.85			-7.240E-01	5.581E-01	8.442E-01	7.592E-02	-0.858
	867.82			-1.215E+00	2.487E+00	3.991E+00	3.272E-01	-0.304
	919.63			-3.263E-02	6.288E+00	9.896E+00	9.604E-01	-0.003
	925.24			1.316E+00	2.472E+00	4.193E+00	3.363E-01	0.314
	1596.49	*		-6.826E-02	1.098E-01	1.606E-01	9.254E-03	-0.425
	145.44	*		2.355E-03	8.615E-02	1.390E-01	1.442E-02	0.017
	57.37			2.321E+02	3.344E+01	4.467E+01	4.588E+00	5.196
CE-141	231.56			-1.067E+01	1.058E+02	1.636E+02	5.131E+01	-0.065
	293.26	*		1.502E+01	6.539E+00	9.678E+00	2.032E+00	1.552
	350.59			4.285E+02	1.792E+02	1.662E+02	5.073E+01	2.578
	490.36			-4.998E+01	1.399E+02	2.273E+02	7.067E+01	-0.220
CE-143	664.57			6.627E+02	2.374E+02	2.007E+02	6.454E+01	3.302
	721.93			-8.017E+01	7.665E+01	1.087E+02	3.153E+01	-0.737
	80.11			-9.755E-01	2.702E+00	3.990E+00	3.321E-01	-0.244
	133.54	*		-3.037E-01	3.361E-01	5.149E-01	8.925E-02	-0.590
PM-144	476.78			1.055E-01	1.610E-01	2.766E-01	2.125E-02	0.382
	618.01			9.561E-02	7.410E-02	1.304E-01	1.057E-02	0.733
	696.49	*		-5.530E-02	8.098E-02	1.245E-01	1.016E-02	-0.444
	778.57			-3.292E+00	5.567E+00	8.962E+00	7.209E-01	-0.367
PR-144	696.49	*		-3.732E+00	5.465E+00	8.399E+00	6.858E-01	-0.444
	1489.15			1.152E+01	1.843E+01	3.339E+01	1.924E+00	0.345
PM-146	453.90	*		9.579E-02	1.083E-01	1.888E-01	1.714E-02	0.507
	633.02			1.755E-01	3.244E+00	5.311E+00	1.977E+00	0.033
	735.90			1.710E-01	3.751E-01	6.178E-01	1.758E-01	0.277

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Activity Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
ND-147	+	747.13		-3.069E-02	2.319E-01	3.690E-01	5.067E-02	-0.083
		91.11		3.060E-01	3.730E-01	4.136E-01	3.729E-02	0.740
		319.41		-7.504E-01	4.103E+00	6.641E+00	4.817E-01	-0.113
		439.89		-2.447E+00	8.831E+00	1.466E+01	9.272E-01	-0.167
PM-149	*	531.02		1.999E-01	8.347E-01	1.401E+00	1.983E-01	0.143
		285.90		1.343E+01	1.560E+01	2.663E+01	3.994E+00	0.504
		121.78		8.595E-01	2.664E-01	2.816E-01	3.810E-02	3.052
		244.69		-1.200E+00	6.623E-01	1.008E+00	7.947E-02	-1.190
EU-152	+	344.27		3.350E-02	2.248E-01	3.409E-01	2.555E-02	0.098
		443.98		3.428E+00	2.322E+00	4.157E+00	2.644E-01	0.825
		778.89		-4.213E-01	6.626E-01	1.064E+00	8.556E-02	-0.396
		867.32		-1.350E+00	2.274E+00	3.625E+00	2.789E-01	-0.372
GD-153		964.01		-6.244E-01	8.846E-01	1.396E+00	1.004E-01	-0.447
		1085.78		6.905E-01	1.167E+00	1.969E+00	1.244E-01	0.351
		1112.02		-4.705E-01	8.480E-01	1.323E+00	8.058E-02	-0.356
		1407.95		-2.472E-01	3.108E-01	4.494E-01	2.578E-02	-0.550
EU-154	+	69.67		-6.438E-01	1.689E+00	2.517E+00	2.250E-01	-0.256
		83.37		3.166E+00	2.104E+01	3.150E+01	2.565E+00	0.100
		97.43	*	-3.974E-02	1.082E-01	1.668E-01	1.518E-02	-0.238
		103.18		3.974E-02	1.468E-01	2.447E-01	2.417E-02	0.162
EU-155	+	123.07		6.030E-01	1.898E-01	1.887E-01	2.750E-02	3.196
		247.94		3.029E-01	6.830E-01	1.160E+00	1.267E-01	0.261
		591.81		-3.135E-01	1.365E+00	2.205E+00	2.419E-01	-0.142
		723.30		-2.765E-01	4.342E-01	6.680E-01	6.081E-02	-0.414
TB-160	+	756.87		-6.667E-02	2.029E+00	3.249E+00	3.770E-01	-0.021
		873.19		-5.782E-01	8.816E-01	1.399E+00	1.622E-01	-0.413
		996.32		-3.170E-01	1.043E+00	1.672E+00	2.849E-01	-0.190
		1004.76		2.416E-01	6.177E-01	1.035E+00	1.083E-01	0.233
HO-166M	+	1274.45	*	1.902E-01	2.022E-01	3.692E-01	3.411E-02	0.515
		48.70		7.320E+00	1.927E+00	2.026E+00	1.529E-01	3.613
		60.01		4.700E+02	4.660E+01	2.422E+01	2.318E+00	19.405
		86.54		4.652E+00	4.500E-01	4.072E-01	3.282E-02	11.425
HO-166M	+	105.31	*	1.675E-01	1.560E-01	2.658E-01	2.728E-02	0.630
		86.79		1.158E+01	1.111E+00	1.126E+00	8.953E-02	10.286
		197.04		4.645E-01	8.747E-01	1.505E+00	1.191E-01	0.309
		215.65		-3.062E-01	1.216E+00	2.024E+00	1.606E-01	-0.151
HO-166M	+	298.57		2.954E-01	2.231E-01	3.489E-01	2.619E-02	0.847
		879.36	*	1.387E-01	3.883E-01	6.568E-01	5.010E-02	0.211
		962.29		-1.565E+00	1.492E+00	2.292E+00	1.650E-01	-0.683
		966.15		1.024E+00	5.623E-01	1.003E+00	7.200E-02	1.021
HO-166M	+	1177.93		5.109E-01	8.162E-01	1.214E+00	6.684E-02	0.421
		1271.85		2.783E-01	1.120E+00	1.913E+00	1.076E-01	0.145
		80.57		-2.065E-01	3.607E-01	5.272E-01	4.374E-02	-0.392
		184.41		1.147E-01	1.006E-01	1.098E-01	8.662E-03	1.044
HO-166M	+	280.46		-1.694E-01	1.641E-01	2.563E-01	1.968E-02	-0.661
		410.95		7.410E-02	5.512E-01	8.889E-01	5.368E-02	0.083
		711.68	*	3.309E-02	1.444E-01	2.369E-01	1.932E-02	0.140
		752.31		-2.112E-01	7.247E-01	1.140E+00	9.236E-02	-0.185
HO-166M	+	810.29		2.988E-02	1.528E-01	2.583E-01	2.052E-02	0.116

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
LU-176	+	88.36		9.189E+00	8.815E-01	9.915E-01	7.864E-02	9.268
		201.83		3.193E-02	5.108E-02	8.838E-02	7.003E-03	0.361
		306.84	*	-1.765E-02	5.035E-02	8.053E-02	5.970E-03	-0.219
		401.10		-7.817E+00	1.517E+01	2.347E+01	1.394E+00	-0.333
LU-177		112.95		-9.359E-01	1.150E+00	1.798E+00	2.025E-01	-0.521
		208.36	*	7.727E-01	8.636E-01	1.504E+00	1.193E-01	0.514
LU-177M	+	52.97		3.912E+00	1.774E+00	1.954E+00	1.633E-01	2.002
		54.07		2.217E+00	1.005E+00	1.112E+00	9.523E-02	1.994
	+	61.30		1.892E+01	2.480E+00	3.125E+00	2.963E-01	6.054
		121.62		4.269E+00	1.306E+00	1.396E+00	1.755E-01	3.058
	+	147.16		-2.901E-01	1.064E+00	1.690E+00	1.698E-01	-0.172
		171.86		8.959E-01	7.984E-01	1.338E+00	1.050E-01	0.670
	+	218.09		6.769E-01	1.473E+00	2.524E+00	2.002E-01	0.268
		268.79		1.447E+00	1.463E+00	2.525E+00	1.960E-01	0.573
	+	319.02		4.620E-02	5.023E-01	8.251E-01	5.988E-02	0.056
		367.43		-3.321E-01	1.955E+00	3.129E+00	2.006E-01	-0.106
	+	413.65	*	1.332E-01	3.794E-01	6.194E-01	3.757E-02	0.215
		56.28		4.161E+00	8.311E-01	1.322E+00	1.188E-01	3.148
	+	57.53		5.755E+00	7.294E-01	9.712E-01	8.963E-02	5.925
		65.20		-3.119E-01	7.505E-01	1.121E+00	1.034E-01	-0.278
HF-181	+	133.02		-8.994E-02	9.484E-02	1.459E-01	1.687E-02	-0.616
		136.25		6.015E-01	6.667E-01	1.118E+00	1.255E-01	0.538
	+	345.85		1.023E-01	4.050E-01	5.862E-01	4.005E-02	0.175
		482.03	*	-5.923E-02	8.744E-02	1.404E-01	9.435E-03	-0.422
	+	56.28		1.768E+00	3.531E-01	5.615E-01	5.047E-02	3.148
		57.53		2.440E+00	3.095E-01	4.124E-01	3.806E-02	5.917
W-181	+	65.20	*	-1.315E-01	3.165E-01	4.728E-01	4.361E-02	-0.278
		67.75		2.595E-02	9.914E-02	1.615E-01	1.463E-02	0.161
	+	100.10		1.098E-01	2.297E-01	3.869E-01	3.659E-02	0.284
		152.43		-3.150E-01	5.645E-01	8.819E-01	8.336E-02	-0.357
	+	222.10		7.040E-02	5.897E-01	9.957E-01	7.895E-02	0.071
		1001.68		-4.432E+00	5.678E+00	8.805E+00	6.126E-01	-0.503
	+	1121.28		3.192E-01	3.641E-01	6.212E-01	3.731E-02	0.514
		1189.05		-3.129E-01	5.163E-01	8.132E-01	4.489E-02	-0.385
	+	1221.42	*	-4.056E-01	2.829E-01	3.924E-01	2.184E-02	-1.034
		1230.97		-4.534E-01	7.189E-01	1.121E+00	6.253E-02	-0.404
RE-183	+	57.98		1.638E+01	1.624E+00	6.034E-01	5.620E-02	27.148
		59.32		9.415E+00	9.335E-01	5.041E-01	4.826E-02	18.676
	+	67.20		1.641E-01	1.815E-01	2.851E-01	2.593E-02	0.575
		162.32	*	7.157E-02	1.811E-01	2.932E-01	2.426E-02	0.244
	+	208.81		1.333E+00	1.609E+00	2.795E+00	2.217E-01	0.477
		291.72		-1.608E+00	1.848E+00	2.492E+00	1.888E-01	-0.645
RE-184	+	57.98		6.311E+01	6.257E+00	2.325E+00	2.165E-01	27.148
		59.32		3.624E+01	3.594E+00	1.941E+00	1.858E-01	18.676
	+	67.20		6.320E-01	6.989E-01	1.098E+00	9.987E-02	0.575
		161.27		-5.401E-01	6.202E-01	9.483E-01	7.970E-02	-0.570
	+	216.55		2.202E-01	4.547E-01	7.802E-01	6.188E-02	0.282
		252.85	*	-4.846E-02	4.262E-01	7.056E-01	5.539E-02	-0.069
	+	318.01		1.573E-01	8.839E-01	1.459E+00	1.061E-01	0.108



----- Non-Identified Nuclides -----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
OS-185	+	792.07		1.832E+00	2.396E+00	4.184E+00	3.349E-01	0.438
		903.28		-9.668E-01	3.255E+00	4.501E+00	3.375E-01	-0.215
		920.93		-2.127E-01	1.441E+00	2.358E+00	1.749E-01	-0.090
		59.72		2.618E+01	2.596E+00	1.388E+00	1.331E-01	18.867
		61.14		2.991E+00	3.487E-01	3.901E-01	3.704E-02	7.666
		69.30		-2.661E-01	2.985E-01	4.341E-01	3.891E-02	-0.613
		592.07		-1.582E+00	5.249E+00	8.434E+00	6.452E-01	-0.188
		646.12	*	6.618E-02	9.666E-02	1.643E-01	1.323E-02	0.403
		717.42		1.021E-01	2.089E+00	3.380E+00	2.756E-01	0.030
		874.81		1.430E+00	1.609E+00	2.802E+00	2.145E-01	0.510
RE-188	*	880.27		-4.002E-01	2.184E+00	3.579E+00	2.728E-01	-0.112
		155.03		9.200E-02	2.743E-01	4.467E-01	4.087E-02	0.206
		477.96		-2.019E+00	6.920E+00	1.139E+01	7.610E-01	-0.177
		633.10		2.329E-01	6.081E+00	9.947E+00	7.914E-01	0.023
W-188	+	63.58		5.546E+01	5.151E+01	7.392E+01	6.897E+00	0.750
		227.08		7.418E+00	2.135E+01	3.632E+01	2.878E+00	0.204
IR-192	+	290.67	*	-9.891E+00	1.451E+01	1.988E+01	1.508E+00	-0.498
		295.96		5.697E-01	2.797E-01	3.779E-01	2.874E-02	1.507
		308.46		-2.105E-01	1.846E-01	2.816E-01	2.097E-02	-0.748
		316.51	*	-1.901E-02	6.411E-02	1.032E-01	7.546E-03	-0.184
		468.07		-4.911E-02	1.529E-01	2.519E-01	1.859E-02	-0.195
		604.41		-3.559E-01	1.052E+00	1.442E+00	1.796E-01	-0.247
AU-195		612.46		3.955E-01	1.670E+00	2.415E+00	2.222E-01	0.164
		65.12		-4.074E-02	1.490E-01	2.241E-01	2.068E-02	-0.182
		66.83		6.386E-02	8.768E-02	1.370E-01	1.250E-02	0.466
		75.70	+	8.687E-01	2.542E-01	4.440E-01	3.808E-02	1.957
		98.88	*	3.650E-02	2.994E-01	4.941E-01	4.592E-02	0.074
		129.76		6.984E+00	4.530E+00	7.727E+00	9.188E-01	0.904
TL-200	*	367.94		2.329E+00	7.650E+00	1.257E+01	8.040E-01	0.185
		579.30		4.039E+01	6.855E+01	1.026E+02	7.748E+00	0.394
		828.27		7.102E+01	9.542E+01	1.662E+02	1.309E+01	0.427
		1205.75		-1.189E+00	3.048E+01	5.075E+01	2.814E+00	-0.023
TL-201		68.90		-3.409E-01	8.189E-01	1.300E+00	1.168E-01	-0.262
		70.82		-6.725E-02	5.086E-01	7.658E-01	6.792E-02	-0.088
		80.30		-4.264E-01	1.139E+00	1.680E+00	1.397E-01	-0.254
		135.34		6.856E+00	7.283E+00	1.223E+01	1.385E+00	0.560
TL-202	*	167.43		-7.858E-01	2.175E+00	3.407E+00	2.670E-01	-0.231
		68.90		-1.139E-01	2.736E-01	4.342E-01	3.903E-02	-0.262
		70.82		-2.240E-02	1.694E-01	2.551E-01	2.263E-02	-0.088
		80.30		-1.421E-01	3.795E-01	5.600E-01	4.655E-02	-0.254
HG-203	*	439.56		-2.867E-02	1.104E-01	1.834E-01	1.159E-02	-0.156
		70.83		-1.367E-01	1.012E+00	1.524E+00	2.097E-01	-0.090
		72.87		6.816E-01	5.558E-01	9.574E-01	1.272E-01	0.712
		82.60		-3.200E-01	1.331E+00	2.077E+00	2.799E-01	-0.154
BI-207	*	279.20		5.783E-02	6.750E-02	1.159E-01	9.227E-03	0.499
		72.80		2.018E-01	1.802E-01	3.121E-01	2.730E-02	0.647
		74.97	+	4.959E-01	1.451E-01	2.305E-01	1.987E-02	2.151
		84.90		2.041E-01	2.738E-01	4.219E-01	3.399E-02	0.484
		569.67		5.641E-02	7.139E-02	1.227E-01	9.166E-03	0.460

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TL-207	1063.62	*		-3.876E-02	1.369E-01	2.181E-01	1.419E-02	-0.178
	1770.23			-2.050E-01	9.404E-01	1.245E+00	7.065E-02	-0.165
	81.07			-2.481E-01	2.948E-01	4.249E-01	3.514E-02	-0.584
	83.78			3.098E-02	1.838E-01	2.753E-01	2.235E-02	0.113
	94.90			3.748E-01	3.158E-01	4.970E-01	4.357E-02	0.754
	+	122.32		2.049E+01	6.307E+00	6.702E+00	8.758E-01	3.057
		144.24		-8.072E-01	1.146E+00	1.787E+00	2.008E-01	-0.452
		154.21		2.288E-01	6.875E-01	1.120E+00	1.125E-01	0.204
		269.46		3.230E-01	3.588E-01	6.168E-01	4.908E-02	0.524
		323.87	*	-5.198E-01	1.347E+00	2.150E+00	3.666E-01	-0.242
PO-209	+	338.28		4.494E+00	3.288E+00	3.911E+00	4.386E-01	1.149
		445.03		2.769E+00	5.559E+00	9.555E+00	1.013E+00	0.290
		260.50		2.292E+00	1.822E+01	3.044E+01	2.378E+00	0.075
		262.80		-3.634E+01	4.971E+01	7.939E+01	6.193E+00	-0.458
		896.60	*	1.840E+00	2.043E+01	3.399E+01	2.559E+00	0.054
BI-210	46.50	*		7.123E-01	1.245E+00	1.862E+00	1.517E-01	0.383
PB-210	46.50	*		7.123E-01	1.245E+00	1.862E+00	1.517E-01	0.383
PO-210	46.50	*		7.123E-01	1.245E+00	1.862E+00	1.327E-01	0.383
PB-211	404.84	*		2.229E-01	2.154E+00	3.465E+00	2.161E+00	0.064
BI-212		427.08		-5.685E-01	4.725E+00	7.460E+00	4.614E+00	-0.076
		831.96		-1.161E+00	3.120E+00	4.929E+00	3.084E+00	-0.235
		727.18	*	5.257E-01	7.206E-01	1.214E+00	1.166E-01	0.433
		785.46		1.044E+00	4.170E+00	7.092E+00	5.690E-01	0.147
		1620.62		-2.378E+00	2.142E+00	2.668E+00	1.535E-01	-0.891
PO-215		81.07		-2.481E-01	2.948E-01	4.249E-01	3.514E-02	-0.584
		83.78		3.098E-02	1.838E-01	2.753E-01	2.235E-02	0.113
		94.90		3.748E-01	3.158E-01	4.970E-01	4.357E-02	0.754
	+	122.32		2.049E+01	6.307E+00	6.702E+00	8.758E-01	3.057
		144.24		-8.072E-01	1.146E+00	1.787E+00	2.008E-01	-0.452
		154.21		2.288E-01	6.875E-01	1.120E+00	1.125E-01	0.204
		269.46		3.230E-01	3.588E-01	6.168E-01	4.908E-02	0.524
		323.87	*	-5.198E-01	1.347E+00	2.150E+00	3.666E-01	-0.242
	+	338.28		4.494E+00	3.288E+00	3.911E+00	4.386E-01	1.149
		445.03		2.769E+00	5.559E+00	9.555E+00	1.013E+00	0.290
RN-219	271.23			3.503E-01	4.651E-01	7.940E-01	7.618E-02	0.441
	401.81	*		-1.822E-01	9.306E-01	1.467E+00	2.006E-01	-0.124
RN-220	549.76	*		-3.174E+01	5.670E+01	9.010E+01	6.586E+00	-0.352
RA-223		81.07		-2.481E-01	2.948E-01	4.249E-01	3.514E-02	-0.584
		83.78		3.098E-02	1.838E-01	2.753E-01	2.235E-02	0.113
		94.90		3.748E-01	3.158E-01	4.970E-01	4.357E-02	0.754
	+	122.32		2.049E+01	6.307E+00	6.702E+00	8.758E-01	3.057
		144.24		-8.072E-01	1.146E+00	1.787E+00	2.008E-01	-0.452
		154.21		2.288E-01	6.875E-01	1.120E+00	1.125E-01	0.204
		269.46		3.230E-01	3.588E-01	6.168E-01	4.908E-02	0.524
		323.87	*	-5.198E-01	1.347E+00	2.150E+00	3.666E-01	-0.242
	+	338.28		4.494E+00	3.288E+00	3.911E+00	4.386E-01	1.149
		445.03		2.769E+00	5.559E+00	9.555E+00	1.013E+00	0.290
RA-224	240.98	*		3.699E+00	1.505E+00	2.449E+00	1.933E-01	1.511
AC-227	79.80			-1.989E-01	2.098E+00	3.137E+00	6.712E-01	-0.063

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-227		236.00		8.641E-01	4.852E-01	7.680E-01	9.026E-02	1.125
		256.20	*	-4.185E-01	7.527E-01	1.216E+00	1.814E-01	-0.344
		286.10		2.493E+00	2.890E+00	4.944E+00	6.219E-01	0.504
		299.80		4.714E+00	3.077E+00	4.751E+00	8.059E-01	0.992
		304.40		3.857E+00	3.628E+00	6.169E+00	1.105E+00	0.625
		334.20		-5.321E-01	5.386E+00	7.621E+00	1.430E+00	-0.070
		79.80		-1.989E-01	2.098E+00	3.137E+00	6.799E-01	-0.063
	+	94.00		5.725E+00	3.953E+00	4.876E+00	1.062E+00	1.174
		236.00		8.641E-01	4.831E-01	7.680E-01	8.088E-02	1.125
		256.20	*	-4.185E-01	7.537E-01	1.216E+00	2.152E-01	-0.344
		286.10		2.493E+00	3.808E+00	4.944E+00	4.958E+00	0.504
		299.80		4.714E+00	3.077E+00	4.751E+00	8.059E-01	0.992
		304.40		3.857E+00	3.628E+00	6.169E+00	1.105E+00	0.625
		334.20		-5.321E-01	5.386E+00	7.621E+00	1.430E+00	-0.070
AC-228	+	338.32		1.076E+00	8.942E-01	9.369E-01	3.837E-01	1.149
	+	911.07	*	1.001E+00	7.706E-01	8.702E-01	9.036E-02	1.150
RA-228	+	969.11		1.093E+00	7.880E-01	1.320E+00	3.015E-01	0.828
	+	338.32		1.076E+00	8.942E-01	9.369E-01	3.837E-01	1.149
	+	911.07	*	1.001E+00	7.706E-01	8.702E-01	9.036E-02	1.150
		969.11		1.093E+00	7.880E-01	1.320E+00	3.015E-01	0.828
TH-229		85.43		2.502E-01	2.782E-01	4.303E-01	3.454E-02	0.581
	+	88.47		5.289E+00	5.075E-01	5.654E-01	4.492E-02	9.356
PA-231		100.00		1.192E-01	2.495E-01	4.203E-01	3.969E-02	0.284
		193.63	*	-1.310E+00	8.596E-01	1.353E+00	1.070E-01	-0.968
		210.97		9.928E-01	1.313E+00	2.277E+00	1.806E-01	0.436
		283.67	*	-5.536E-01	2.926E+00	4.781E+00	7.006E-01	-0.116
TH-231		301.29		2.124E-01	1.202E+00	1.846E+00	2.117E-01	0.115
		81.07		-2.481E-01	2.948E-01	4.249E-01	3.514E-02	-0.584
		83.78		3.098E-02	1.838E-01	2.753E-01	2.235E-02	0.113
		94.90		3.748E-01	3.158E-01	4.970E-01	4.357E-02	0.754
	+	122.32		2.049E+01	6.307E+00	6.702E+00	8.758E-01	3.057
		144.24		-8.072E-01	1.146E+00	1.787E+00	2.008E-01	-0.452
		154.21		2.288E-01	6.875E-01	1.120E+00	1.125E-01	0.204
		269.46		3.230E-01	3.588E-01	6.168E-01	4.908E-02	0.524
		323.87	*	-5.198E-01	1.347E+00	2.150E+00	3.666E-01	-0.242
	+	338.28		4.494E+00	3.288E+00	3.911E+00	4.386E-01	1.149
		445.03		2.769E+00	5.559E+00	9.555E+00	1.013E+00	0.290
		84.21		1.592E+00	2.189E+00	3.372E+00	2.730E-01	0.472
U-231	+	92.29		1.594E+00	1.053E+00	1.593E+00	1.343E-01	1.000
		95.87	*	-2.027E-02	4.282E-01	6.333E-01	5.633E-02	-0.032
TH-232		108.00		-1.267E+00	8.610E-01	1.303E+00	1.375E-01	-0.972
	+	338.32		1.076E+00	7.817E-01	9.369E-01	6.524E-02	1.149
	+	911.07	*	1.001E+00	7.706E-01	8.702E-01	9.036E-02	1.150
		969.11		1.093E+00	7.880E-01	1.320E+00	3.015E-01	0.828
PA-233	+	75.28		1.448E+01	4.617E+00	7.001E+00	1.074E+00	2.068
	+	86.59		7.584E+01	2.059E+01	6.793E+00	1.808E+00	11.165
		300.12		9.800E-01	8.645E-01	1.325E+00	1.889E-01	0.739
		311.98	*	1.255E-01	1.242E-01	2.137E-01	1.632E-02	0.587
		340.50		1.151E-01	1.427E+00	2.042E+00	4.753E-01	0.056

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
PA-234	+	398.62		1.054E+00	4.759E+00	7.720E+00	1.998E+00	0.137
		415.76		-3.916E+00	3.972E+00	5.844E+00	1.208E+00	-0.670
		63.00		1.737E+00	1.628E+00	2.301E+00	3.665E-01	0.755
		94.67		3.832E-01	2.334E-01	3.696E-01	4.614E-02	1.037
		98.44		-2.176E-02	1.264E-01	2.051E-01	1.146E-01	-0.106
		99.86		2.553E-01	6.338E-01	1.065E+00	1.003E-01	0.240
		111.00		1.395E-01	2.804E-01	4.689E-01	6.504E-02	0.297
		131.20		-5.503E-02	1.718E-01	2.745E-01	3.224E-02	-0.200
		152.70		-3.771E-01	5.724E-01	8.849E-01	1.545E-01	-0.426
		186.00		4.128E+00	3.826E+00	4.319E+00	1.340E+00	0.956
		226.40		-3.324E-01	7.259E-01	1.192E+00	1.520E-01	-0.279
		227.20		4.854E-01	7.742E-01	1.332E+00	1.055E-01	0.364
		248.90		-1.627E-01	1.578E+00	2.616E+00	5.790E-01	-0.062
		293.70		3.853E+00	1.977E+00	2.446E+00	4.109E-01	1.575
		369.80		3.007E-01	1.928E+00	3.138E+00	6.586E-01	0.096
		568.70		2.129E+00	2.340E+00	4.043E+00	3.019E-01	0.526
		569.50		4.875E-01	6.328E-01	1.086E+00	8.116E-02	0.449
		574.00		-1.970E+00	3.382E+00	5.350E+00	4.017E-01	-0.368
		699.00		2.114E-01	1.690E+00	2.755E+00	5.200E-01	0.077
		706.10		-1.566E+00	2.566E+00	3.807E+00	1.694E+00	-0.411
		733.00		1.915E-01	9.405E-01	1.534E+00	3.377E-01	0.125
		742.81		2.320E-01	3.368E+00	5.435E+00	3.650E+00	0.043
		796.30		2.195E+00	2.343E+00	4.010E+00	1.077E+00	0.548
		805.60		2.506E+00	2.770E+00	4.694E+00	1.430E+00	0.534
		819.60		3.643E+00	3.492E+00	5.729E+00	2.170E+00	0.636
		826.30		-1.118E+00	2.238E+00	3.517E+00	1.569E+00	-0.318
		831.60		-7.751E-01	1.576E+00	2.511E+00	7.442E-01	-0.309
		876.40		1.945E+00	3.176E+00	4.281E+00	4.397E+00	0.454
		880.51		-1.530E-01	8.357E-01	1.370E+00	1.044E-01	-0.112
		883.24		-5.893E-01	9.627E-01	1.396E+00	9.370E-01	-0.422
		899.00		3.128E-01	2.332E+00	3.884E+00	1.690E+00	0.081
		925.00		3.590E+00	3.851E+00	6.662E+00	4.928E-01	0.539
		926.50		2.111E-01	5.683E-01	9.529E-01	2.371E-01	0.222
		946.00	*	-6.584E-01	9.932E-01	1.561E+00	2.840E-01	-0.422
		949.00		-1.330E-01	1.506E+00	2.467E+00	1.795E-01	-0.054
		980.50		7.621E-01	2.115E+00	3.550E+00	2.518E-01	0.215
		1394.10		-1.656E+00	2.195E+00	2.707E+00	1.753E+00	-0.612
PA-234M	+	766.42		1.621E+01	2.673E+01	4.436E+01	2.247E+01	0.365
		1001.03	*	-7.281E+00	1.374E+01	2.170E+01	1.860E+00	-0.336
U-235	+	89.95		1.978E+00	2.481E+00	2.921E+00	8.975E-01	0.677
		93.35		1.781E+00	1.269E+00	1.728E+00	4.839E-01	1.031
		105.00		1.708E+00	1.611E+00	2.619E+00	7.938E-01	0.652
		143.76	*	-1.211E-01	3.508E-01	5.572E-01	1.029E-01	-0.217
		163.35		2.754E-01	8.469E-01	1.364E+00	2.574E-01	0.202
NP-236	+	185.71		1.529E-01	1.341E-01	1.595E-01	1.259E-02	0.959
		205.31		-1.086E+00	9.556E-01	1.499E+00	2.815E-01	-0.724
		94.67		2.932E-01	1.752E-01	2.806E-01	2.452E-02	1.045
		98.44		-1.646E-02	9.513E-02	1.551E-01	1.432E-02	-0.106
		111.00		1.055E-01	2.119E-01	3.546E-01	3.895E-02	0.297

---- Non-Identified Nuclides ----

Nuclide	Line Ided	Energy (keV)	Key	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
NP-239	160.31	*		-4.536E-02	1.412E-01	2.224E-01	1.895E-02	-0.204
	99.55			9.145E-02	2.149E-01	3.589E-01	3.368E-02	0.255
	117.00	*		-3.750E-01	3.453E-01	4.670E-01	5.542E-02	-0.803
	209.75			2.025E+00	1.342E+00	2.381E+00	1.888E-01	0.850
	228.18			2.755E-01	4.102E-01	7.063E-01	5.596E-02	0.390
CM-243	277.60			5.971E-02	3.509E-01	5.781E-01	4.452E-02	0.103
	334.30			-2.998E-01	3.052E+00	4.319E+00	3.036E-01	-0.069
	99.55			9.405E-02	2.210E-01	3.691E-01	3.464E-02	0.255
	103.76	*		4.471E-02	1.407E-01	2.349E-01	2.339E-02	0.190
	117.00			-3.856E-01	3.551E-01	4.802E-01	5.699E-02	-0.803
AM-246	209.75			1.995E+00	1.322E+00	2.346E+00	1.860E-01	0.850
	228.18			2.783E-01	4.142E-01	7.134E-01	5.651E-02	0.390
	277.60			6.016E-02	3.536E-01	5.825E-01	4.486E-02	0.103
	798.80			-5.054E-01	3.610E-01	5.459E-01	4.358E-02	-0.926
	1036.00			-3.122E-01	8.713E-01	1.387E+00	9.316E-02	-0.225
CM-247	1062.04			-8.247E-03	6.002E-01	9.763E-01	6.362E-02	-0.008
	1078.86	*		-3.280E-01	4.202E-01	6.456E-01	4.118E-02	-0.508
	278.00			1.367E+00	1.394E+00	2.405E+00	1.851E-01	0.568
	287.40			9.903E-01	2.343E+00	3.942E+00	3.003E-01	0.251
	402.60	*		-4.894E-02	8.293E-02	1.282E-01	7.636E-03	-0.382
CF-249	252.85			-1.876E-01	1.650E+00	2.732E+00	2.145E-01	-0.069
	333.44			3.556E-02	4.002E-01	5.742E-01	4.044E-02	0.062
CF-251	387.95	*		4.788E-03	8.907E-02	1.437E-01	8.533E-03	0.033
	176.60	*		8.493E-02	2.201E-01	3.564E-01	2.804E-02	0.238
	227.00			2.086E-01	6.899E-01	1.172E+00	9.287E-02	0.178
	285.00			7.655E-01	3.345E+00	5.581E+00	4.263E-01	0.137

# VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA300:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014515
* Acquisition date   : 21-JAN-2010 11:09:01 Detector SN#      :
* Detector ID        : GAM13 Sensitivity      : 5.000
* Geometry           : CAN Energy tolerance: 1.500
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000
* Elapsed real time  : 0 01:00:01.75 Half life ratio : 8.000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 14-JAN-2010 00:00:00 Nuclide Library : SOLID
* Sample ID          : G1202014515 Analyst initials: MXR1
* Batch Number       : 941242 Sample Quantity : 1.5173E+02 GRAM
* Recovery           : 1.00000 Carrier Weight : 0.00000
*****
*
*                               QC DATA
*
* Standard Weight    : 0.00000
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope      :
* MSD DPM            : 0.000 MSD Isotope      :
* LCS DPM            : 0.000 LCS Isotope      :
* LCSD DPM           : 0.000 LCSD Isotope     :
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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act error	MDA (pCi/GRAM )	
CO-57	2.907E-01	8.717E-02	7.052E-02	0.000E+00
CO-60	6.840E+00	5.269E-01	1.346E-01	0.000E+00
AS-73	2.000E+00	8.889E-01	8.381E-01	0.000E+00
CD-109	3.897E+01	3.664E+00	1.817E+00	0.000E+00
SN-126	3.874E+00	3.642E-01	1.804E-01	0.000E+00
BA-137M	5.540E+00	5.260E-01	1.399E-01	0.000E+00
CS-137	5.857E+00	5.569E-01	1.479E-01	0.000E+00
TM-171	1.795E+01	2.640E+01	4.567E+01	0.000E+00
TL-208	4.449E-01	1.490E-01	1.375E-01	0.000E+00
BI-211	2.586E+00	7.477E-01	7.387E-01	0.000E+00
PB-212	1.182E+00	2.364E-01	2.187E-01	0.000E+00
PO-212	1.182E+00	2.364E-01	2.187E-01	0.000E+00
BI-214	9.915E-01	2.951E-01	2.307E-01	0.000E+00
PB-214	8.997E-01	2.641E-01	2.576E-01	0.000E+00
PO-214	8.997E-01	2.641E-01	2.576E-01	0.000E+00
PO-216	1.182E+00	2.364E-01	2.187E-01	0.000E+00
PO-218	8.997E-01	2.641E-01	2.576E-01	0.000E+00
RA-226	9.915E-01	2.951E-01	2.307E-01	0.000E+00
TH-228	1.190E+00	2.382E-01	2.204E-01	0.000E+00
TH-230	9.915E-01	2.951E-01	2.307E-01	0.000E+00
TH-234	1.490E+00	1.376E+00	1.768E+00	0.000E+00
U-234	9.915E-01	2.951E-01	2.307E-01	0.000E+00
NP-237	1.138E+01	2.537E+00	5.997E-01	0.000E+00
U-238	1.490E+00	1.376E+00	1.768E+00	0.000E+00
AM-241	1.449E+01	1.486E+00	2.265E-01	0.000E+00
AM-243	2.764E-01	7.924E-02	1.042E-01	0.000E+00
ANH-511	5.344E-02	1.380E-01	1.091E-01	0.000E+00

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L. Act error ) Ided	MDA (pCi/GRAM )
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BE-7	-2.691E-02	6.954E-01	1.228E+00	0.000E+00	NOT IDENT.
NA-22	6.782E-02	7.049E-02	1.331E-01	0.000E+00	NOT IDENT.
NA-24	0.000E+00	2.411E+02	0.000E+00	0.000E+00	SHORT HLIF
AL-26	2.786E-02	4.935E-02	9.314E-02	0.000E+00	NOT IDENT.
K-40	6.881E-01	6.248E-01	1.209E+00	0.000E+00	NOT IDENT.
TI-44	0.000E+00	5.954E-02	8.769E-02	0.000E+00	FAIL ABUN
SC-46	1.395E-01	1.098E-01	2.018E-01	0.000E+00	NOT IDENT.
V-48	-1.409E-01	1.417E-01	2.246E-01	0.000E+00	NOT IDENT.
CR-51	2.323E-01	6.050E-01	1.077E+00	0.000E+00	NOT IDENT.
MN-52	4.451E-02	1.502E-01	2.650E-01	0.000E+00	NOT IDENT.
MN-54	-4.785E-02	8.949E-02	1.501E-01	0.000E+00	NOT IDENT.
CO-56	-2.692E-02	9.062E-02	1.540E-01	0.000E+00	NOT IDENT.
CO-58	2.121E-02	9.251E-02	1.635E-01	0.000E+00	NOT IDENT.
FE-59	1.513E-02	2.146E-01	3.624E-01	0.000E+00	NOT IDENT.
ZN-65	-9.476E-02	2.334E-01	3.806E-01	0.000E+00	NOT IDENT.
GE-68	-2.595E+00	3.425E+00	5.461E+00	0.000E+00	NOT IDENT.
AS-74	-4.054E-02	1.456E-01	2.466E-01	0.000E+00	NOT IDENT.
SE-75	2.060E-02	7.602E-02	1.371E-01	0.000E+00	FAIL ABUN
BR-77	-2.966E+00	2.513E+00	4.076E+00	0.000E+00	FAIL ABUN
SR-82	3.981E-01	7.238E-01	1.310E+00	0.000E+00	NOT IDENT.
RB-83	-1.816E-01	1.464E-01	2.365E-01	0.000E+00	NOT IDENT.
RB-84	-1.027E-01	1.764E-01	2.938E-01	0.000E+00	NOT IDENT.
KR-85	1.178E+01	1.801E+01	2.877E+01	0.000E+00	NOT IDENT.
SR-85	5.571E-02	8.521E-02	1.361E-01	0.000E+00	NOT IDENT.
RB-86	-8.638E-01	1.649E+00	2.677E+00	0.000E+00	NOT IDENT.
Y-88	3.782E-02	5.691E-02	1.082E-01	0.000E+00	NOT IDENT.
ZR-88	-2.470E-02	6.561E-02	1.097E-01	0.000E+00	NOT IDENT.
Y-91	-8.355E+00	2.682E+01	4.485E+01	0.000E+00	NOT IDENT.
NB-94	7.885E-02	7.558E-02	1.366E-01	0.000E+00	NOT IDENT.
NB-95	5.722E-02	8.784E-02	1.599E-01	0.000E+00	NOT IDENT.
NB-95M	2.104E-01	2.255E-01	3.753E-01	0.000E+00	NOT IDENT.
ZR-95	7.394E-02	1.657E-01	2.863E-01	0.000E+00	NOT IDENT.
NB-97	0.000E+00	2.185E+02	0.000E+00	0.000E+00	SHORT HLIF
ZR-97	0.000E+00	2.160E+03	0.000E+00	0.000E+00	SHORT HLIF
MO-99	-7.809E-01	4.050E+00	6.717E+00	0.000E+00	NOT IDENT.
TC-99M	0.000E+00	3.718E+07	0.000E+00	0.000E+00	SHORT HLIF
RH-101	-2.640E-02	5.570E-02	9.951E-02	0.000E+00	NOT IDENT.
RH-102	-1.256E-05	7.056E-02	1.243E-01	0.000E+00	NOT IDENT.
RU-103	-1.213E-02	8.178E-02	1.428E-01	0.000E+00	FAIL ABUN
RH-106	1.291E-01	7.659E-01	1.329E+00	0.000E+00	FAIL ABUN
RU-106	1.291E-01	7.658E-01	1.329E+00	0.000E+00	FAIL ABUN
AG-108M	-6.386E-02	7.522E-02	1.286E-01	0.000E+00	NOT IDENT.
AG-110M	0.000E+00	1.311E-01	2.360E-01	0.000E+00	NOT IDENT.
IN-111	-3.690E-01	3.105E-01	5.264E-01	0.000E+00	NOT IDENT.
IN-113M	2.385E-03	9.543E-02	1.633E-01	0.000E+00	NOT IDENT.
SN-113	2.385E-03	9.543E-02	1.633E-01	0.000E+00	NOT IDENT.
IN-114M	0.000E+00	3.140E-01	5.342E-01	0.000E+00	NOT IDENT.
CD-115	-2.424E+00	2.384E+00	3.918E+00	0.000E+00	NOT IDENT.
SN-117M	3.241E-02	6.338E-02	1.128E-01	0.000E+00	NOT IDENT.
SB-122	-2.773E-01	6.492E-01	1.097E+00	0.000E+00	NOT IDENT.
I-123	0.000E+00	5.928E+02	0.000E+00	0.000E+00	SHORT HLIF
TE-123M	2.127E-02	4.670E-02	8.293E-02	0.000E+00	NOT IDENT.
I-124	1.365E-02	4.499E-01	6.731E-01	0.000E+00	NOT IDENT.
SB-124	3.656E-02	1.355E-01	2.349E-01	0.000E+00	NOT IDENT.
SB-125	-9.056E-03	1.975E-01	3.526E-01	0.000E+00	NOT IDENT.
TE-125M	3.384E+00	1.212E+01	2.209E+01	0.000E+00	NOT IDENT.
I-126	3.121E-01	2.715E-01	4.471E-01	0.000E+00	NOT IDENT.
SB-126	-9.751E-02	2.260E-01	3.699E-01	0.000E+00	FAIL ABUN
SB-127	-4.903E-01	7.494E-01	1.207E+00	0.000E+00	NOT IDENT.
XE-127	5.171E-02	7.004E-02	1.314E-01	0.000E+00	NOT IDENT.
I-131	-3.936E-02	1.271E-01	2.151E-01	0.000E+00	NOT IDENT.
TE-132	1.907E-01	2.402E-01	4.458E-01	0.000E+00	FAIL ABUN
BA-133	-3.432E-02	1.024E-01	1.525E-01	0.000E+00	FAIL ABUN
I-133	0.000E+00	3.069E+01	0.000E+00	0.000E+00	SHORT HLIF
CS-134	1.133E-01	1.130E-01	2.084E-01	0.000E+00	NOT IDENT.
CS-135	1.186E-03	2.931E-01	5.213E-01	0.000E+00	NOT IDENT.
I-135	0.000E+00	3.429E+07	0.000E+00	0.000E+00	SHORT HLIF
CS-136	-1.253E-01	1.960E-01	3.161E-01	0.000E+00	NOT IDENT.
CE-139	2.567E-02	4.944E-02	8.772E-02	0.000E+00	NOT IDENT.
BA-140	-3.309E-01	4.019E-01	6.417E-01	0.000E+00	NOT IDENT.
LA-140	-6.826E-02	1.076E-01	1.614E-01	0.000E+00	NOT IDENT.
CE-141	2.355E-03	8.443E-02	1.484E-01	0.000E+00	NOT IDENT.
CE-143	0.000E+00	6.408E+00	1.016E+01	0.000E+00	FAIL ABUN
CE-144	-3.037E-01	3.293E-01	5.508E-01	0.000E+00	NOT IDENT.
PM-144	-5.530E-02	7.936E-02	1.278E-01	0.000E+00	NOT IDENT.
PR-144	-3.732E+00	5.356E+00	8.626E+00	0.000E+00	NOT IDENT.
PM-146	9.579E-02	1.062E-01	1.960E-01	0.000E+00	NOT IDENT.
ND-147	1.999E-01	8.180E-01	1.449E+00	0.000E+00	FAIL ABUN

PM-149	1.343E+01	1.529E+01	2.797E+01	0.000E+00	NOT IDENT.
EU-152	3.350E-02	2.203E-01	3.564E-01	0.000E+00	FAIL ABUN
GD-153	-3.974E-02	1.061E-01	1.797E-01	0.000E+00	NOT IDENT.
EU-154	1.902E-01	1.981E-01	3.733E-01	0.000E+00	FAIL ABUN
EU-155	1.675E-01	1.529E-01	2.859E-01	0.000E+00	FAIL ABUN
TB-160	1.387E-01	3.805E-01	6.705E-01	0.000E+00	FAIL ABUN
HO-166M	3.309E-02	1.415E-01	2.431E-01	0.000E+00	FAIL ABUN
LU-176	-1.765E-02	4.934E-02	8.443E-02	0.000E+00	FAIL ABUN
LU-177	7.727E-01	8.463E-01	1.592E+00	0.000E+00	NOT IDENT.
LU-177M	1.332E-01	3.718E-01	6.446E-01	0.000E+00	FAIL ABUN
HF-181	-5.923E-02	8.569E-02	1.456E-01	0.000E+00	NOT IDENT.
W-181	-1.315E-01	3.101E-01	5.142E-01	0.000E+00	NOT IDENT.
TA-182	-4.056E-01	2.772E-01	3.972E-01	0.000E+00	NOT IDENT.
RE-183	7.157E-02	1.775E-01	3.121E-01	0.000E+00	FAIL ABUN
RE-184	-4.846E-02	4.177E-01	7.433E-01	0.000E+00	FAIL ABUN
OS-185	6.618E-02	9.473E-02	1.691E-01	0.000E+00	FAIL ABUN
RE-188	9.200E-02	2.688E-01	4.761E-01	0.000E+00	NOT IDENT.
W-188	-9.891E+00	1.422E+01	2.087E+01	0.000E+00	FAIL ABUN
IR-192	-1.901E-02	6.283E-02	1.081E-01	0.000E+00	FAIL ABUN
AU-195	3.650E-02	2.934E-01	5.323E-01	0.000E+00	FAIL ABUN
TL-200	2.329E+00	7.497E+00	1.311E+01	0.000E+00	NOT IDENT.
TL-201	-7.858E-01	2.131E+00	3.625E+00	0.000E+00	NOT IDENT.
TL-202	-2.867E-02	1.082E-01	1.906E-01	0.000E+00	NOT IDENT.
HG-203	5.783E-02	6.615E-02	1.218E-01	0.000E+00	NOT IDENT.
BI-207	-3.876E-02	1.342E-01	2.216E-01	0.000E+00	FAIL ABUN
TL-207	-5.198E-01	1.320E+00	2.251E+00	0.000E+00	FAIL ABUN
PO-209	1.840E+00	2.002E+01	3.468E+01	0.000E+00	NOT IDENT.
BI-210	7.123E-01	1.220E+00	2.040E+00	0.000E+00	NOT IDENT.
PB-210	7.123E-01	1.220E+00	2.040E+00	0.000E+00	NOT IDENT.
PO-210	7.123E-01	1.220E+00	2.040E+00	0.000E+00	NOT IDENT.
PB-211	2.229E-01	2.111E+00	3.608E+00	0.000E+00	NOT IDENT.
BI-212	5.257E-01	7.062E-01	1.246E+00	0.000E+00	NOT IDENT.
PO-215	-5.198E-01	1.320E+00	2.251E+00	0.000E+00	FAIL ABUN
RN-219	-1.822E-01	9.119E-01	1.528E+00	0.000E+00	NOT IDENT.
RN-220	-3.174E+01	5.557E+01	9.309E+01	0.000E+00	NOT IDENT.
RA-223	-5.198E-01	1.320E+00	2.251E+00	0.000E+00	FAIL ABUN
RA-224	0.000E+00	1.475E+00	2.582E+00	0.000E+00	NOT IDENT.
AC-227	-4.185E-01	7.376E-01	1.280E+00	0.000E+00	NOT IDENT.
TH-227	-4.185E-01	7.387E-01	1.280E+00	0.000E+00	FAIL ABUN
AC-228	0.000E+00	7.552E-01	8.876E-01	0.000E+00	FAIL ABUN
RA-228	0.000E+00	7.552E-01	8.876E-01	0.000E+00	FAIL ABUN
TH-229	-1.310E+00	8.424E-01	1.434E+00	0.000E+00	FAIL ABUN
PA-231	-5.536E-01	2.868E+00	5.022E+00	0.000E+00	NOT IDENT.
TH-231	-5.198E-01	1.320E+00	2.251E+00	0.000E+00	FAIL ABUN
U-231	-2.027E-02	4.197E-01	6.827E-01	0.000E+00	FAIL ABUN
TH-232	0.000E+00	7.552E-01	8.876E-01	0.000E+00	FAIL ABUN
PA-233	1.255E-01	1.217E-01	2.239E-01	0.000E+00	FAIL ABUN
PA-234	-6.584E-01	9.734E-01	1.591E+00	0.000E+00	FAIL ABUN
PA-234M	-7.281E+00	1.346E+01	2.208E+01	0.000E+00	NOT IDENT.
U-235	-1.211E-01	3.437E-01	5.949E-01	0.000E+00	FAIL ABUN
NP-236	-4.536E-02	1.384E-01	2.369E-01	0.000E+00	NOT IDENT.
NP-239	-3.750E-01	3.384E-01	5.010E-01	0.000E+00	NOT IDENT.
CM-243	4.471E-02	1.379E-01	2.528E-01	0.000E+00	NOT IDENT.
AM-246	-3.280E-01	4.118E-01	6.556E-01	0.000E+00	NOT IDENT.
CM-247	-4.894E-02	8.127E-02	1.335E-01	0.000E+00	NOT IDENT.
CF-249	4.788E-03	8.729E-02	1.498E-01	0.000E+00	NOT IDENT.
CF-251	8.493E-02	2.157E-01	3.787E-01	0.000E+00	NOT IDENT.



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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                    *
*****
Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014515.CNF;1
Sample date        : 14-JAN-2010 00:00:00 Acquisition date : 21-JAN-2010 11:09:01
Sample ID          : G1202014515      Sample quantity   : 1.51730E+02 GRAM
Detector name      : GAM13            Detector geometry: CAN
Elapsed live time  : 0 01:00:00.00    Elapsed real time: 0 01:00:01.75  0.0%
Energy tolerance   : 1.50000 keV      Analyst Initials  : MXR1
Abundance limit    : 75.00000         Sensitivity       : 5.00000
Batch ID           : 941242           Detector SN#      :
Matrix Spike ID    :                  LCS ID            : 1032-A
*****

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## Nuclide Line Activity Report

## Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
CO-57	122.06	330	85.51*	6.701E+00	2.851E-01	2.907E-01	30.60
	136.48	-----	10.60	6.430E+00	-----	Line Not Found	-----
CO-60	1173.22	1644	100.00	1.240E+00	6.560E+00	6.577E+00	8.05
	1332.49	1544	100.00*	1.120E+00	6.822E+00	6.840E+00	7.86
AS-73	53.44	287	10.30*	7.355E+00	1.875E+00	2.000E+00	45.35
CD-109	88.03	2097	3.72*	7.239E+00	3.853E+01	3.897E+01	9.59
SN-126	64.28	85	9.60	7.391E+00	5.897E-01	5.897E-01	93.72
	86.94	2097	8.90	7.239E+00	1.611E+01	1.611E+01	41.57
	87.57	2097	37.00*	7.239E+00	3.874E+00	3.874E+00	9.59
BA-137M	661.65	2033	89.98*	2.019E+00	5.538E+00	5.540E+00	9.69
CS-137	661.65	2033	85.12*	2.019E+00	5.854E+00	5.857E+00	9.70
TM-171	51.35	282	0.29	7.344E+00	6.554E+01	6.603E+01	46.24
	52.39	282	0.52	7.344E+00	3.655E+01	3.682E+01	46.24
	59.40	7763	0.21	7.384E+00	2.442E+03	2.460E+03	9.91
	66.72	-----	0.16*	7.390E+00	-----	Line Not Found	-----
TL-208	277.35	-----	6.80	4.225E+00	-----	Line Not Found	-----
	510.84	27	21.60	2.538E+00	2.474E-01	2.474E-01	263.59
	583.14	171	84.20*	2.258E+00	4.449E-01	4.449E-01	34.17
	860.37	-----	12.46	1.606E+00	-----	Line Not Found	-----
BI-211	72.87	-----	1.27	7.369E+00	-----	Line Not Found	-----
	351.07	237	12.94*	3.498E+00	2.586E+00	2.586E+00	29.50
PB-212	74.81	271	10.70	7.358E+00	1.705E+00	1.705E+00	30.71
	77.11	428	18.00	7.343E+00	1.604E+00	1.604E+00	20.53
	87.30	2097	8.00	7.239E+00	1.792E+01	1.792E+01	13.86
	238.63	502	44.60*	4.718E+00	1.182E+00	1.182E+00	20.42
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
PO-212	74.81	271	10.70	7.358E+00	1.705E+00	1.705E+00	30.71
	77.11	428	18.00	7.343E+00	1.604E+00	1.604E+00	20.53
	87.30	2097	8.00	7.239E+00	1.792E+01	1.792E+01	13.86
	115.19	-----	0.60	6.822E+00	-----	Line Not Found	-----
	238.63	502	44.60*	4.718E+00	1.182E+00	1.182E+00	20.42
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
BI-214	609.31	201	46.30*	2.170E+00	9.915E-01	9.915E-01	30.37
	1120.29	-----	15.10	1.287E+00	-----	Line Not Found	-----
	1764.49	35	15.80	8.989E-01	1.225E+00	1.225E+00	58.26
PB-214	74.81	271	6.21	7.358E+00	2.937E+00	2.937E+00	30.18
	77.11	428	10.50	7.343E+00	2.750E+00	2.750E+00	21.90
	87.30	2097	4.67	7.239E+00	3.069E+01	3.069E+01	12.31
	241.98	-----	7.49	4.668E+00	-----	Line Not Found	-----
	295.21	125	19.20	4.028E+00	8.027E-01	8.027E-01	49.48
	351.92	237	37.20*	3.498E+00	8.997E-01	8.997E-01	29.96
PO-214	74.81	271	6.21	7.358E+00	2.937E+00	2.937E+00	30.18
	77.11	428	10.50	7.343E+00	2.750E+00	2.750E+00	21.90
	87.30	2097	4.67	7.239E+00	3.069E+01	3.069E+01	12.31
	241.98	-----	7.49	4.668E+00	-----	Line Not Found	-----
	295.21	125	19.20	4.028E+00	8.027E-01	8.027E-01	49.48
	351.92	237	37.20*	3.498E+00	8.997E-01	8.997E-01	29.96
PO-216	74.81	271	10.70	7.358E+00	1.705E+00	1.705E+00	30.71
	77.11	428	18.00	7.343E+00	1.604E+00	1.604E+00	20.53
	87.30	2097	8.00	7.239E+00	1.792E+01	1.792E+01	13.86
	238.63	502	44.60*	4.718E+00	1.182E+00	1.182E+00	20.42
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
PO-218	74.81	271	6.21	7.358E+00	2.937E+00	2.937E+00	30.18
	77.11	428	10.50	7.343E+00	2.750E+00	2.750E+00	21.90
	87.30	2097	4.67	7.239E+00	3.069E+01	3.069E+01	12.31
	241.98	-----	7.49	4.668E+00	-----	Line Not Found	-----
	295.21	125	19.20	4.028E+00	8.027E-01	8.027E-01	49.48
	351.92	237	37.20*	3.498E+00	8.997E-01	8.997E-01	29.96
RA-226	609.31	201	46.30*	2.170E+00	9.915E-01	9.915E-01	30.37
	1120.29	-----	15.10	1.287E+00	-----	Line Not Found	-----
	1764.49	35	15.80	8.989E-01	1.225E+00	1.225E+00	58.26
TH-228	74.81	271	10.70	7.358E+00	1.705E+00	1.717E+00	29.28
	77.11	428	18.00	7.343E+00	1.604E+00	1.616E+00	20.53
	87.30	2097	8.00	7.239E+00	1.792E+01	1.805E+01	9.59
	238.63	502	44.60*	4.718E+00	1.182E+00	1.190E+00	20.42
	300.09	-----	3.41	3.976E+00	-----	Line Not Found	-----
TH-230	609.31	201	46.30*	2.170E+00	9.915E-01	9.915E-01	30.37
	1120.29	-----	15.10	1.287E+00	-----	Line Not Found	-----
	1764.49	35	15.80	8.989E-01	1.225E+00	1.225E+00	58.26
TH-234	63.29	85	3.80*	7.391E+00	1.490E+00	1.490E+00	94.22
	92.38	116	5.41	7.181E+00	1.482E+00	1.482E+00	67.97
U-234	609.31	201	46.30*	2.170E+00	9.915E-01	9.915E-01	30.37
	1120.29	-----	15.10	1.287E+00	-----	Line Not Found	-----
	1764.49	35	15.80	8.989E-01	1.225E+00	1.225E+00	58.26
NP-237	86.50	2097	12.60*	7.239E+00	1.138E+01	1.138E+01	22.76
	95.87	-----	2.60	7.135E+00	-----	Line Not Found	-----
U-238	63.29	85	3.80*	7.391E+00	1.490E+00	1.490E+00	94.22
	92.38	116	5.41	7.181E+00	1.482E+00	1.482E+00	66.09
AM-241	59.54	7763	35.90*	7.384E+00	1.449E+01	1.449E+01	10.46
AM-243	74.67	271	66.00*	7.358E+00	2.764E-01	2.764E-01	29.26
	86.72	2097	0.34	7.239E+00	4.266E+02	4.266E+02	9.59

Nuclide Type:

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	2-Sigma %Error
	117.66	-----	0.55	6.778E+00	-----	Line Not Found	-----
	142.18	-----	0.13	6.323E+00	-----	Line Not Found	-----
ANH-511	511.00	27	100.00*	2.538E+00	5.344E-02	5.344E-02	263.46

Flag: "\*" = Keyline

Total number of lines in spectrum 24  
Number of unidentified lines 0  
Number of lines tentatively identified by NID 24 100.00%

Nuclide Type :

Nuclide	Hlife	Decay	Uncorrected pCi/GRAM	Decay Corr pCi/GRAM	Decay Corr 2-Sigma Error	2-Sigma %Error	Flags
CO-57	270.90D	1.02	2.851E-01	2.907E-01	0.889E-01	30.60	
CO-60	5.27Y	1.00	6.822E+00	6.840E+00	0.538E+00	7.86	
AS-73	80.30D	1.07	1.875E+00	2.000E+00	0.907E+00	45.35	
CD-109	464.00D	1.01	3.853E+01	3.897E+01	0.374E+01	9.59	
SN-126	1.00E+05Y	1.00	3.874E+00	3.874E+00	0.372E+00	9.59	
BA-137M	30.17Y	1.00	5.538E+00	5.540E+00	0.537E+00	9.69	
CS-137	30.17Y	1.00	5.854E+00	5.857E+00	0.568E+00	9.70	
TM-171	1.92Y	1.01	3.655E+01	3.682E+01	1.703E+01	46.24	K
TL-208	1.41E+10Y	1.00	4.449E-01	4.449E-01	1.520E-01	34.17	
BI-211	7.04E+08Y	1.00	2.586E+00	2.586E+00	0.763E+00	29.50	
PB-212	1.41E+10Y	1.00	1.182E+00	1.182E+00	0.241E+00	20.42	
PO-212	1.41E+10Y	1.00	1.182E+00	1.182E+00	0.241E+00	20.42	
BI-214	1600.00Y	1.00	9.915E-01	9.915E-01	3.011E-01	30.37	
PB-214	1600.00Y	1.00	8.997E-01	8.997E-01	2.695E-01	29.96	
PO-214	1600.00Y	1.00	8.997E-01	8.997E-01	2.695E-01	29.96	
PO-216	1.41E+10Y	1.00	1.182E+00	1.182E+00	0.241E+00	20.42	
PO-218	1600.00Y	1.00	8.997E-01	8.997E-01	2.695E-01	29.96	
RA-226	1600.00Y	1.00	9.915E-01	9.915E-01	3.011E-01	30.37	
TH-228	1.91Y	1.01	1.182E+00	1.190E+00	0.243E+00	20.42	
TH-230	4.47E+09Y	1.00	9.915E-01	9.915E-01	3.011E-01	30.37	
TH-234	4.47E+09Y	1.00	1.490E+00	1.490E+00	1.404E+00	94.22	
U-234	4.47E+09Y	1.00	9.915E-01	9.915E-01	3.011E-01	30.37	
NP-237	2.14E+06Y	1.00	1.138E+01	1.138E+01	0.259E+01	22.76	
U-238	4.47E+09Y	1.00	1.490E+00	1.490E+00	1.404E+00	94.22	
AM-241	432.20Y	1.00	1.449E+01	1.449E+01	0.152E+01	10.46	
AM-243	7380.00Y	1.00	2.764E-01	2.764E-01	0.809E-01	29.26	
ANH-511	1.00E+09Y	1.00	5.344E-02	5.344E-02	14.08E-02	263.46	
Total Activity :			1.429E+02	1.438E+02			

Grand Total Activity : 1.429E+02 1.438E+02

Flags: "K" = Keyline not found  
"E" = Manually edited

"M" = Manually accepted  
"A" = Nuclide specific abn. limit

Unidentified Energy Lines  
Sample ID : G1202014515

Page : 5  
Acquisition date : 21-JAN-2010 11:09:01

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
9	49.64	497	1103	1.98	99.05	94	30	1.38E-01	25.2	7.33E+00	T
3	90.03	78	357	1.16	179.84	171	19	2.16E-02	****	7.21E+00	T
0	185.70	92	373	1.72	371.23	366	11	2.56E-02	87.3	5.53E+00	T
0	338.12	90	251	1.32	676.16	670	11	2.49E-02	72.3	3.61E+00	T
0	910.94	86	203	1.47	1822.18	1815	15	2.38E-02	76.3	1.53E+00	T

Flags: "T" = Tentatively associated

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*****
*                                     GEL Laboratories LLC
*                                     2040 Savage Road
*                                     Charleston, SC 29414
*****
*
*                               DETECTOR DATA
*
* Configuration      : DKA100:[CANBERRA.GAMMA.ARCHIVE.GAMMA]G1202014515.CNF;1
* Acquisition date   : 21-JAN-2010 11:09:01   Detector SN#      :
* Detector ID        : GAM13                  Sensitivity       : 5.00000
* Geometry           : CAN                    Energy tolerance: 1.50000
* Elapsed live time  : 0 01:00:00.00          Abundance limit  : 75.00000
* Elapsed real time  : 0 01:00:01.75          Half life ratio  : 8.00000
*****
*
*                               SAMPLE DATA
*
* Sample date        : 14-JAN-2010 00:00:00   Nuclide Library : SOLID
* Sample ID          : G1202014515           Analyst initials: MXR1
* Batch Number       : 941242                Sample Quantity  : 1.51730E+02 GRAM
*****
*
*                               QC DATA
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22.03MS Isotope :
* MSD ID             :                      MSD Isotope  :
* LCS ID             : 1032-A               LCS Isotope    :
*****

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## Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CO-57	2.907E-01	8.894E-02	6.579E-02	8.322E-03	4.418
CO-60	6.840E+00	5.377E-01	1.333E-01	7.580E-03	51.325
AS-73	2.000E+00	9.071E-01	7.671E-01	6.480E-02	2.607
CD-109	3.897E+01	3.738E+00	1.682E+00	1.327E-01	23.165
SN-126	3.874E+00	3.717E-01	1.670E-01	1.321E-02	23.197
BA-137M	5.540E+00	5.368E-01	1.361E-01	1.110E-02	40.721
CS-137	5.857E+00	5.683E-01	1.438E-01	1.176E-02	40.722
TM-171	3.682E+01	1.703E+01	4.201E+01	3.834E+00	0.876
TL-208	4.449E-01	1.520E-01	1.333E-01	1.103E-02	3.338
BI-211	2.586E+00	7.630E-01	7.069E-01	5.153E-02	3.659
PB-212	1.182E+00	2.412E-01	2.074E-01	1.884E-02	5.698
PO-212	1.182E+00	2.412E-01	2.074E-01	1.884E-02	5.698
BI-214	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
PB-214	8.997E-01	2.695E-01	2.465E-01	2.207E-02	3.650
PO-214	8.997E-01	2.695E-01	2.465E-01	2.207E-02	3.650
PO-216	1.182E+00	2.412E-01	2.074E-01	1.884E-02	5.698
PO-218	8.997E-01	2.695E-01	2.465E-01	2.207E-02	3.650
RA-226	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429

---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM)	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
TH-228	1.190E+00	2.430E-01	2.089E-01	1.898E-02	5.698
TH-230	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
TH-234	1.490E+00	1.404E+00	1.624E+00	2.981E-01	0.917
U-234	9.915E-01	3.011E-01	2.239E-01	2.093E-02	4.429
NP-237	1.138E+01	2.589E+00	5.550E-01	1.228E-01	20.497
U-238	1.490E+00	1.404E+00	1.624E+00	2.981E-01	0.917
AM-241	1.449E+01	1.516E+00	2.079E-01	2.114E-02	69.713
AM-243	2.764E-01	8.086E-02	9.607E-02	8.298E-03	2.877
ANH-511	5.344E-02	1.408E-01	1.054E-01	7.352E-03	0.507

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
BE-7	-2.691E-02		7.096E-01	1.184E+00	8.901E-02	-0.023
NA-22	6.782E-02		7.193E-02	1.317E-01	7.432E-03	0.515
NA-24	1.649E-05		1.230E-04	Half-Life too short		
AL-26	2.786E-02		5.036E-02	9.298E-02	5.247E-03	0.300
K-40	6.881E-01		6.376E-01	1.200E+00	7.338E-02	0.573
TI-44	2.959E-01	+	6.076E-02	8.097E-02	6.819E-03	3.655
SC-46	1.395E-01		1.120E-01	1.977E-01	1.497E-02	0.705
V-48	-1.409E-01		1.446E-01	2.206E-01	1.561E-02	-0.639
CR-51	2.323E-01		6.173E-01	1.029E+00	8.005E-02	0.226
MN-52	4.451E-02		1.532E-01	2.629E-01	1.511E-02	0.169
MN-54	-4.785E-02		9.132E-02	1.468E-01	1.152E-02	-0.326
CO-56	-2.692E-02		9.247E-02	1.507E-01	1.175E-02	-0.179
CO-58	2.121E-02		9.440E-02	1.598E-01	1.273E-02	0.133
FE-59	1.513E-02		2.190E-01	3.571E-01	2.551E-02	0.042
ZN-65	-9.476E-02		2.382E-01	3.751E-01	2.278E-02	-0.253
GE-68	-2.595E+00		3.495E+00	5.378E+00	3.437E-01	-0.483
AS-74	-4.054E-02		1.486E-01	2.391E-01	1.836E-02	-0.170
SE-75	2.060E-02		7.757E-02	1.303E-01	1.021E-02	0.158
BR-77	-2.966E+00		2.564E+00	3.940E+00	2.783E-01	-0.753
SR-82	3.981E-01		7.386E-01	1.279E+00	1.029E-01	0.311
RB-83	-1.816E-01		1.494E-01	2.285E-01	1.614E-02	-0.795
RB-84	-1.027E-01		1.800E-01	2.878E-01	2.192E-02	-0.357
KR-85	1.178E+01		1.838E+01	2.780E+01	1.947E+00	0.424
SR-85	5.571E-02		8.695E-02	1.315E-01	9.211E-03	0.424
RB-86	-8.638E-01		1.683E+00	2.636E+00	1.686E-01	-0.328
Y-88	3.782E-02		5.807E-02	1.080E-01	6.083E-03	0.350
ZR-88	-2.470E-02		6.694E-02	1.053E-01	6.168E-03	-0.235
Y-91	-8.355E+00		2.737E+01	4.430E+01	2.455E+00	-0.189
NB-94	7.885E-02		7.712E-02	1.331E-01	1.086E-02	0.593
NB-95	5.722E-02		8.963E-02	1.561E-01	1.260E-02	0.367
NB-95M	2.104E-01		2.301E-01	3.556E-01	3.290E-02	0.592
ZR-95	7.394E-02		1.691E-01	2.794E-01	2.520E-02	0.265
NB-97	1.225E-03		1.115E-04	Half-Life too short		
ZR-97	2.208E-03		1.102E-03	Half-Life too short		

----- Non-Identified Nuclides -----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
MO-99	-7.809E-01		4.132E+00	6.551E+00	9.766E-01	-0.119
TC-99M	-3.719E+00		1.897E+01	Half-Life too short		
RH-101	-2.640E-02		5.683E-02	9.391E-02	7.436E-03	-0.281
RH-102	-1.256E-05		7.200E-02	1.199E-01	7.977E-03	0.000
RU-103	-1.213E-02		8.344E-02	1.379E-01	1.815E-02	-0.088
RH-106	1.291E-01		7.816E-01	1.290E+00	1.663E-01	0.100
RU-106	1.291E-01		7.815E-01	1.290E+00	1.016E-01	0.100
AG-108M	-6.386E-02		7.675E-02	1.237E-01	8.323E-03	-0.516
AG-110M	6.335E-01		1.338E-01	2.295E-01	1.928E-02	2.761
IN-111	-3.690E-01		3.168E-01	4.994E-01	3.935E-02	-0.739
IN-113M	2.385E-03		9.738E-02	1.567E-01	9.765E-03	0.015
SN-113	2.385E-03		9.738E-02	1.567E-01	9.765E-03	0.015
IN-114M	6.540E-01		3.204E-01	5.036E-01	3.981E-02	1.299
CD-115	-2.424E+00		2.432E+00	3.788E+00	2.700E-01	-0.640
SN-117M	3.241E-02		6.467E-02	1.059E-01	9.249E-03	0.306
SB-122	-2.773E-01		6.624E-01	1.063E+00	7.893E-02	-0.261
I-123	2.700E-04		3.025E-04	Half-Life too short		
TE-123M	2.127E-02		4.766E-02	7.785E-02	6.798E-03	0.273
I-124	1.365E-02		4.591E-01	6.530E-01	5.049E-02	0.021
SB-124	3.656E-02		1.382E-01	2.340E-01	1.458E-02	0.156
SB-125	-9.056E-03		2.015E-01	3.391E-01	2.182E-02	-0.027
TE-125M	3.384E+00		1.237E+01	2.055E+01	2.494E+00	0.165
I-126	3.121E-01		2.771E-01	4.348E-01	3.548E-02	0.718
SB-126	-9.751E-02		2.306E-01	3.605E-01	2.938E-02	-0.271
SB-127	-4.903E-01		7.647E-01	1.175E+00	1.077E-01	-0.417
XE-127	5.171E-02		7.146E-02	1.241E-01	9.833E-03	0.417
I-131	-3.936E-02		1.297E-01	2.061E-01	1.449E-02	-0.191
TE-132	1.907E-01		2.451E-01	4.221E-01	6.007E-02	0.452
BA-133	-3.432E-02		1.045E-01	1.460E-01	1.753E-02	-0.235
I-133	-8.960E-08		1.566E-05	Half-Life too short		
CS-134	1.133E-01		1.154E-01	2.036E-01	1.641E-02	0.556
CS-135	1.186E-03		2.990E-01	4.956E-01	4.578E-02	0.002
I-135	-1.387E+01		1.749E+01	Half-Life too short		
CS-136	-1.253E-01		2.000E-01	3.111E-01	2.205E-02	-0.403
CE-139	2.567E-02		5.045E-02	8.243E-02	6.462E-03	0.311
BA-140	-3.309E-01		4.101E-01	6.207E-01	2.036E-01	-0.533
LA-140	-6.826E-02		1.098E-01	1.606E-01	9.254E-03	-0.425
CE-141	2.355E-03		8.615E-02	1.390E-01	1.442E-02	0.017
CE-143	1.502E+01		6.539E+00	9.678E+00	2.032E+00	1.552
CE-144	-3.037E-01		3.361E-01	5.149E-01	8.925E-02	-0.590
PM-144	-5.530E-02		8.098E-02	1.245E-01	1.016E-02	-0.444
PR-144	-3.732E+00		5.465E+00	8.399E+00	6.858E-01	-0.444
PM-146	9.579E-02		1.083E-01	1.888E-01	1.714E-02	0.507
ND-147	1.999E-01		8.347E-01	1.401E+00	1.983E-01	0.143
PM-149	1.343E+01		1.560E+01	2.663E+01	3.994E+00	0.504
EU-152	3.350E-02		2.248E-01	3.409E-01	2.555E-02	0.098
GD-153	-3.974E-02		1.082E-01	1.668E-01	1.518E-02	-0.238
EU-154	1.902E-01		2.022E-01	3.692E-01	3.411E-02	0.515



---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
EU-155	1.675E-01		1.560E-01	2.658E-01	2.728E-02	0.630
TE-160	1.387E-01		3.883E-01	6.568E-01	5.010E-02	0.211
HO-166M	3.309E-02		1.444E-01	2.369E-01	1.932E-02	0.140
LU-176	-1.765E-02		5.035E-02	8.053E-02	5.970E-03	-0.219
LU-177	7.727E-01		8.636E-01	1.504E+00	1.193E-01	0.514
LU-177M	1.332E-01		3.794E-01	6.194E-01	3.757E-02	0.215
HF-181	-5.923E-02		8.744E-02	1.404E-01	9.435E-03	-0.422
W-181	-1.315E-01		3.165E-01	4.728E-01	4.361E-02	-0.278
TA-182	-4.056E-01		2.829E-01	3.924E-01	2.184E-02	-1.034
RE-183	7.157E-02		1.811E-01	2.932E-01	2.426E-02	0.244
RE-184	-4.846E-02		4.262E-01	7.056E-01	5.539E-02	-0.069
OS-185	6.618E-02		9.666E-02	1.643E-01	1.323E-02	0.403
RE-188	9.200E-02		2.743E-01	4.467E-01	4.087E-02	0.206
W-188	-9.891E+00		1.451E+01	1.988E+01	1.508E+00	-0.498
IR-192	-1.901E-02		6.411E-02	1.032E-01	7.546E-03	-0.184
AU-195	3.650E-02		2.994E-01	4.941E-01	4.592E-02	0.074
TL-200	2.329E+00		7.650E+00	1.257E+01	8.040E-01	0.185
TL-201	-7.858E-01		2.175E+00	3.407E+00	2.670E-01	-0.231
TL-202	-2.867E-02		1.104E-01	1.834E-01	1.159E-02	-0.156
HG-203	5.783E-02		6.750E-02	1.159E-01	9.227E-03	0.499
BI-207	-3.876E-02		1.369E-01	2.181E-01	1.419E-02	-0.178
TL-207	-5.198E-01		1.347E+00	2.150E+00	3.666E-01	-0.242
PO-209	1.840E+00		2.043E+01	3.399E+01	2.559E+00	0.054
BI-210	7.123E-01		1.245E+00	1.862E+00	1.517E-01	0.383
PB-210	7.123E-01		1.245E+00	1.862E+00	1.517E-01	0.383
PO-210	7.123E-01		1.245E+00	1.862E+00	1.327E-01	0.383
PB-211	2.229E-01		2.154E+00	3.465E+00	2.161E+00	0.064
BI-212	5.257E-01		7.206E-01	1.214E+00	1.166E-01	0.433
PO-215	-5.198E-01		1.347E+00	2.150E+00	3.666E-01	-0.242
RN-219	-1.822E-01		9.306E-01	1.467E+00	2.006E-01	-0.124
RN-220	-3.174E+01		5.670E+01	9.010E+01	6.586E+00	-0.352
RA-223	-5.198E-01		1.347E+00	2.150E+00	3.666E-01	-0.242
RA-224	3.699E+00		1.505E+00	2.449E+00	1.933E-01	1.511
AC-227	-4.185E-01		7.527E-01	1.216E+00	1.814E-01	-0.344
TH-227	-4.185E-01		7.537E-01	1.216E+00	2.152E-01	-0.344
AC-228	1.001E+00	+	7.706E-01	8.702E-01	9.036E-02	1.150
RA-228	1.001E+00	+	7.706E-01	8.702E-01	9.036E-02	1.150
TH-229	-1.310E+00		8.596E-01	1.353E+00	1.070E-01	-0.968
PA-231	-5.536E-01		2.926E+00	4.781E+00	7.006E-01	-0.116
TH-231	-5.198E-01		1.347E+00	2.150E+00	3.666E-01	-0.242
U-231	-2.027E-02		4.282E-01	6.333E-01	5.633E-02	-0.032
TH-232	1.001E+00	+	7.706E-01	8.702E-01	9.036E-02	1.150
PA-233	1.255E-01		1.242E-01	2.137E-01	1.632E-02	0.587
PA-234	-6.584E-01		9.932E-01	1.561E+00	2.840E-01	-0.422
PA-234M	-7.281E+00		1.374E+01	2.170E+01	1.860E+00	-0.336
U-235	-1.211E-01		3.508E-01	5.572E-01	1.029E-01	-0.217
NP-236	-4.536E-02		1.412E-01	2.224E-01	1.895E-02	-0.204
NP-239	-3.750E-01		3.453E-01	4.670E-01	5.542E-02	-0.803

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM)	K.L. Ided	Act error	MDA (pCi/GRAM)	MDA error	Act/MDA
CM-243	4.471E-02		1.407E-01	2.349E-01	2.339E-02	0.190
AM-246	-3.280E-01		4.202E-01	6.456E-01	4.118E-02	-0.508
CM-247	-4.894E-02		8.293E-02	1.282E-01	7.636E-03	-0.382
CF-249	4.788E-03		8.907E-02	1.437E-01	8.533E-03	0.033
CF-251	8.493E-02		2.201E-01	3.564E-01	2.804E-02	0.238

## VAX/VMS Nuclide Identification Report Generated

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*****
*                                     GEL Laboratories LLC                      *
*                                     2040 Savage Road                        *
*                                     Charleston, SC 29414                     *
*****
*
*                                     DETECTOR DATA                          *
*
* Configuration      : SYS$SYSROOT:[ALPHA.ARCHIVE.GAMMA]G1202014515          *
* Acquisition date   : 21-JAN-2010 11:09:01 Detector SN#      :              *
* Detector ID        : GAM13                                           Sensitivity      : 5.000          *
* Geometry           : CAN                                           Energy tolerance : 1.500          *
* Elapsed live time  : 0 01:00:00.00 Abundance limit : 75.000          *
* Elapsed real time  : 0 01:00:01.75 Half life ratio : 8.000          *
*****
*
*                                     SAMPLE DATA                            *
*
* Sample date        : 14-JAN-2010 00:00:00 Nuclide Library : SOLID          *
* Sample ID          : G1202014515 Analyst initials: MXR1              *
* Batch Number       : 941242 Sample Quantity : 1.5173E+02 GRAM          *
* Recovery           : 1.00000 Carrier Weight : 0.00000                *
*****
*
*                                     QC DATA                               *
*
* CALIB. DATE/TIME   : 2-FEB-2009 10:41:22 MS Isotope           :          *
* MSD DPM             : 0.000 MSD Isotope                       :          *
* LCS DPM             : 0.000 LCS Isotope                       :          *
* LCSD DPM            : 0.000 LCSD Isotope                     :          *
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## Combined Activity-MDA Report

## ---- Identified Nuclides ----

Nuclide	Activity (pCi/GRAM )	Act Error	DLC (pCi/GRAM )	TPU
CO-57	2.907E-01	8.717E-02	3.528E-02	4.447E-02
CO-60	6.840E+00	5.269E-01	6.733E-02	2.688E-01
AS-73	2.000E+00	8.889E-01	4.193E-01	4.535E-01
CD-109	3.897E+01	3.664E+00	9.090E-01	1.869E+00
SN-126	3.874E+00	3.642E-01	9.026E-02	1.858E-01
BA-137M	5.540E+00	5.260E-01	7.000E-02	2.684E-01
CS-137	5.857E+00	5.569E-01	7.400E-02	2.841E-01
TM-171	1.795E+01	2.640E+01	2.285E+01	1.347E+01
TL-208	4.449E-01	1.490E-01	6.881E-02	7.601E-02
BI-211	2.586E+00	7.477E-01	3.696E-01	3.815E-01
PB-212	1.182E+00	2.364E-01	1.094E-01	1.206E-01
PO-212	1.182E+00	2.364E-01	1.094E-01	1.206E-01
BI-214	9.915E-01	2.951E-01	1.154E-01	1.506E-01
PB-214	8.997E-01	2.641E-01	1.289E-01	1.348E-01
PO-214	8.997E-01	2.641E-01	1.289E-01	1.348E-01
PO-216	1.182E+00	2.364E-01	1.094E-01	1.206E-01
PO-218	8.997E-01	2.641E-01	1.289E-01	1.348E-01
RA-226	9.915E-01	2.951E-01	1.154E-01	1.506E-01
TH-228	1.190E+00	2.382E-01	1.103E-01	1.215E-01
TH-230	9.915E-01	2.951E-01	1.154E-01	1.506E-01
TH-234	1.490E+00	1.376E+00	8.845E-01	7.018E-01
U-234	9.915E-01	2.951E-01	1.154E-01	1.506E-01
NP-237	1.138E+01	2.537E+00	3.000E-01	1.294E+00
U-238	1.490E+00	1.376E+00	8.845E-01	7.018E-01
AM-241	1.449E+01	1.486E+00	1.133E-01	7.581E-01
AM-243	2.764E-01	7.924E-02	5.211E-02	4.043E-02
ANH-511	5.344E-02	1.380E-01	5.456E-02	7.039E-02

## ---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (pCi/GRAM )	K.L Act error	DLC (pCi/GRAM )	TPU
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BE-7	-2.691E-02	6.954E-01	6.142E-01	3.548E-01	NOT IDENT.
NA-22	6.782E-02	7.049E-02	6.660E-02	3.596E-02	NOT IDENT.
NA-24	1.649E+01	2.411E+02	0.000E+00	1.230E+02	SHORT HLIF
AL-26	2.786E-02	4.935E-02	4.660E-02	2.518E-02	NOT IDENT.
K-40	6.881E-01	6.248E-01	6.049E-01	3.188E-01	NOT IDENT.
TI-44	2.959E-01	5.954E-02	4.387E-02	3.038E-02	FAIL ABUN
SC-46	1.395E-01	1.098E-01	1.010E-01	5.600E-02	NOT IDENT.
V-48	-1.409E-01	1.417E-01	1.124E-01	7.230E-02	NOT IDENT.
CR-51	2.323E-01	6.050E-01	5.389E-01	3.087E-01	NOT IDENT.
MN-52	4.451E-02	1.502E-01	1.326E-01	7.662E-02	NOT IDENT.
MN-54	-4.785E-02	8.949E-02	7.507E-02	4.566E-02	NOT IDENT.
CO-56	-2.692E-02	9.062E-02	7.705E-02	4.623E-02	NOT IDENT.
CO-58	2.121E-02	9.251E-02	8.179E-02	4.720E-02	NOT IDENT.
FE-59	1.513E-02	2.146E-01	1.813E-01	1.095E-01	NOT IDENT.
ZN-65	-9.476E-02	2.334E-01	1.904E-01	1.191E-01	NOT IDENT.
GE-68	-2.595E+00	3.425E+00	2.732E+00	1.748E+00	NOT IDENT.
AS-74	-4.054E-02	1.456E-01	1.234E-01	7.429E-02	NOT IDENT.
SE-75	2.060E-02	7.602E-02	6.860E-02	3.879E-02	FAIL ABUN
BR-77	-2.966E+00	2.513E+00	2.039E+00	1.282E+00	FAIL ABUN
SR-82	3.981E-01	7.238E-01	6.553E-01	3.693E-01	NOT IDENT.
RB-83	-1.816E-01	1.464E-01	1.183E-01	7.471E-02	NOT IDENT.
RB-84	-1.027E-01	1.764E-01	1.470E-01	8.998E-02	NOT IDENT.
KR-85	1.178E+01	1.801E+01	1.440E+01	9.191E+00	NOT IDENT.
SR-85	5.571E-02	8.521E-02	6.809E-02	4.347E-02	NOT IDENT.
RB-86	-8.638E-01	1.649E+00	1.339E+00	8.416E-01	NOT IDENT.
Y-88	3.782E-02	5.691E-02	5.411E-02	2.903E-02	NOT IDENT.
ZR-88	-2.470E-02	6.561E-02	5.490E-02	3.347E-02	NOT IDENT.
Y-91	-8.355E+00	2.682E+01	2.244E+01	1.368E+01	NOT IDENT.
NB-94	7.885E-02	7.558E-02	6.835E-02	3.856E-02	NOT IDENT.
NB-95	5.722E-02	8.784E-02	7.999E-02	4.481E-02	NOT IDENT.
NB-95M	2.104E-01	2.255E-01	1.877E-01	1.150E-01	NOT IDENT.
ZR-95	7.394E-02	1.657E-01	1.433E-01	8.455E-02	NOT IDENT.
NB-97	1.225E+03	2.185E+02	0.000E+00	1.115E+02	SHORT HLIF
ZR-97	2.208E+03	2.160E+03	0.000E+00	1.102E+03	SHORT HLIF
MO-99	-7.809E-01	4.050E+00	3.361E+00	2.066E+00	NOT IDENT.
TC-99M	-3.719E+06	3.718E+07	0.000E+00	1.897E+07	SHORT HLIF
RH-101	-2.640E-02	5.570E-02	4.978E-02	2.842E-02	NOT IDENT.
RH-102	-1.256E-05	7.056E-02	6.220E-02	3.600E-02	NOT IDENT.
RU-103	-1.213E-02	8.178E-02	7.146E-02	4.172E-02	FAIL ABUN
RH-106	1.291E-01	7.659E-01	6.649E-01	3.908E-01	FAIL ABUN
RU-106	1.291E-01	7.658E-01	6.649E-01	3.907E-01	FAIL ABUN
AG-108M	-6.386E-02	7.522E-02	6.434E-02	3.838E-02	NOT IDENT.
AG-110M	6.335E-01	1.311E-01	1.181E-01	6.688E-02	NOT IDENT.
IN-111	-3.690E-01	3.105E-01	2.634E-01	1.584E-01	NOT IDENT.
IN-113M	2.385E-03	9.543E-02	8.171E-02	4.869E-02	NOT IDENT.
SN-113	2.385E-03	9.543E-02	8.171E-02	4.869E-02	NOT IDENT.
IN-114M	6.540E-01	3.140E-01	2.672E-01	1.602E-01	NOT IDENT.
CD-115	-2.424E+00	2.384E+00	1.960E+00	1.216E+00	NOT IDENT.
SN-117M	3.241E-02	6.338E-02	5.645E-02	3.233E-02	NOT IDENT.
SB-122	-2.773E-01	6.492E-01	5.491E-01	3.312E-01	NOT IDENT.
I-123	2.700E+02	5.928E+02	0.000E+00	3.025E+02	SHORT HLIF
TE-123M	2.127E-02	4.670E-02	4.149E-02	2.383E-02	NOT IDENT.
I-124	1.365E-02	4.499E-01	3.368E-01	2.296E-01	NOT IDENT.
SB-124	3.656E-02	1.355E-01	1.175E-01	6.912E-02	NOT IDENT.
SB-125	-9.056E-03	1.975E-01	1.764E-01	1.008E-01	NOT IDENT.
TE-125M	3.384E+00	1.212E+01	1.105E+01	6.184E+00	NOT IDENT.
I-126	3.121E-01	2.715E-01	2.237E-01	1.385E-01	NOT IDENT.
SB-126	-9.751E-02	2.260E-01	1.851E-01	1.153E-01	FAIL ABUN
SB-127	-4.903E-01	7.494E-01	6.040E-01	3.824E-01	NOT IDENT.
XE-127	5.171E-02	7.004E-02	6.574E-02	3.573E-02	NOT IDENT.
I-131	-3.936E-02	1.271E-01	1.076E-01	6.486E-02	NOT IDENT.
TE-132	1.907E-01	2.402E-01	2.230E-01	1.226E-01	FAIL ABUN
BA-133	-3.432E-02	1.024E-01	7.631E-02	5.223E-02	FAIL ABUN
I-133	-8.960E-02	3.069E+01	0.000E+00	1.566E+01	SHORT HLIF
CS-134	1.133E-01	1.130E-01	1.042E-01	5.768E-02	NOT IDENT.
CS-135	1.186E-03	2.931E-01	2.608E-01	1.495E-01	NOT IDENT.
I-135	-1.387E+07	3.429E+07	0.000E+00	1.749E+07	SHORT HLIF
CS-136	-1.253E-01	1.960E-01	1.582E-01	1.000E-01	NOT IDENT.
CE-139	2.567E-02	4.944E-02	4.388E-02	2.523E-02	NOT IDENT.
BA-140	-3.309E-01	4.019E-01	3.211E-01	2.050E-01	NOT IDENT.
LA-140	-6.826E-02	1.076E-01	8.075E-02	5.488E-02	NOT IDENT.
CE-141	2.355E-03	8.443E-02	7.424E-02	4.308E-02	NOT IDENT.
CE-143	1.502E+01	6.408E+00	5.082E+00	3.269E+00	FAIL ABUN
CE-144	-3.037E-01	3.293E-01	2.756E-01	1.680E-01	NOT IDENT.
PM-144	-5.530E-02	7.936E-02	6.395E-02	4.049E-02	NOT IDENT.
PR-144	-3.732E+00	5.356E+00	4.316E+00	2.733E+00	NOT IDENT.
PM-146	9.579E-02	1.062E-01	9.808E-02	5.417E-02	NOT IDENT.
ND-147	1.999E-01	8.180E-01	7.249E-01	4.173E-01	FAIL ABUN

PM-149	1.343E+01	1.529E+01	1.399E+01	7.801E+00	NOT IDENT.
EU-152	3.350E-02	2.203E-01	1.783E-01	1.124E-01	FAIL ABUN
GD-153	-3.974E-02	1.061E-01	8.991E-02	5.412E-02	NOT IDENT.
EU-154	1.902E-01	1.981E-01	1.868E-01	1.011E-01	FAIL ABUN
EU-155	1.675E-01	1.529E-01	1.430E-01	7.801E-02	FAIL ABUN
TB-160	1.387E-01	3.805E-01	3.355E-01	1.942E-01	FAIL ABUN
HO-166M	3.309E-02	1.415E-01	1.216E-01	7.220E-02	FAIL ABUN
LU-176	-1.765E-02	4.934E-02	4.224E-02	2.517E-02	FAIL ABUN
LU-177	7.727E-01	8.463E-01	7.965E-01	4.318E-01	NOT IDENT.
LU-177M	1.332E-01	3.718E-01	3.225E-01	1.897E-01	FAIL ABUN
HF-181	-5.923E-02	8.569E-02	7.284E-02	4.372E-02	NOT IDENT.
W-181	-1.315E-01	3.101E-01	2.572E-01	1.582E-01	NOT IDENT.
TA-182	-4.056E-01	2.772E-01	1.987E-01	1.414E-01	NOT IDENT.
RE-183	7.157E-02	1.775E-01	1.562E-01	9.057E-02	FAIL ABUN
RE-184	-4.846E-02	4.177E-01	3.718E-01	2.131E-01	FAIL ABUN
OS-185	6.618E-02	9.473E-02	8.461E-02	4.833E-02	FAIL ABUN
RE-188	9.200E-02	2.688E-01	2.382E-01	1.371E-01	NOT IDENT.
W-188	-9.891E+00	1.422E+01	1.044E+01	7.253E+00	FAIL ABUN
IR-192	-1.901E-02	6.283E-02	5.407E-02	3.205E-02	FAIL ABUN
AU-195	3.650E-02	2.934E-01	2.663E-01	1.497E-01	FAIL ABUN
TL-200	2.329E+00	7.497E+00	6.561E+00	3.825E+00	NOT IDENT.
TL-201	-7.858E-01	2.131E+00	1.813E+00	1.087E+00	NOT IDENT.
TL-202	-2.867E-02	1.082E-01	9.536E-02	5.518E-02	NOT IDENT.
HG-203	5.783E-02	6.615E-02	6.093E-02	3.375E-02	NOT IDENT.
BI-207	-3.876E-02	1.342E-01	1.109E-01	6.847E-02	FAIL ABUN
TL-207	-5.198E-01	1.320E+00	1.126E+00	6.735E-01	FAIL ABUN
PO-209	1.840E+00	2.002E+01	1.735E+01	1.021E+01	NOT IDENT.
BI-210	7.123E-01	1.220E+00	1.021E+00	6.225E-01	NOT IDENT.
PB-210	7.123E-01	1.220E+00	1.021E+00	6.225E-01	NOT IDENT.
PO-210	7.123E-01	1.220E+00	1.021E+00	6.223E-01	NOT IDENT.
PB-211	2.229E-01	2.111E+00	1.805E+00	1.077E+00	NOT IDENT.
BI-212	5.257E-01	7.062E-01	6.232E-01	3.603E-01	NOT IDENT.
PO-215	-5.198E-01	1.320E+00	1.126E+00	6.735E-01	FAIL ABUN
RN-219	-1.822E-01	9.119E-01	7.646E-01	4.653E-01	NOT IDENT.
RN-220	-3.174E+01	5.557E+01	4.657E+01	2.835E+01	NOT IDENT.
RA-223	-5.198E-01	1.320E+00	1.126E+00	6.735E-01	FAIL ABUN
RA-224	3.699E+00	1.475E+00	1.292E+00	7.524E-01	NOT IDENT.
AC-227	-4.185E-01	7.376E-01	6.405E-01	3.763E-01	NOT IDENT.
TH-227	-4.185E-01	7.387E-01	6.405E-01	3.769E-01	FAIL ABUN
AC-228	1.001E+00	7.552E-01	4.440E-01	3.853E-01	FAIL ABUN
RA-228	1.001E+00	7.552E-01	4.440E-01	3.853E-01	FAIL ABUN
TH-229	-1.310E+00	8.424E-01	7.176E-01	4.298E-01	FAIL ABUN
PA-231	-5.536E-01	2.868E+00	2.512E+00	1.463E+00	NOT IDENT.
TH-231	-5.198E-01	1.320E+00	1.126E+00	6.735E-01	FAIL ABUN
U-231	-2.027E-02	4.197E-01	3.416E-01	2.141E-01	FAIL ABUN
TH-232	1.001E+00	7.552E-01	4.440E-01	3.853E-01	FAIL ABUN
PA-233	1.255E-01	1.217E-01	1.120E-01	6.209E-02	FAIL ABUN
PA-234	-6.584E-01	9.734E-01	7.958E-01	4.966E-01	FAIL ABUN
PA-234M	-7.281E+00	1.346E+01	1.105E+01	6.870E+00	NOT IDENT.
U-235	-1.211E-01	3.437E-01	2.976E-01	1.754E-01	FAIL ABUN
NP-236	-4.536E-02	1.384E-01	1.185E-01	7.060E-02	NOT IDENT.
NP-239	-3.750E-01	3.384E-01	2.507E-01	1.726E-01	NOT IDENT.
CM-243	4.471E-02	1.379E-01	1.265E-01	7.037E-02	NOT IDENT.
AM-246	-3.280E-01	4.118E-01	3.280E-01	2.101E-01	NOT IDENT.
CM-247	-4.894E-02	8.127E-02	6.681E-02	4.146E-02	NOT IDENT.
CF-249	4.788E-03	8.729E-02	7.494E-02	4.453E-02	NOT IDENT.
CF-251	8.493E-02	2.157E-01	1.895E-01	1.101E-01	NOT IDENT.

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*               GEL Laboratories LLC   *
*               2040 SAVAGE ROAD       *
*               CHARLESTON , SC 29417  *
*               GAMMA SPECTROSCOPY BACKGROUND REPORT *
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ENERGY	MDA COUNTS
46.50	474.9730
46.50	474.9730
46.50	474.9730
48.70	549.9926
49.72	552.3153
51.35	555.9811
52.39	558.2888
52.97	559.5649
53.15	559.9601
53.44	560.5948
54.07	561.9680
56.28	566.7173
56.28	566.7241
57.37	569.0350
57.53	569.3716
57.53	569.3767
57.60	569.5190
57.98	570.3179
57.98	570.3179
59.32	573.1145
59.32	573.1145
59.40	573.2803
59.54	573.5700
59.72	573.9435
60.01	574.5430
61.10	323.2072
61.14	323.2532
61.30	323.4362
63.00	325.3679
63.29	393.2165
63.29	393.2165
63.58	393.6108
64.28	438.3971
65.12	428.9927
65.20	429.1088
65.20	429.1088
66.05	392.9182
66.72	405.8501
66.83	406.0027
66.91	406.1090
67.20	405.1581
67.20	405.1581
67.75	423.6342
67.85	423.7761
68.90	457.6115
68.90	457.6115
69.30	475.4949
69.67	436.8467
70.82	439.8146
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70.83	439.8294
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74.81	411.4258
74.81	411.4258
74.81	411.4258
74.81	411.4258
74.81	411.4258
74.97	411.6290
75.28	412.0172
75.70	412.5448
77.11	414.3033
77.11	414.3033

77.11	414.3033
77.11	414.3033
77.11	414.3033
77.11	414.3033
77.11	414.3033
78.38	402.9051
79.62	404.3787
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79.80	404.5911
80.11	420.3165
80.18	420.4038
80.30	420.5485
80.30	420.5485
80.57	439.0567
81.00	459.2030
81.07	459.2968
81.07	459.2968
81.07	459.2968
81.07	459.2968
82.60	420.8116
83.37	420.0356
83.78	420.5267
83.78	420.5267
83.78	420.5267
83.78	420.5267
84.21	423.8617
84.90	423.2655
85.43	442.3206
86.29	486.0073
86.50	486.2891
86.54	486.3413
86.59	486.4091
86.72	486.5813
86.79	377.5745
86.94	377.7324
87.30	378.1049
87.30	378.1049
87.30	378.1049
87.30	378.1049
87.30	378.1049
87.30	378.1049
87.57	378.3842
87.88	378.7041
88.03	378.8579
88.36	379.1980
88.47	379.3114
89.95	380.8235
91.11	382.0017
92.29	383.1920
92.38	383.2831
92.38	383.2831
93.35	384.2548
94.00	253.8616
94.67	238.3138
94.67	238.3175
94.90	238.4576
94.90	238.4576
94.90	238.4576
94.90	238.4576
95.87	257.9999
95.87	257.9999
96.73	267.3320
97.43	259.9002
98.44	259.1907
98.44	259.1907
98.88	247.7266
99.55	237.3510
99.55	237.3510
99.86	239.4962
100.00	235.6519
100.10	235.7117
103.18	251.3425
103.76	256.6486
105.00	224.6149
105.31	224.7804
108.00	292.2703
109.28	243.9492

111.00	251.9709
111.00	251.9709
111.76	256.4456
112.95	279.4099
115.19	248.2568
116.30	253.3552
117.00	291.1332
117.00	291.1332
117.66	265.4685
121.11	257.6663
121.62	257.9473
121.78	258.0350
122.06	258.1889
122.32	258.3313
122.32	258.3313
122.32	258.3313
122.32	258.3313
123.07	258.7420
127.23	317.8961
129.76	227.7215
131.20	267.3273
133.02	274.6419
133.54	279.1545
135.34	230.2755
136.00	230.5735
136.25	230.6861
136.48	241.4253
140.51	247.5994
140.51	0.0000
142.18	254.8382
142.65	216.3208
143.76	251.2861
144.24	262.3057
144.24	262.3057
144.24	262.3057
144.24	262.3057
145.22	243.3197
145.44	242.3385
147.16	266.9880
152.43	285.9971
152.70	288.3278
153.22	247.9945
154.21	258.3246
154.21	258.3246
154.21	258.3246
154.21	258.3246
155.03	254.2988
156.02	277.9014
158.56	243.6955
159.00	0.0000
159.00	247.2069
160.31	269.9885
161.27	289.3553
162.32	243.0501
162.64	245.4142
163.35	247.9434
163.89	271.6471
165.85	242.2639
167.43	265.3968
171.28	203.7140
171.86	203.9081
172.10	213.0529
176.55	237.4193
176.60	226.0230
181.06	213.8307
184.41	237.4839
185.71	258.2249
186.00	258.3405
190.27	188.8978
192.34	251.7710
193.63	277.7464
197.04	222.6129
198.01	261.8522
198.60	268.2758
200.40	263.6523
201.83	255.3028
202.84	246.7644
205.31	300.3831



208.36	252.2980
208.81	259.6440
209.75	228.4996
209.75	228.4996
210.97	239.7028
215.65	245.7881
216.55	231.5607
218.09	234.7770
222.10	236.9615
223.80	232.9121
226.40	250.2769
227.00	232.0568
227.08	232.0818
227.20	222.9054
228.16	221.3416
228.18	225.9585
228.18	225.9585
231.56	251.9640
235.69	236.9123
236.00	237.0055
236.00	237.0055
238.63	358.9365
238.63	358.9365
238.63	358.9365
238.63	358.9365
239.00	336.6595
240.98	248.9990
241.98	276.3437
241.98	276.3437
241.98	276.3437
244.69	314.5724
245.39	279.0221
247.94	213.7061
248.90	231.9436
249.79	236.9328
252.40	221.5199
252.85	219.7383
252.85	219.7383
254.15	0.0000
256.20	246.4072
256.20	246.4072
260.50	209.2682
260.90	217.0477
262.80	215.6055
264.65	190.9907
268.24	222.7774
268.79	202.5676
269.46	209.5104
269.46	209.5104
269.46	209.5104
269.46	209.5104
271.23	214.7952
273.65	267.0388
276.40	223.8704
277.35	211.3857
277.60	215.3607
277.60	215.3607
278.00	185.0981
278.60	165.6219
279.20	180.4427
279.53	195.2226
280.46	229.7975
281.68	214.3709
283.67	198.0894
284.30	198.2243
285.00	188.5082
285.90	167.9456
286.10	167.9819
286.10	167.9819
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288.45	0.0000
290.67	200.1942
290.80	197.0453
291.72	206.7844
293.26	151.3599
293.70	148.2437
295.21	213.5428
295.21	213.5428

295.21	213.5428
295.96	249.2648
296.50	243.0107
297.23	235.2000
298.57	173.0452
299.80	158.8278
299.80	158.8278
300.09	176.5291
300.09	176.5291
300.09	176.5291
300.09	176.5291
300.12	176.5344
301.29	206.2106
302.84	238.3959
303.76	229.5621
303.91	199.3867
304.40	161.2036
304.40	161.2036
304.84	162.2848
306.84	197.9739
308.46	216.5143
311.98	153.3225
316.51	185.6463
318.01	182.8594
319.02	179.9773
319.41	185.1621
320.08	175.0470
323.87	199.3402
323.87	199.3402
323.87	199.3402
323.87	199.3402
325.23	206.8089
328.77	185.8420
333.44	195.8091
334.20	197.6138
334.20	197.6138
334.30	197.6341
338.28	195.0495
338.28	195.0495
338.28	195.0495
338.28	195.0495
338.32	195.0581
338.32	195.0581
338.32	195.0581
340.50	202.1433
340.57	202.1580
344.27	188.6105
345.85	177.9770
350.59	193.9390
351.07	194.0232
351.92	194.1748
351.92	194.1748
351.92	194.1748
355.39	0.0000
356.01	174.5669
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366.43	178.5638
367.43	184.0728
367.94	173.4500
369.80	182.3137
374.96	162.6725
383.85	174.7843
387.95	174.3066
388.63	170.0466
391.69	181.4156
391.69	181.4156
392.90	192.5403
398.62	171.4772
400.65	191.5816
401.10	180.6400
401.81	173.0316
402.60	181.9668
404.84	180.0919
410.95	170.9965
411.60	174.4186
413.65	156.9017
414.70	167.0586
415.30	171.5957

415.76	195.0672
417.63	0.0000
418.52	165.3347
423.70	163.7710
427.08	160.8335
427.89	163.8600
432.53	180.7178
433.93	195.3861
439.47	185.3208
439.56	200.7776
439.89	200.8289
443.98	155.8768
444.90	172.4048
445.03	177.8947
445.03	177.8947
445.03	177.8947
445.03	177.8947
453.90	174.4906
463.38	178.4897
468.07	193.0221
473.00	176.0155
475.06	175.3435
475.35	176.3108
476.78	154.0812
477.59	172.8571
477.96	175.7061
482.03	165.9051
484.57	127.7042
487.03	153.3219
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492.35	142.5616
497.08	152.5019
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510.53	0.0000
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511.00	134.8304
511.85	134.9087
511.85	134.9087
513.99	148.5168
513.99	148.5168
520.41	154.9271
520.65	153.9883
527.90	166.3311
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529.64	160.7112
529.87	0.0000
531.02	140.5077
537.32	145.9497
543.00	131.8326
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552.65	114.9576
555.20	121.0481
563.23	136.4940
563.90	136.5479
568.70	111.1523
569.32	111.1934
569.50	111.2070
569.67	111.2180
573.80	131.4102
574.00	131.4264
574.64	128.3791
578.91	116.5072
579.30	118.2004
583.14	121.1448
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602.71	111.4180
603.60	130.0565
604.41	121.6670
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609.31	95.5789

609.31	95.5789
609.31	95.5789
609.31	95.5789
610.33	96.6537
612.46	118.8428
614.37	127.4719
618.01	99.1242
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621.84	128.0182
631.29	99.8749
633.02	111.3091
633.10	111.3144
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636.97	106.3923
645.85	106.9178
646.12	103.8184
656.30	118.3193
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657.90	0.0000
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661.65	115.1750
664.57	117.1028
666.33	69.9788
666.33	69.9788
675.00	98.0746
677.61	95.0405
685.20	103.9049
692.80	106.4478
695.00	96.9763
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696.49	125.8475
697.00	128.0156
697.49	128.0479
698.33	121.6983
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699.00	113.1969
702.63	92.0112
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709.31	109.5006
711.68	104.2608
713.82	117.2841
717.42	112.1098
720.50	120.9195
721.93	142.6154
722.20	140.4736
722.78	150.2428
722.78	150.2428
722.89	141.6022
722.95	141.6086
723.30	134.0629
724.18	111.4090
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735.90	103.3566
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785.46	103.9837
792.07	108.0302

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801.93	131.9092
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810.29	110.8147
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817.79	120.6146
818.51	103.6867
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826.30	123.9132
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831.60	116.6188
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834.83	122.4833
836.80	0.0000
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867.82	122.3284
871.10	129.2509
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881.50	148.2281
883.24	153.1847
884.67	148.4273
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896.60	113.0972
898.02	117.0654
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911.07	147.1222
911.07	147.1222
911.07	147.1222
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925.00	139.0809
925.24	149.9466
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946.00	169.1008
949.00	170.3007
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968.20	132.4512
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969.11	134.5071
969.11	134.5071
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1099.22	102.1310
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1120.29	106.0588
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1175.09	55.5532
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1189.05	57.6666
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1213.00	39.3662
1221.42	53.5687
1230.97	52.7891
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1236.41	0.0000
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1246.25	33.1506
1260.41	0.0000
1271.85	35.3224
1274.45	27.7074
1274.54	27.7084
1291.56	26.8916
1298.22	0.0000
1312.09	34.7871
1325.50	37.3506
1325.50	37.3506
1332.49	41.8032
1333.61	25.5276
1360.21	14.7002
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1365.15	25.5167
1368.21	23.5739
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1376.25	20.6748
1384.27	26.6431
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1395.20	24.7454
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1434.06	19.0106
1436.60	25.0314
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1460.81	14.1104
1489.15	12.1867
1509.49	18.3786
1596.49	27.1435
1620.62	22.0547
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1691.02	14.9551
1706.46	0.0000
1750.46	0.0000
1764.49	14.2621
1764.49	14.2621
1764.49	14.2621
1764.49	14.2621
1770.23	13.5399
1771.40	38.0920
1791.20	0.0000
1808.65	7.6824

1836.01

8.6951

TOTAL URANIUM BY GAMMA SPEC REPORT  
Sample:G1202014515

Total Uranium Activity	4.3760E+00	ug/g
Total Uranium Counting Unc.	4.0954E+00	ug/g
Total Uranium Tpu	2.0895E-06	ug/g
Total Uranium Mda	2.6349E+00	ug/g



```

*****
*
*               GEL Laboratories LLC               *
*               2040 SAVAGE ROAD                   *
*               CHARLESTON , SC 29417              *
*               GROSS GAMMA REPORT                 *
*
*****
*
*  BATCH ID      : 941242                          SAMPLE ID   : G1202014515
*  ANALYST       : MXR1                             DETECTOR    : GAM13
*  SAMPLE DATE   : 14-JAN-2010 00:00:00.00          COUNT TIME   : 0 01:00:00.00
*  ANALYSIS DATE : 21-JAN-2010 11:09:01.65          SAMPLE ALQT  : 151.730 GRAM
*
*****

```

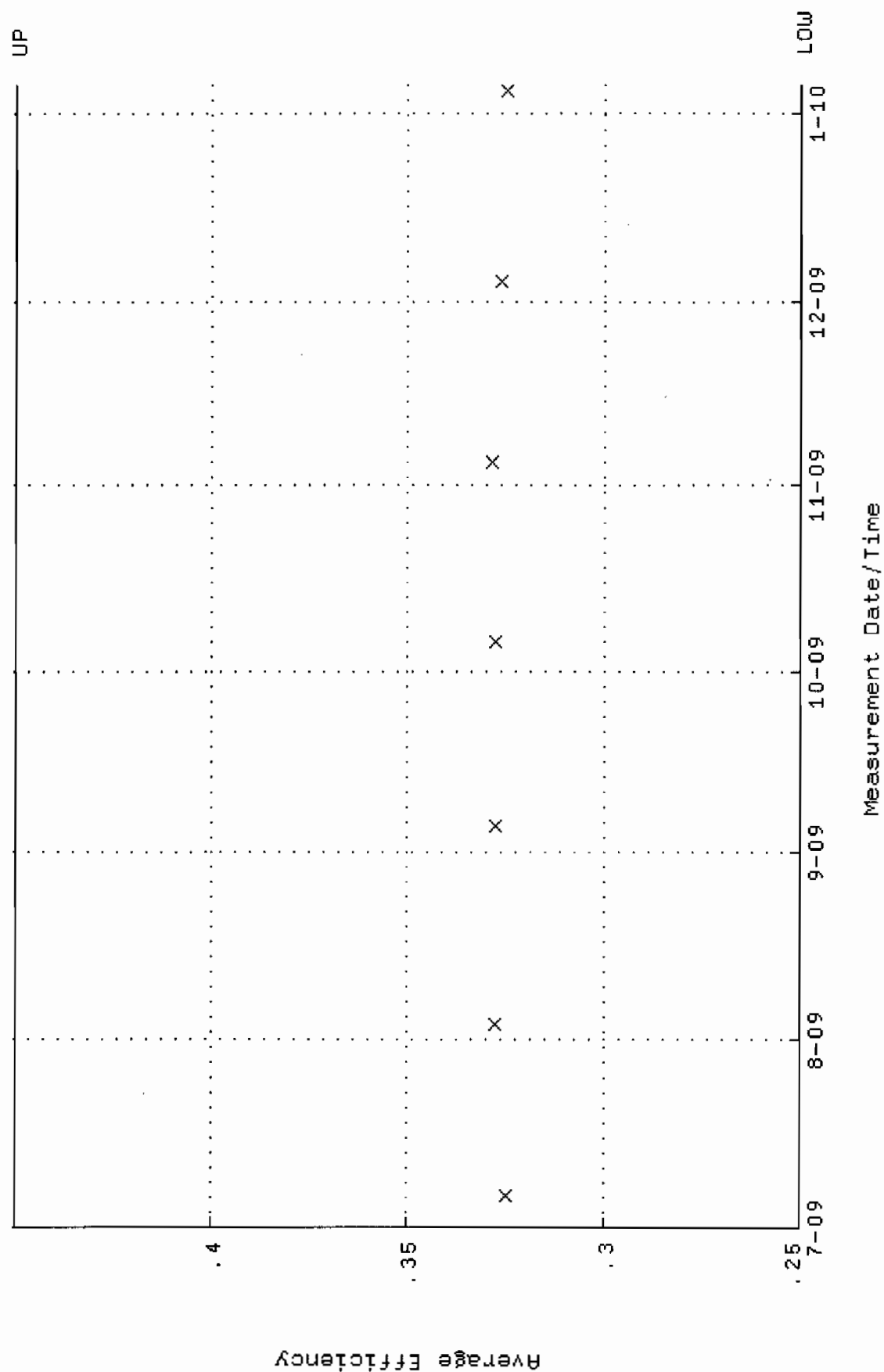
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GROSS GAMMA ACTIVITY (pCi/GRAM ) : 2.920E+01
GROSS GAMMA ERROR   (pCi/GRAM ) : 3.251E+00
GROSS GAMMA MDA      (pCi/GRAM ) : 4.469E+00
GROSS GAMMA DLC      (pCi/GRAM ) : 2.183E+00

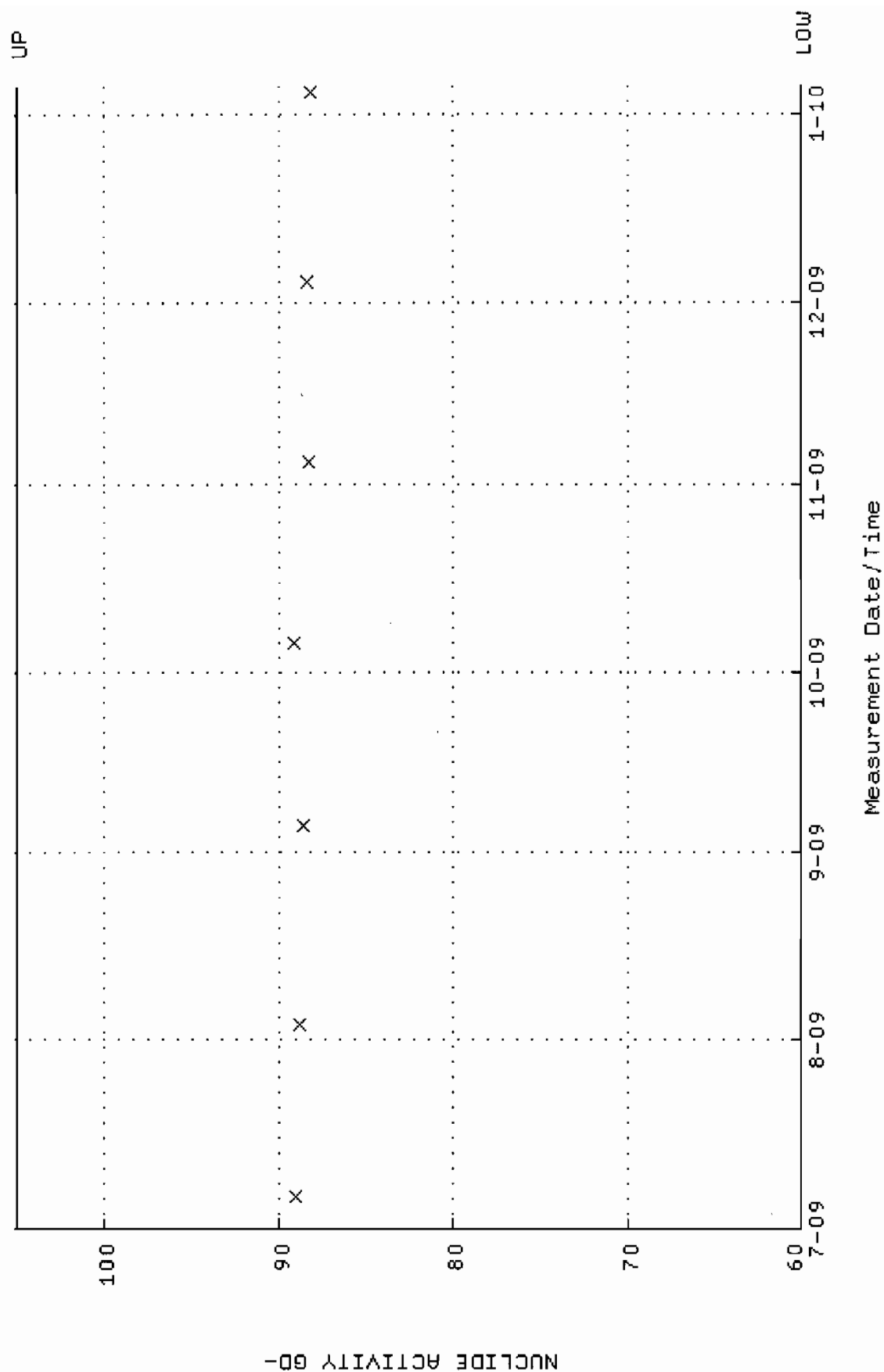
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# BACKGROUND AND EFFICIENCY DATA

QA filename : DKA100:[ENV\_ALPHA.QA.W]W025.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



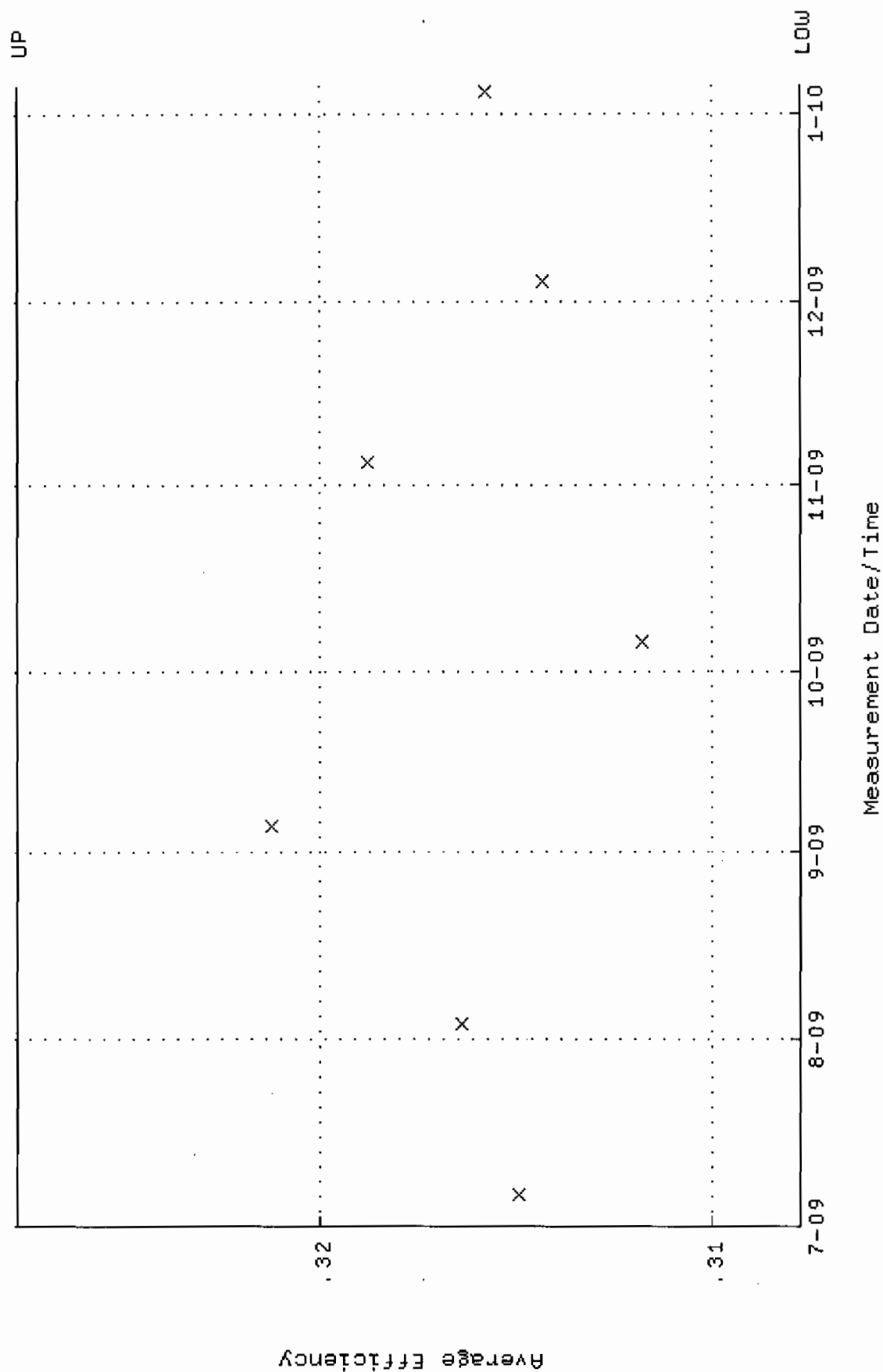
QA filename : DKA100:[ENV\_ALPHA.QA.W]W025.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



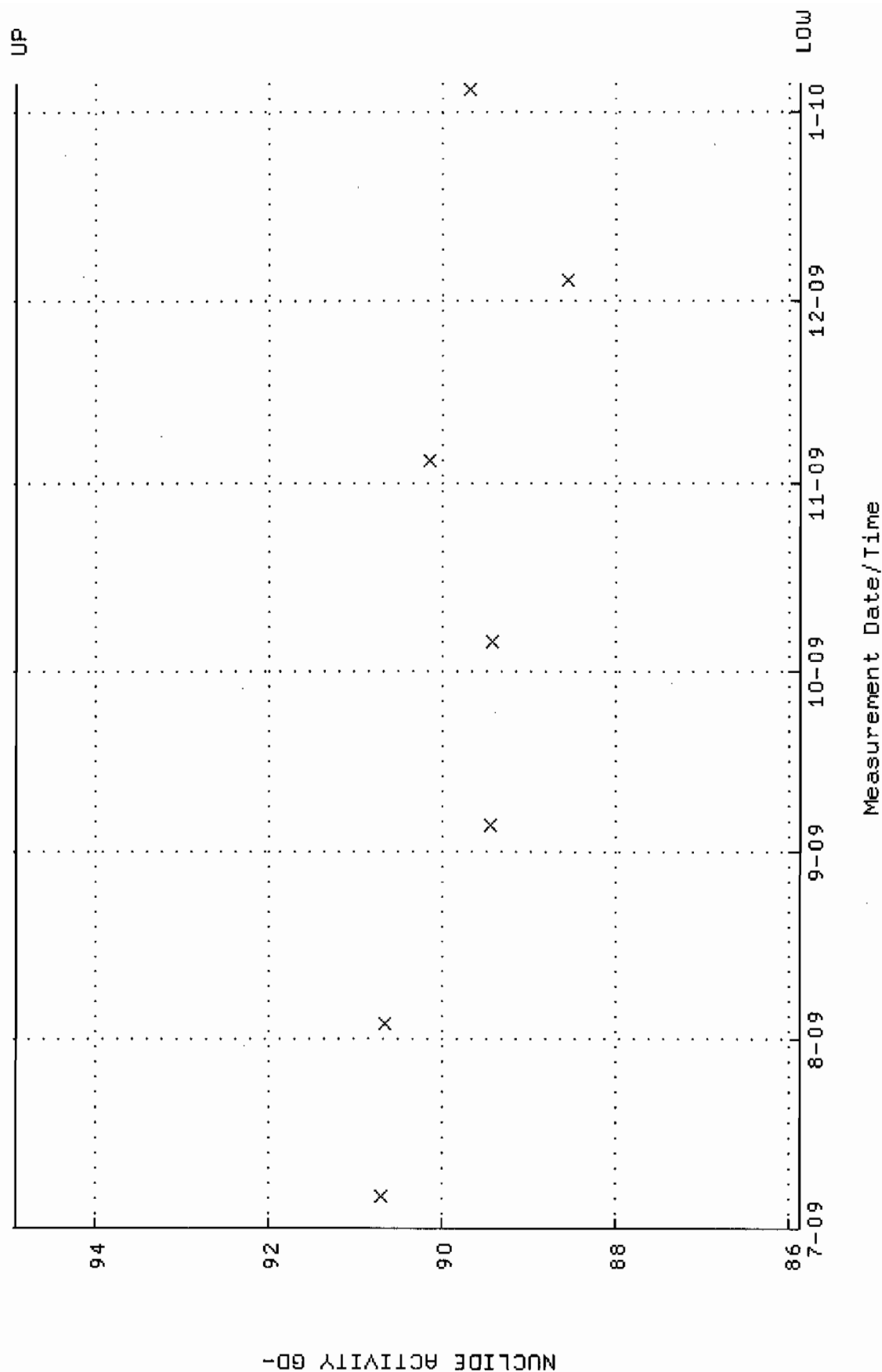
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



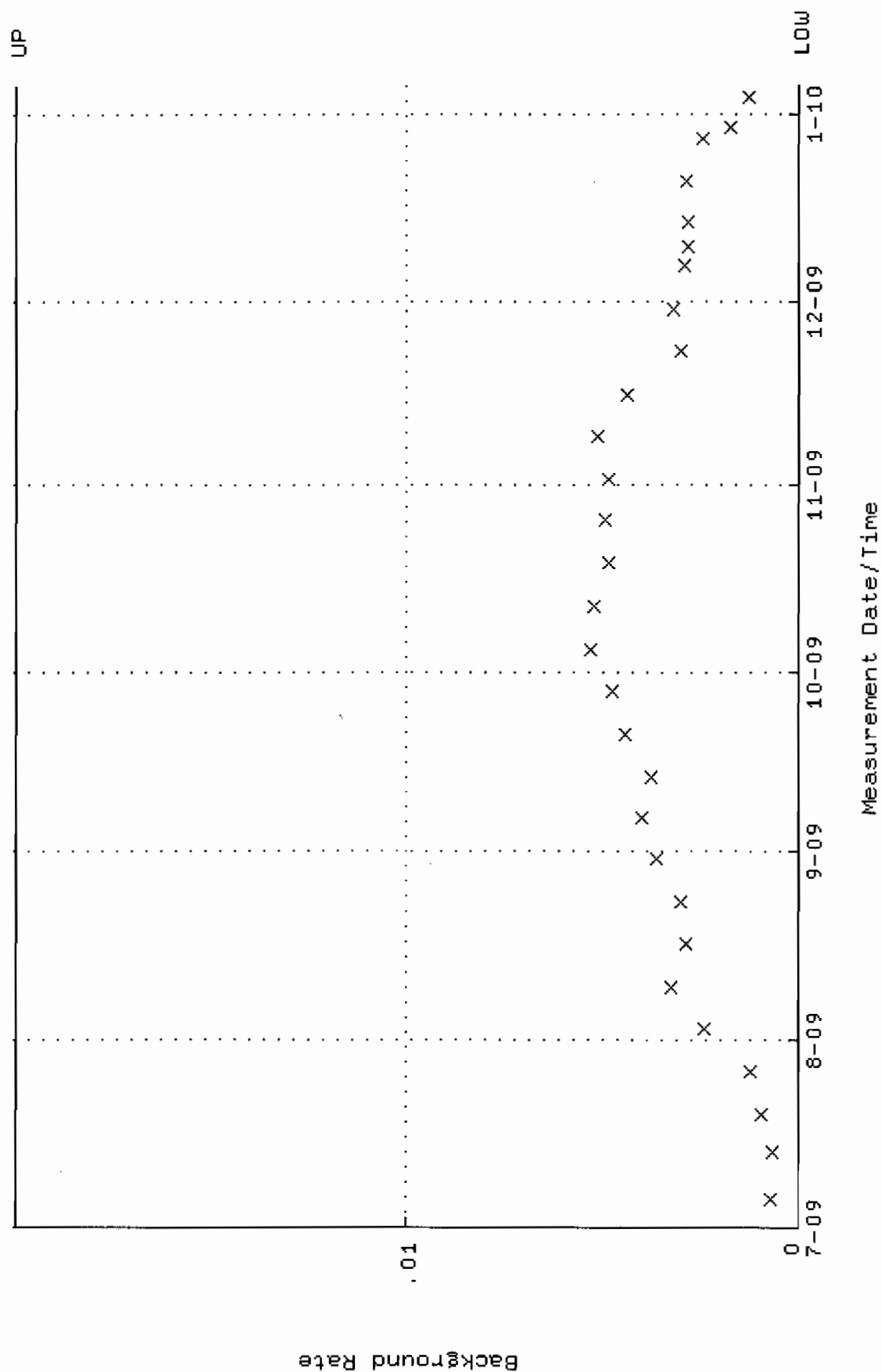
QA filename : DKA100:[ENV\_ALPHA.QA.w]w026.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.307728 through 0.327728



QA filename : DKA100:[ENV\_ALPHA.QA.W]W026.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.8763 through 94.9159

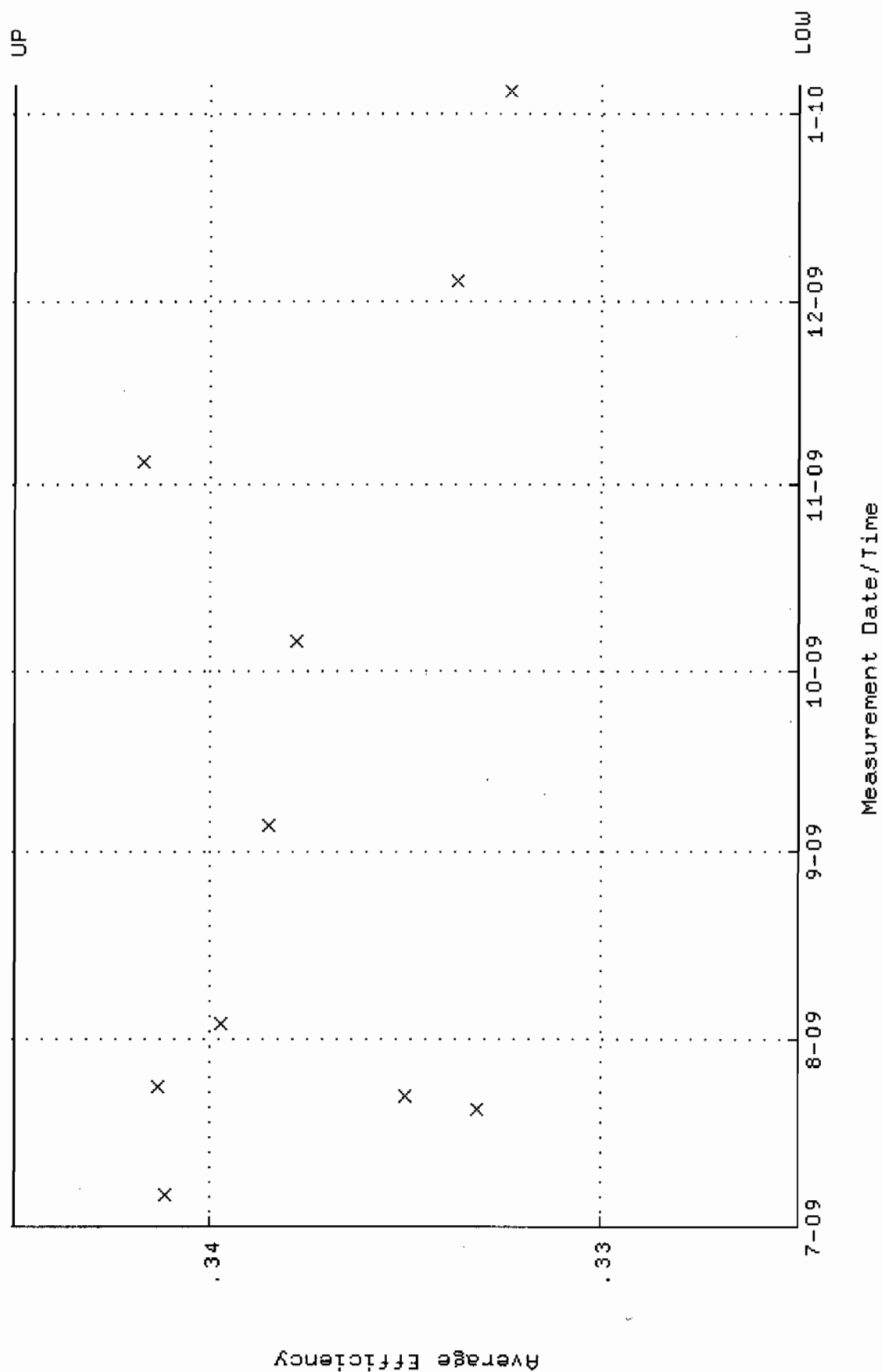


QA filename : DKA100:[ENV\_ALPHA.QA.B]B026.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:11:58 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

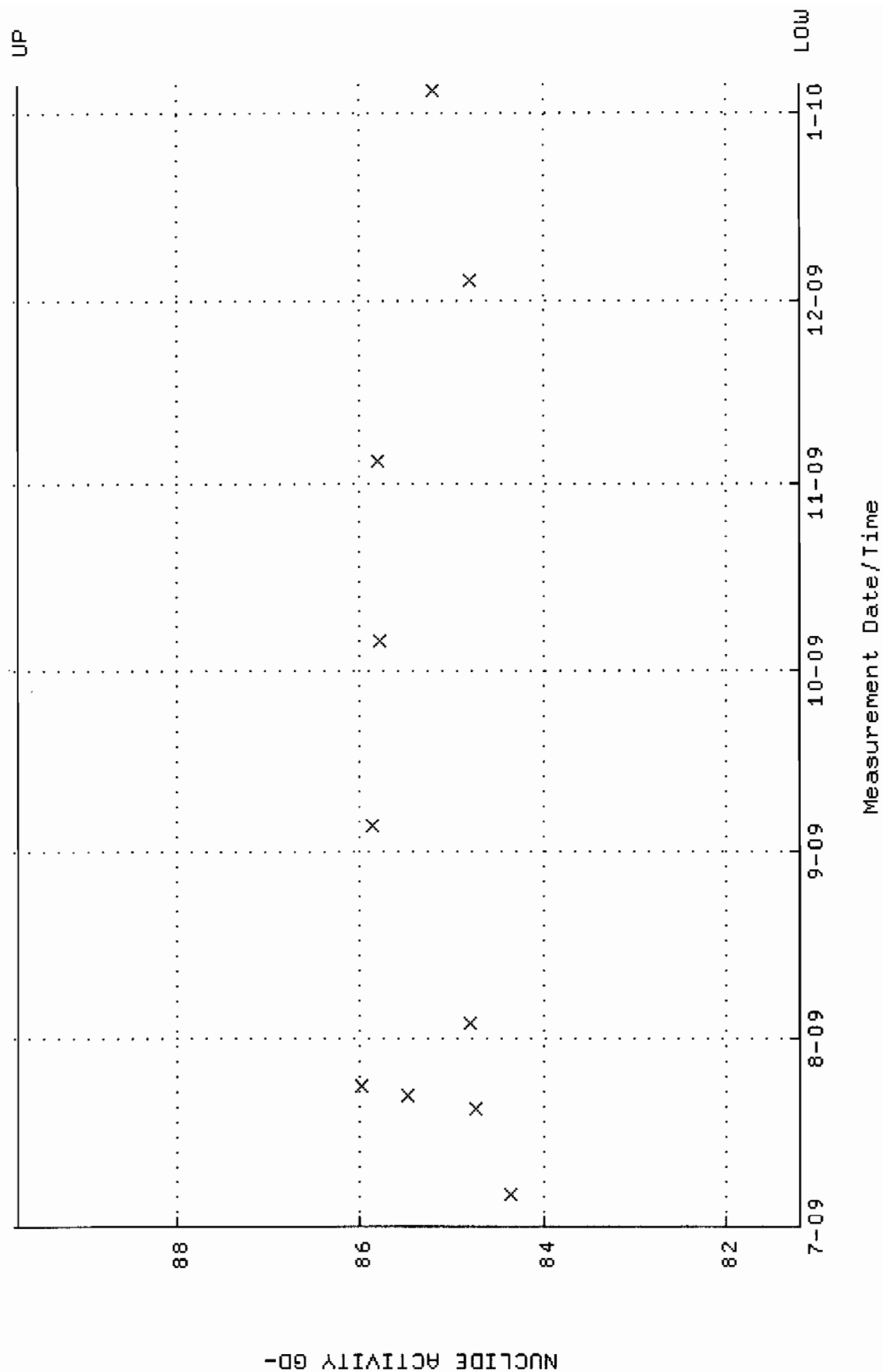




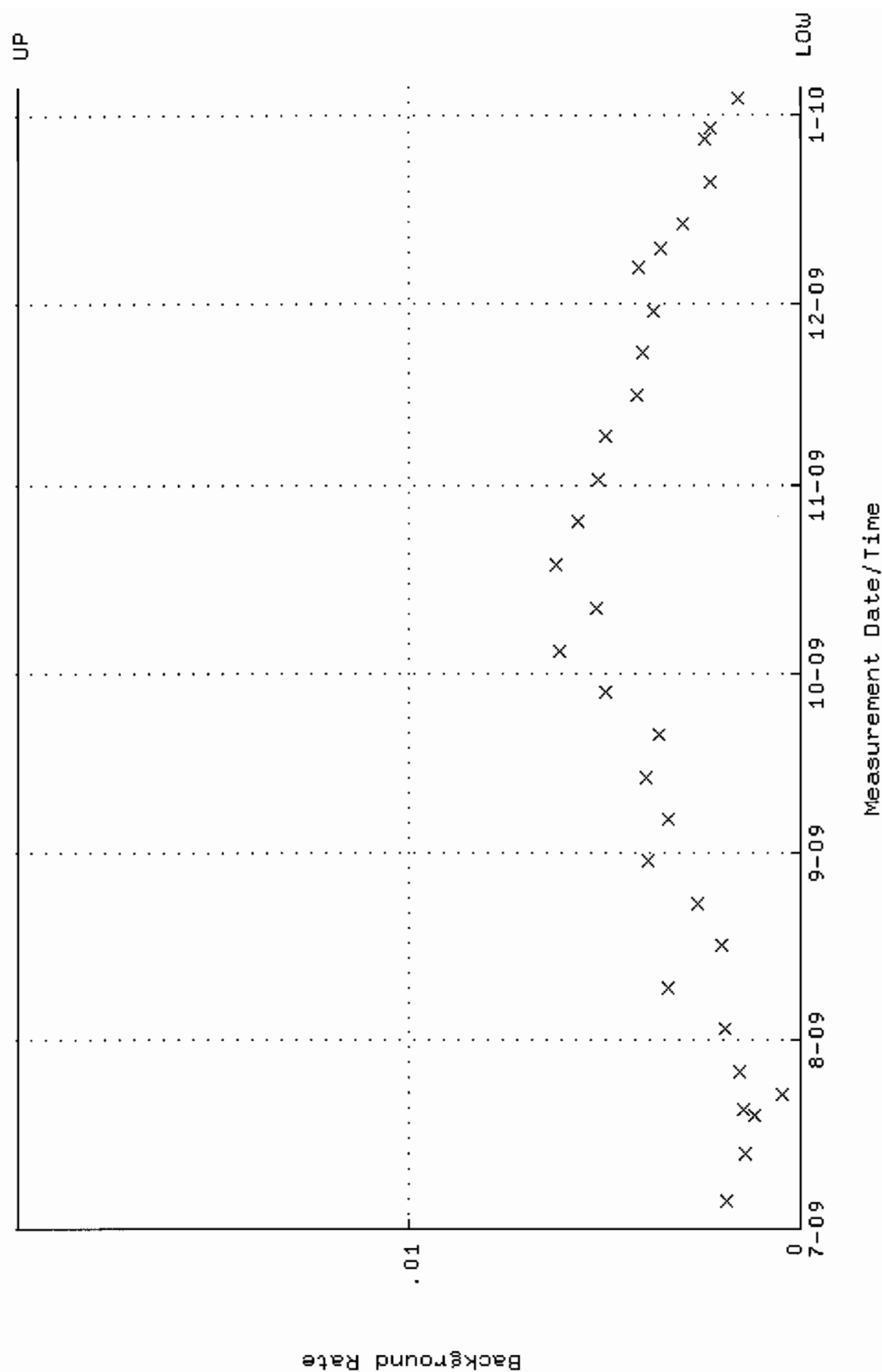
QA filename : DKA100:[ENV\_ALPHA.QA.W]W027.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.324980 through 0.344980



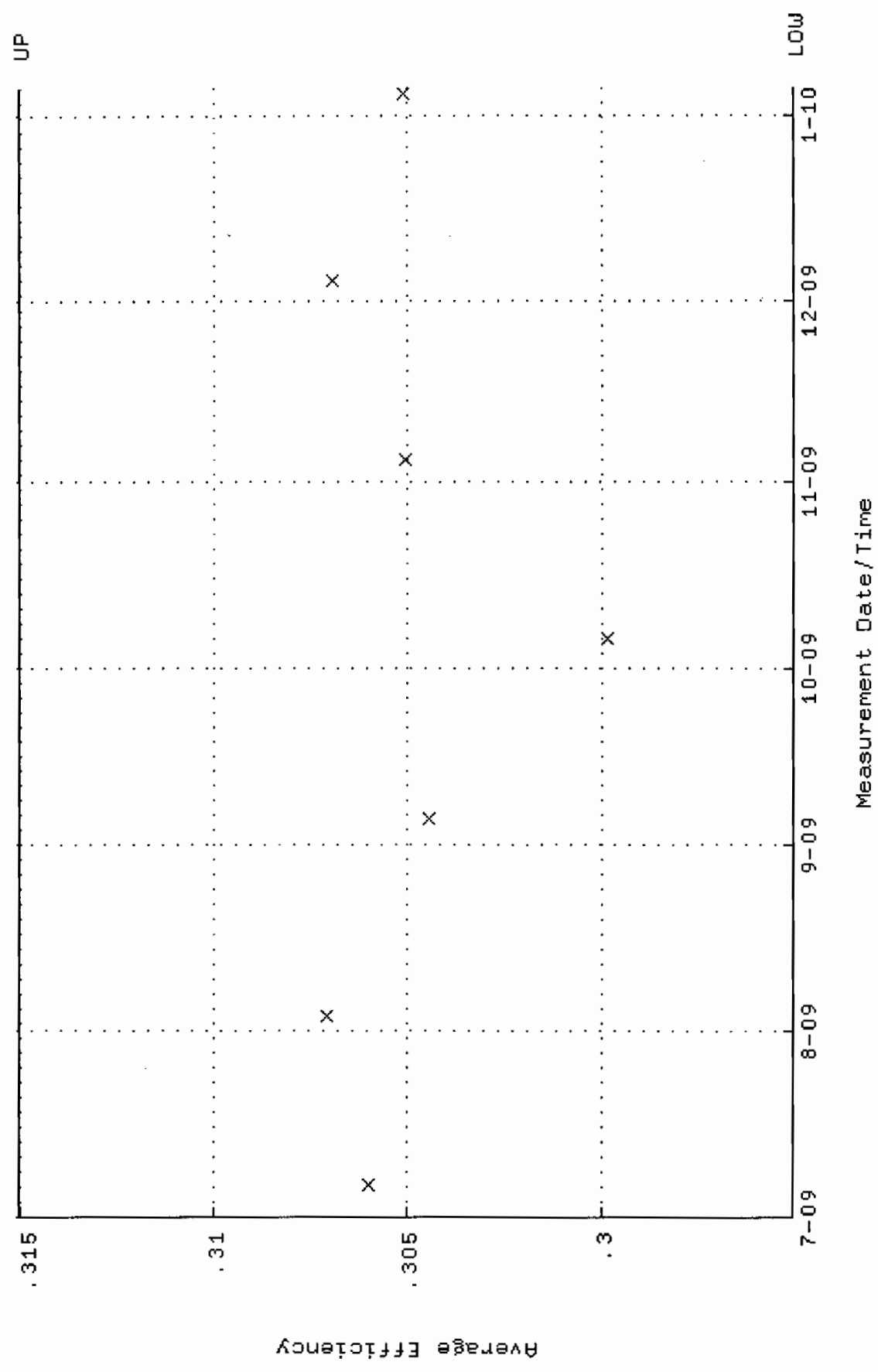
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 Lower/Upper Lmts: 81.2030 through 89.7506



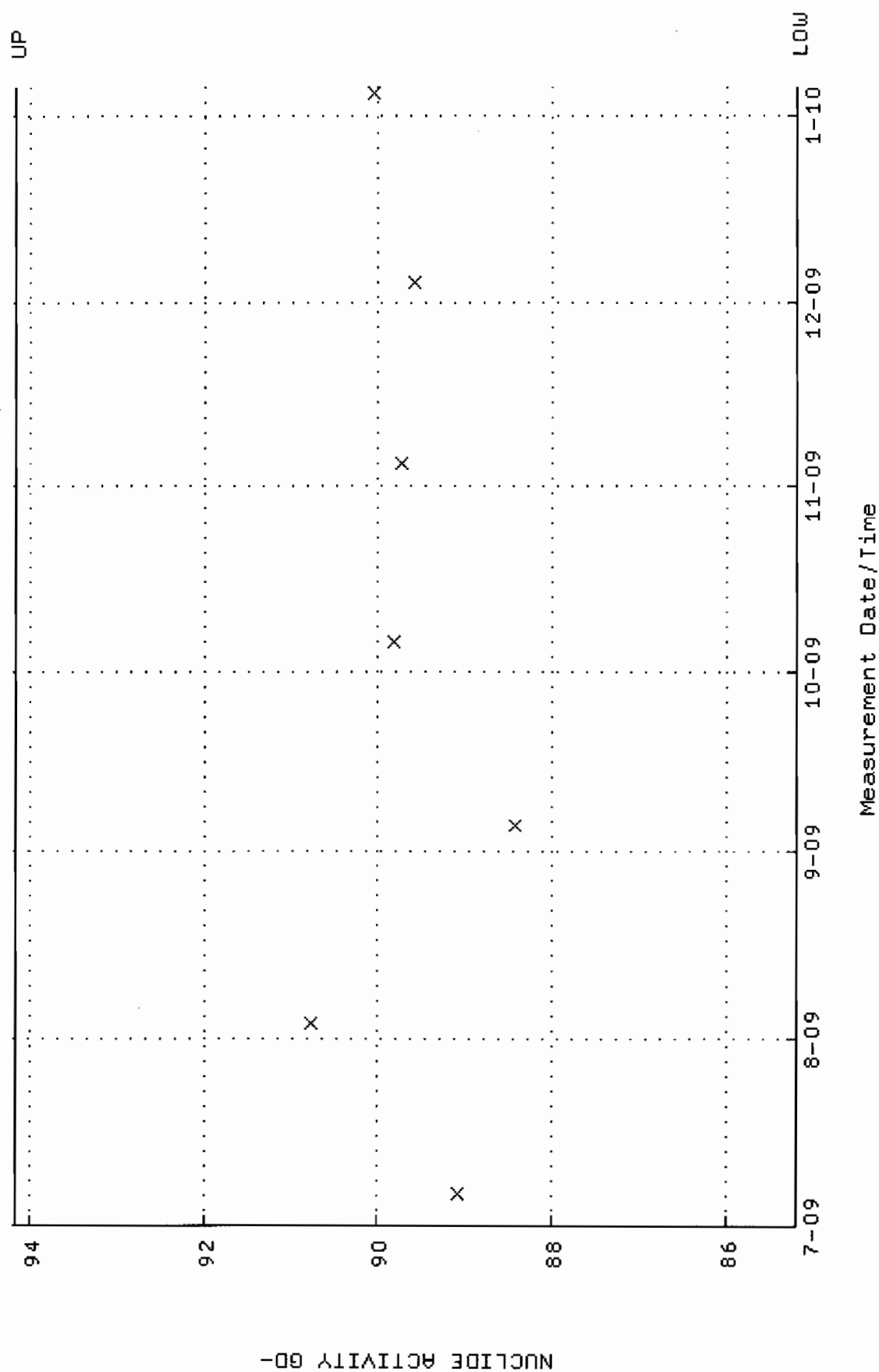
QA filename : DKA100:[ENV\_ALPHA.QA.8]B027.QAF;1  
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 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



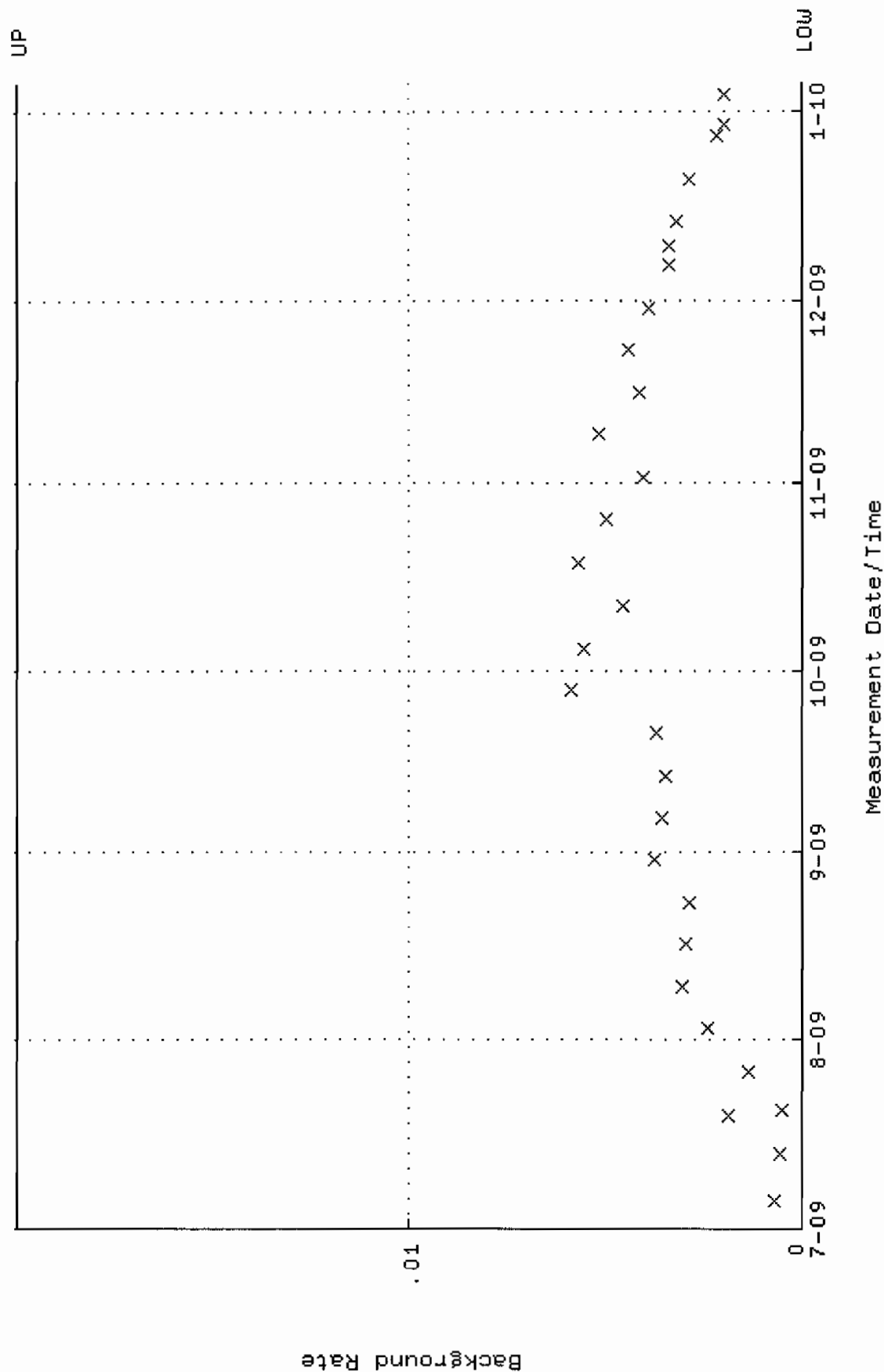
QA filename : DKA100:[ENV\_ALPHA.QA.W]W028.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
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 Lower/Upper Lmts: 0.295040 through 0.315040



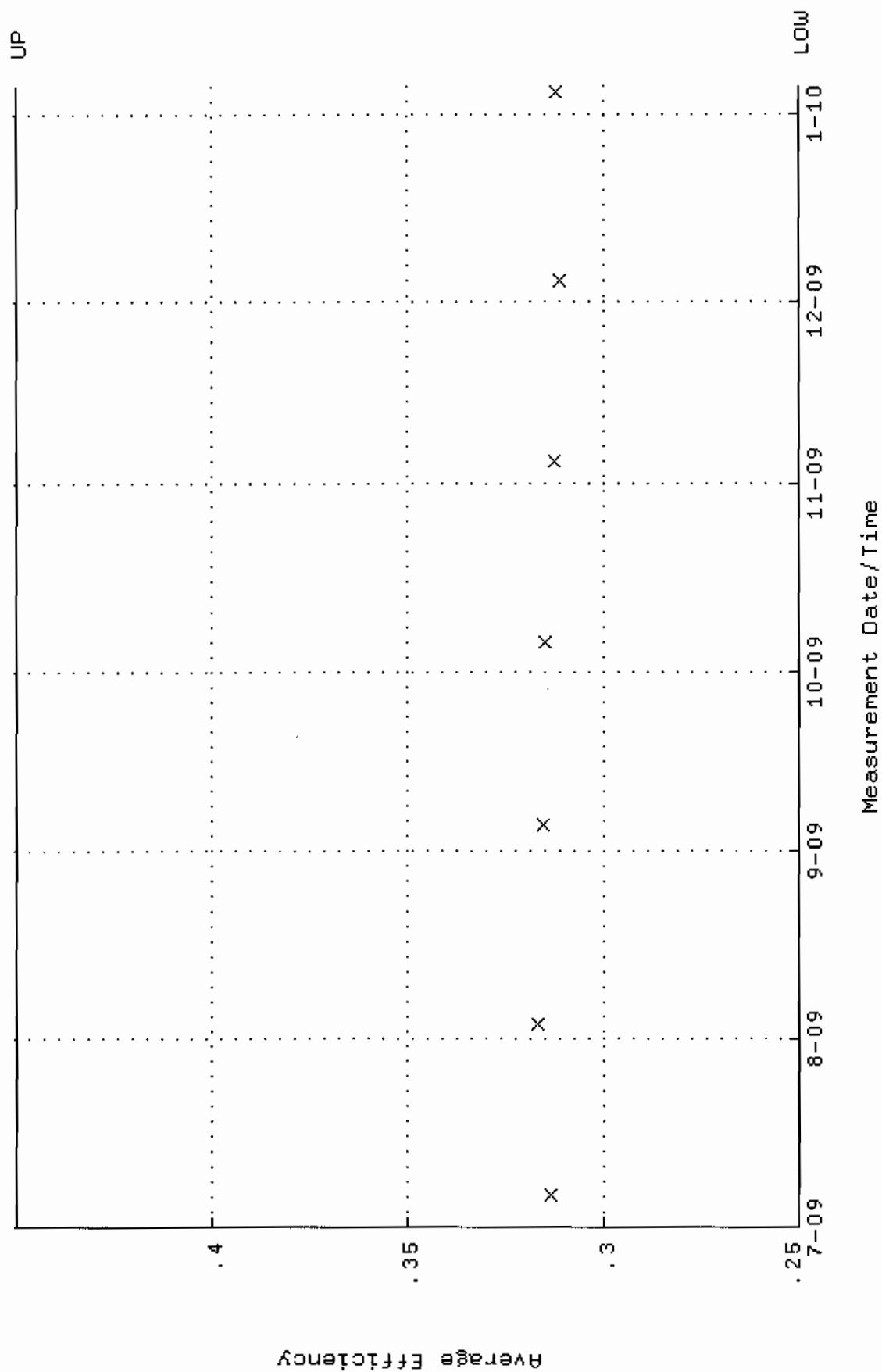
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 Lower/Upper Lmts: 85.1965 through 94.1645



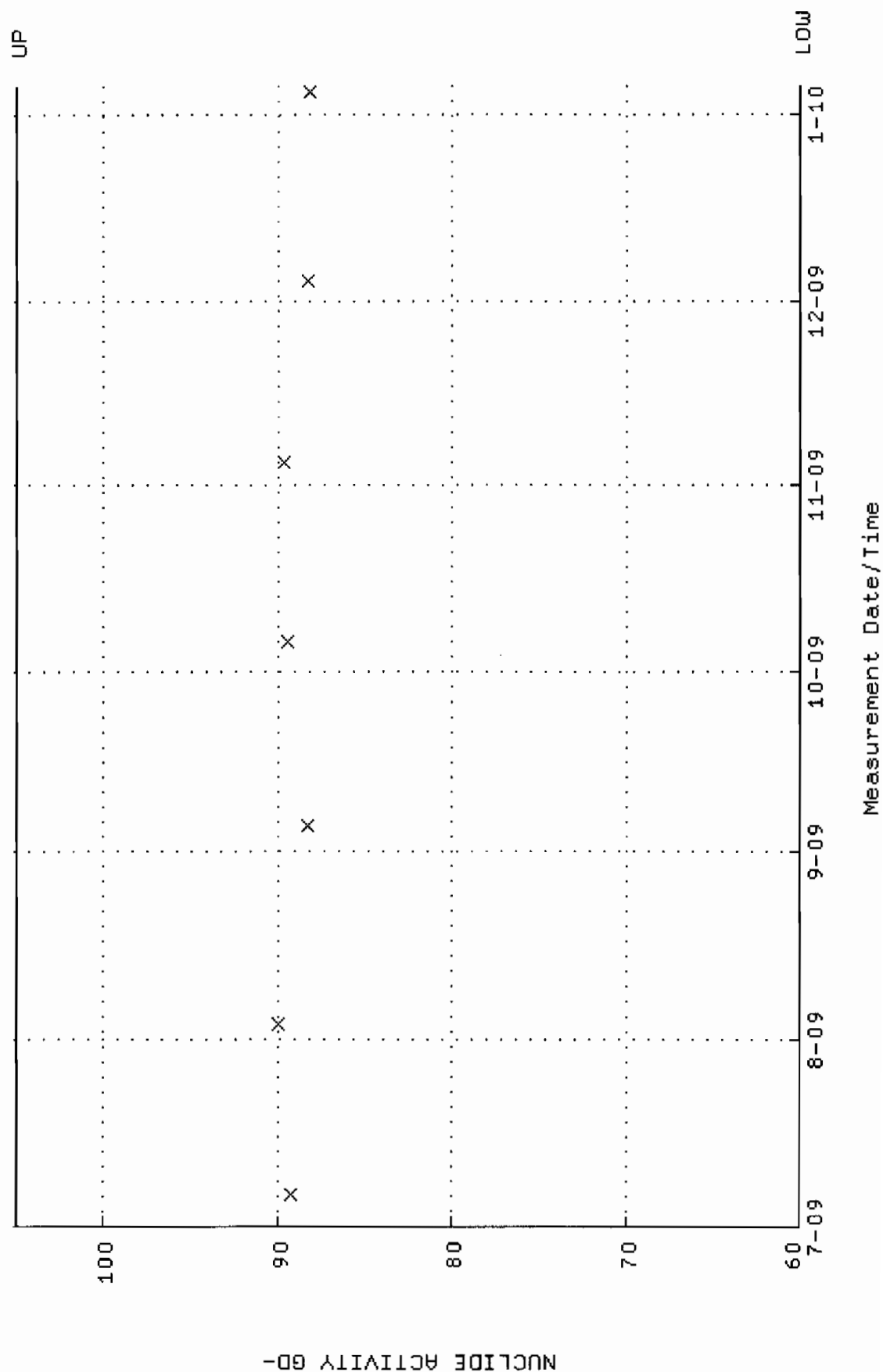
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 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.w]W029.QAF;6  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000

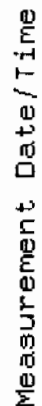


QA filename : DKA100:[ENV\_ALPHA.QA.W]W029.QAF;6  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000

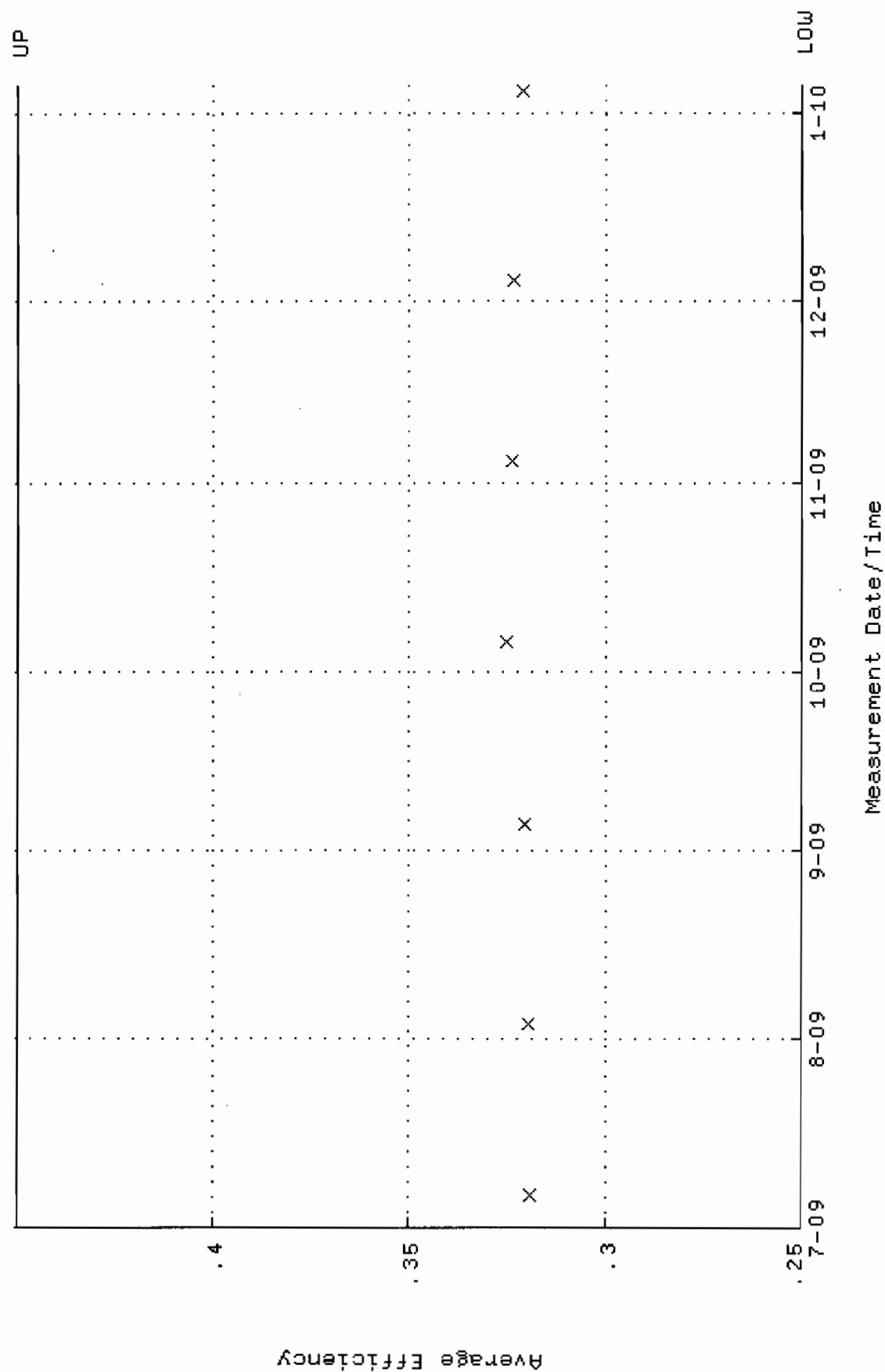




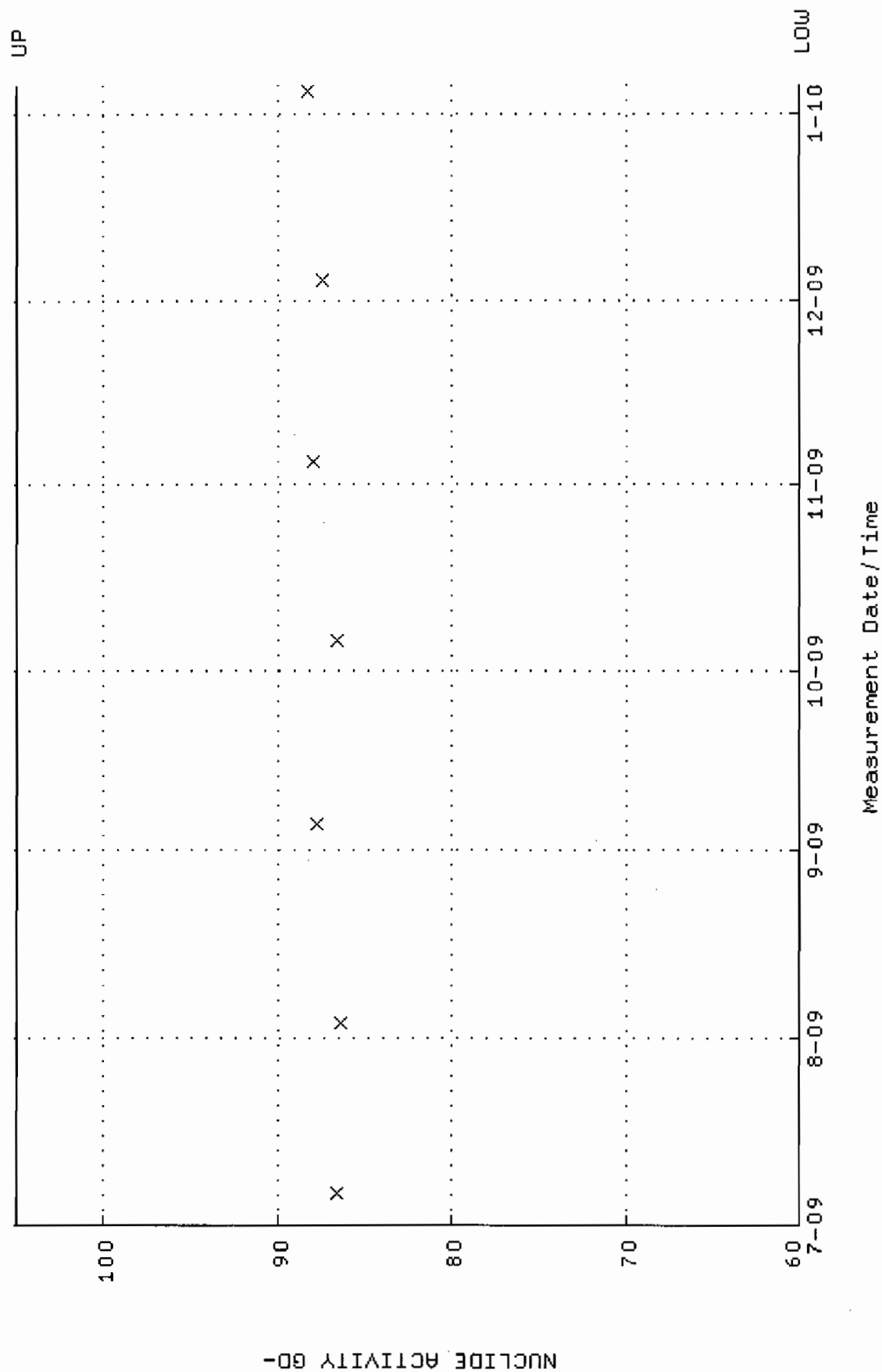
Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



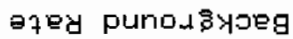
QA filename : DKA100:[ENV\_ALPHA.QA.W]W030.QAF;3  
 Parameter Name : AYRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:14 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



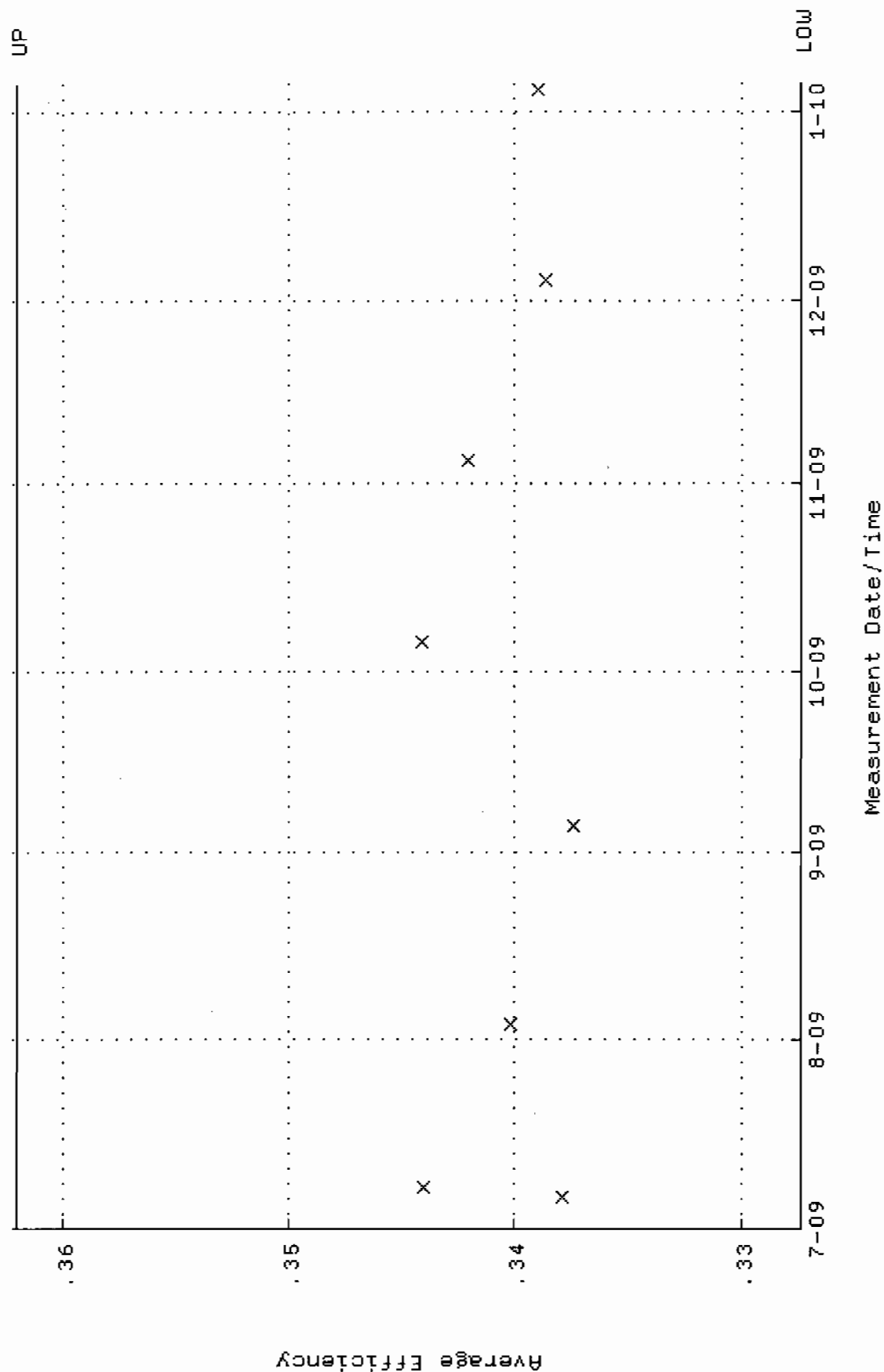
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 Lower/Upper Lmts: 60.0000 through 105.000



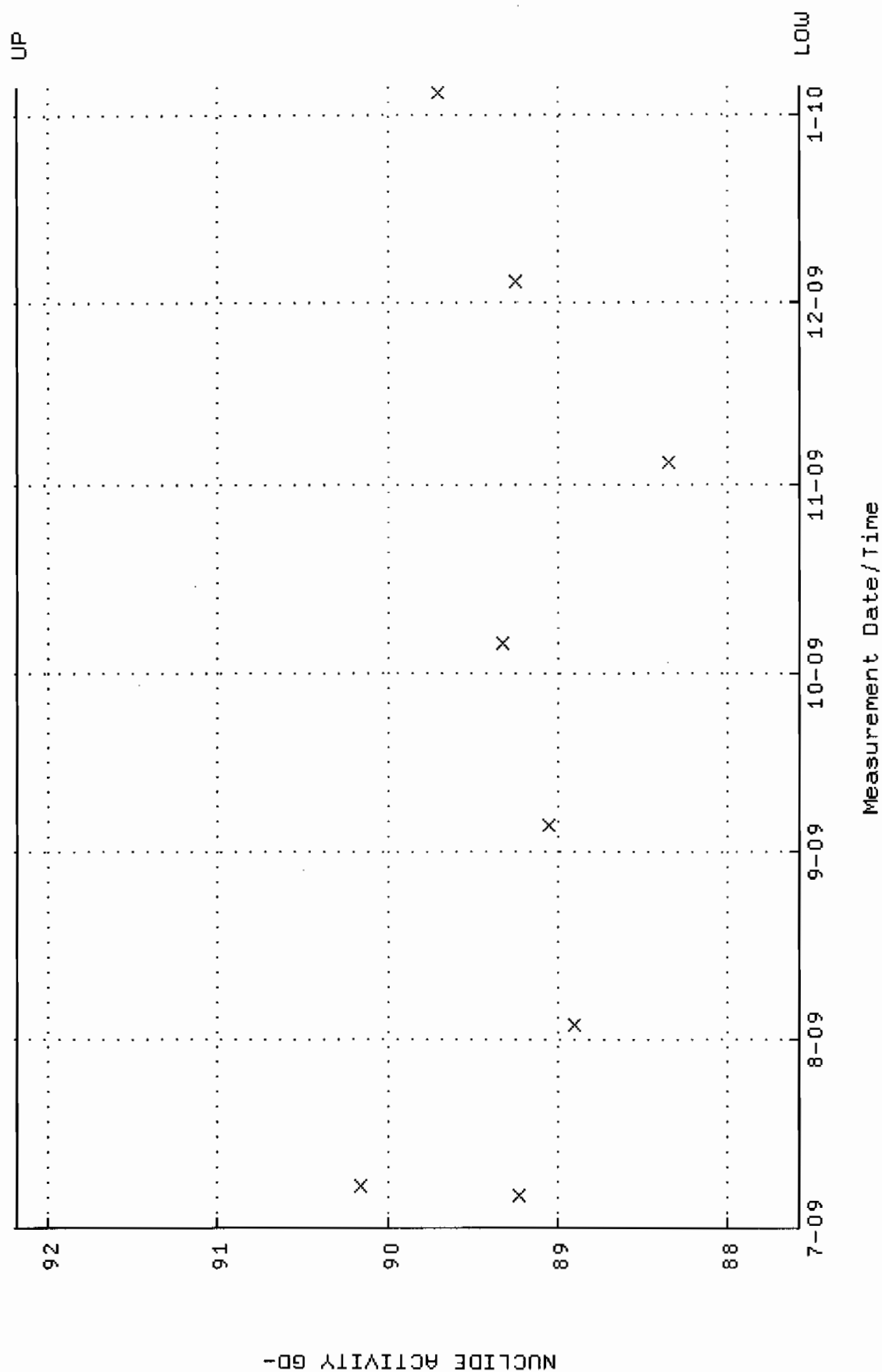
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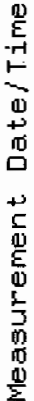
QA filename : DKA100:[ENV\_ALPHA.QA.W]W038.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
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 Lower/Upper Lmts: 0.327380 through 0.362086



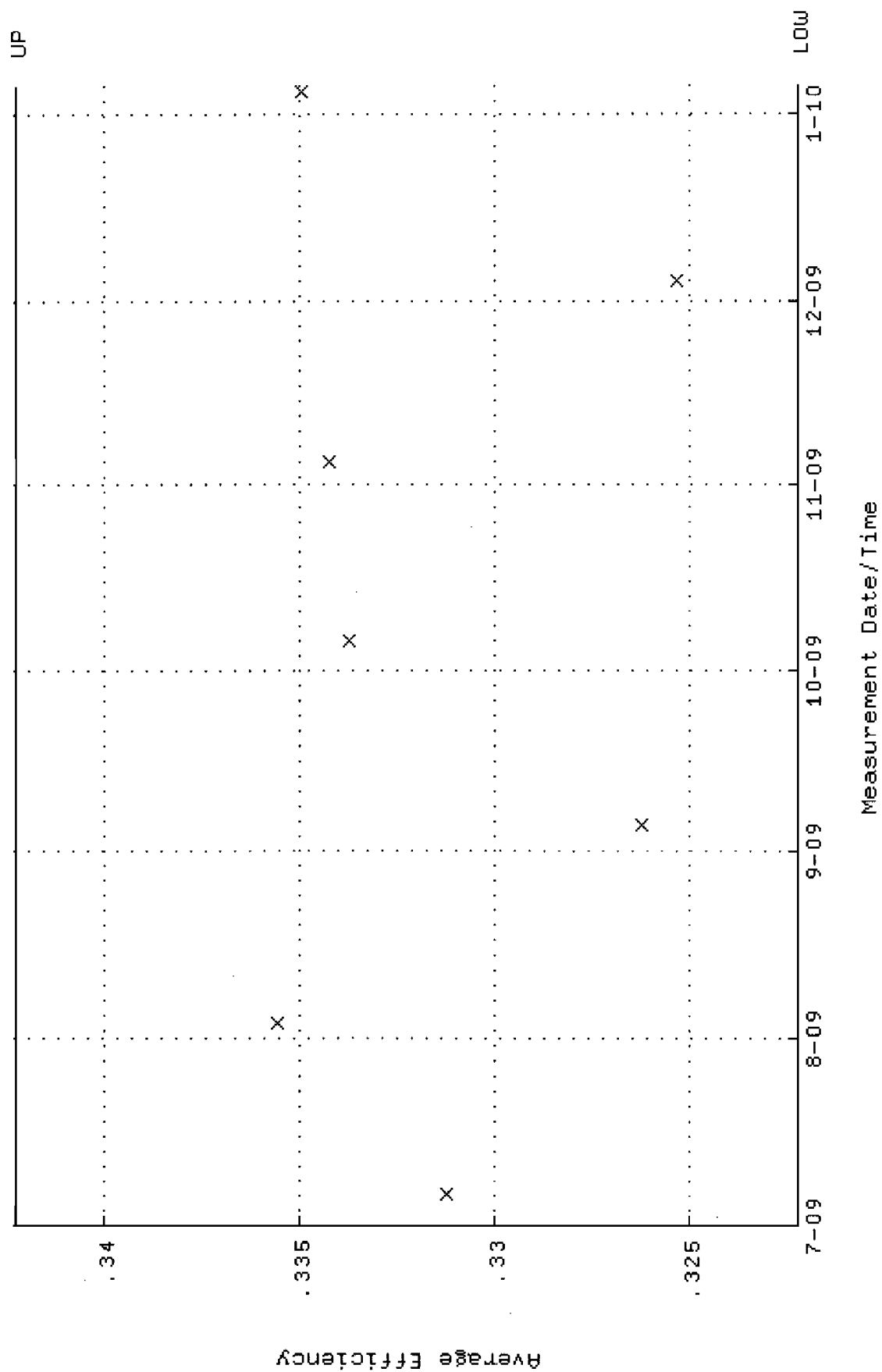
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Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
Lower/Upper Lmts: 87.5715 through 92.1899



Lower/Upper Lmts: 0.00000E+00 through 2.00000E-02

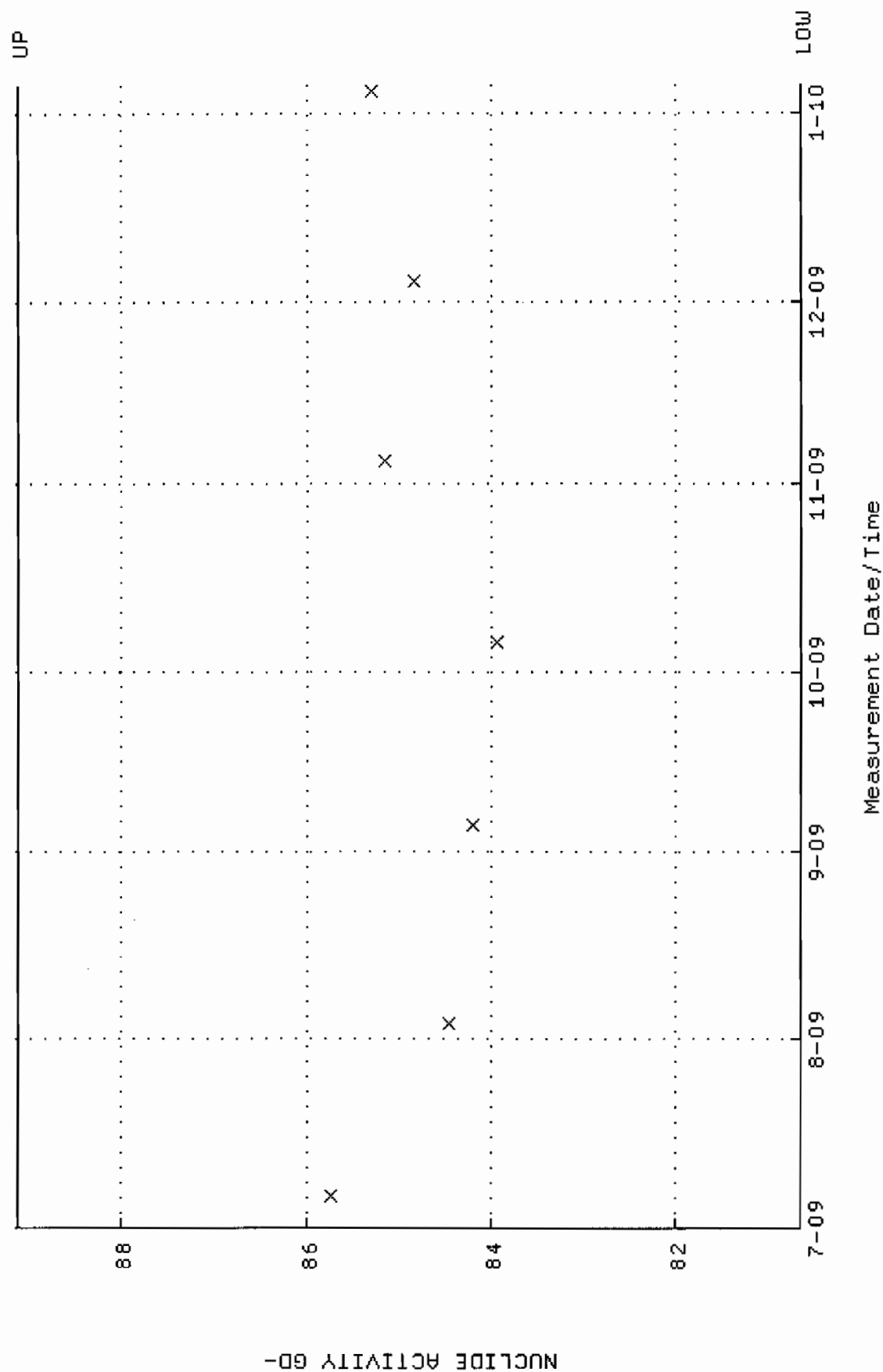


QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.322243 through 0.342243

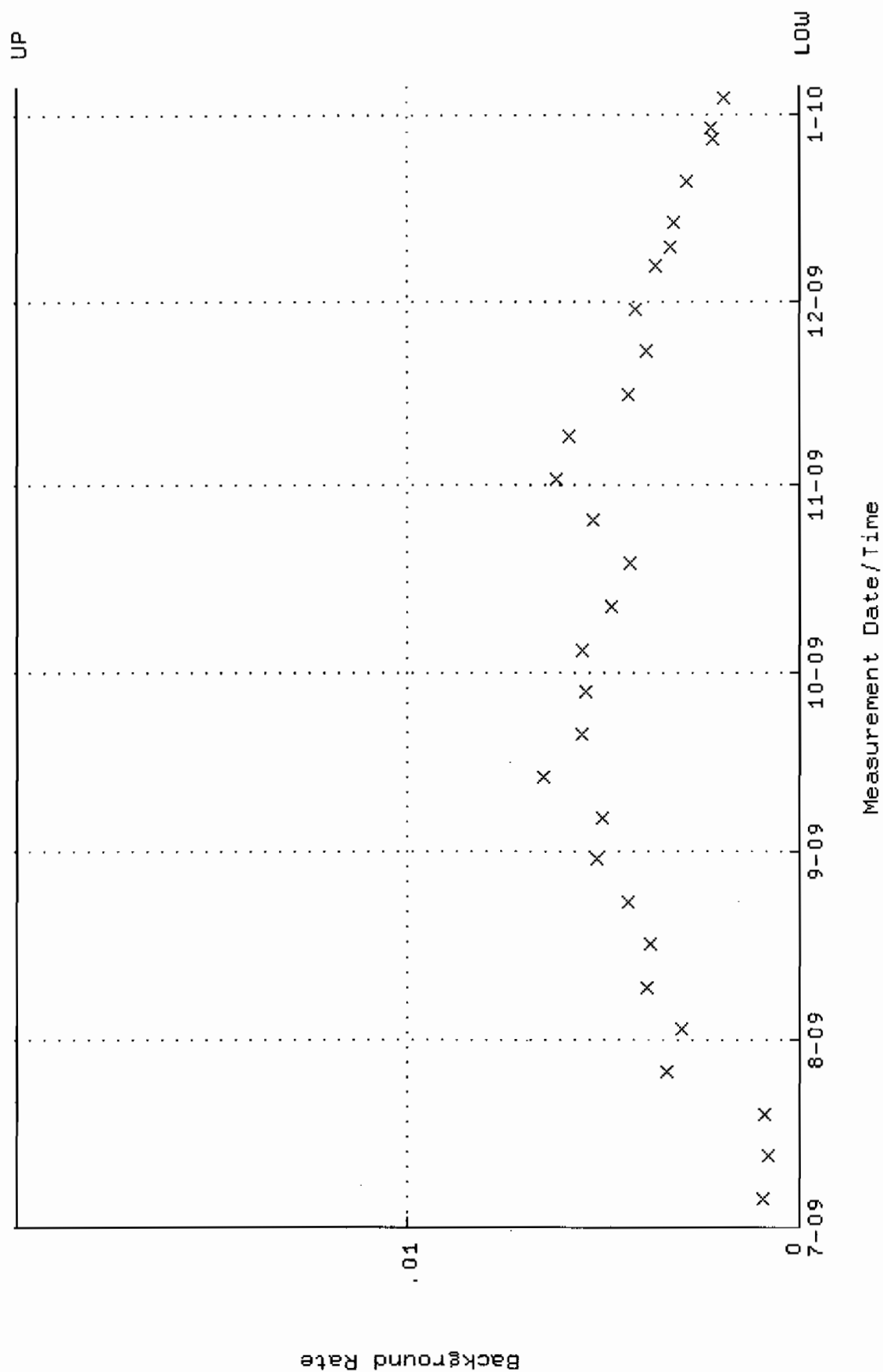




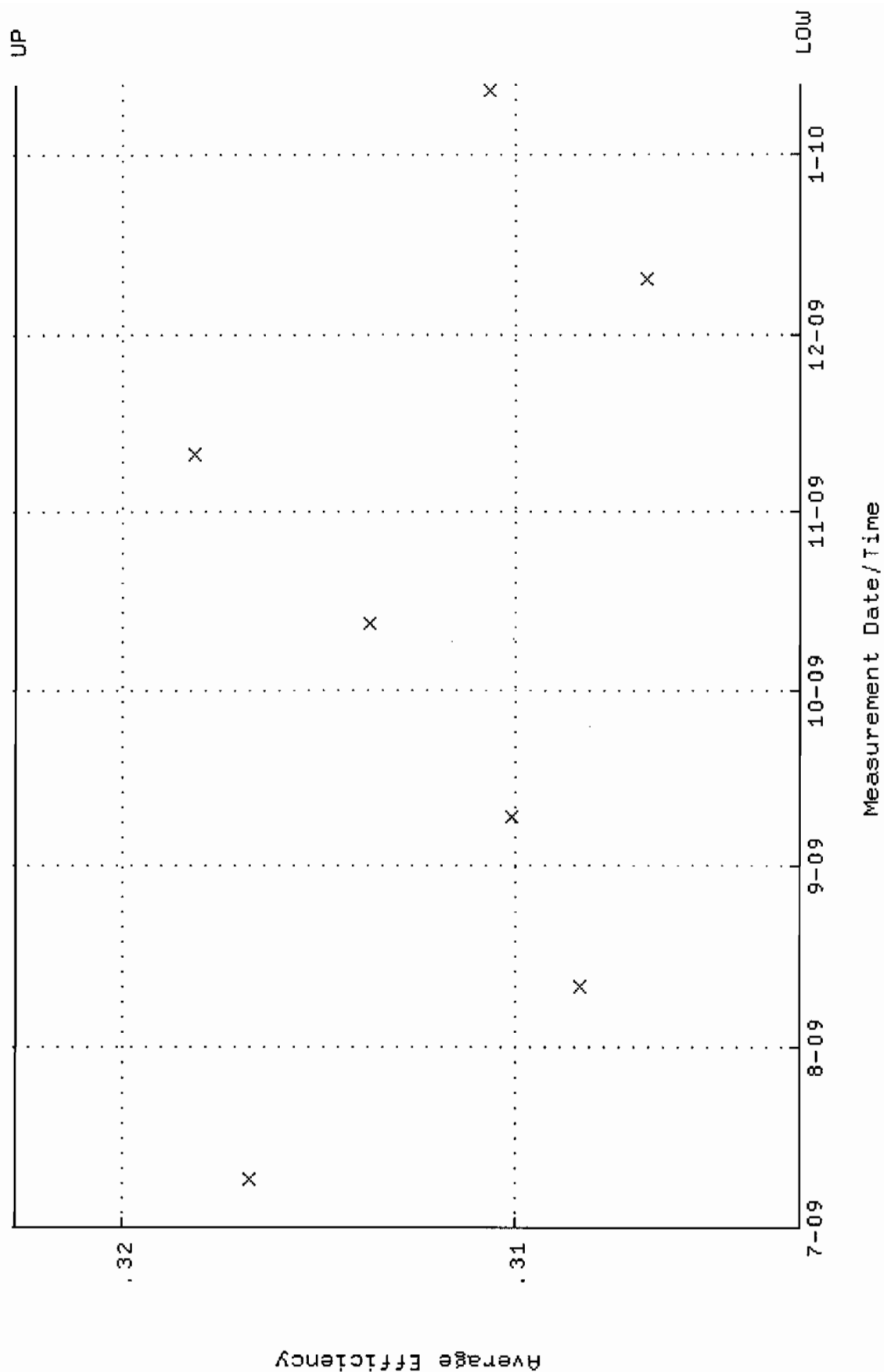
QA filename : DKA100:[ENV\_ALPHA.QA.W]W042.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 6-JUL-2009 09:46:16 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 80.6389 through 89.1273



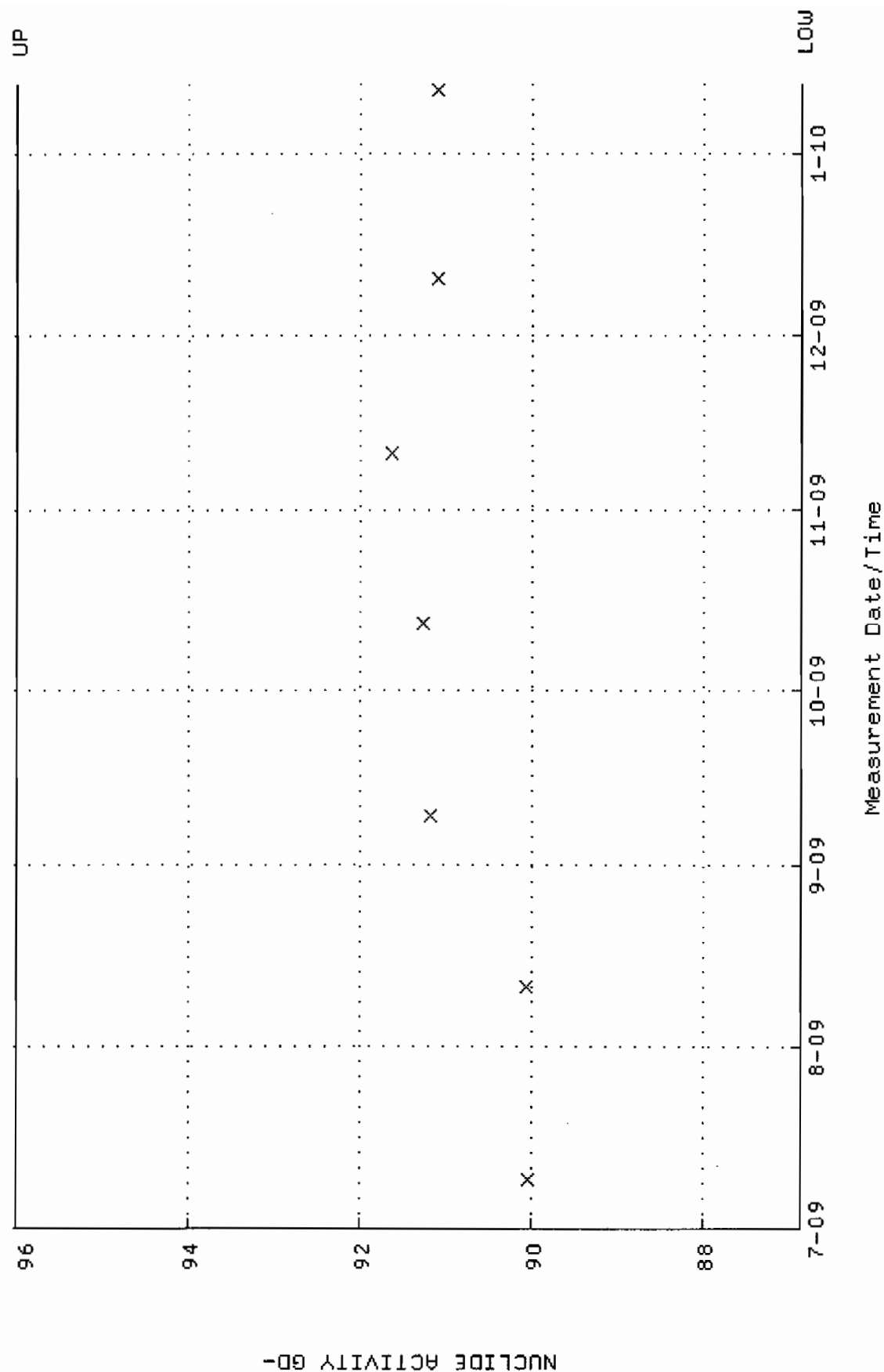
QA filename : DKA100:[ENV\_ALPHA.QA.B]B042.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:00 through 5-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



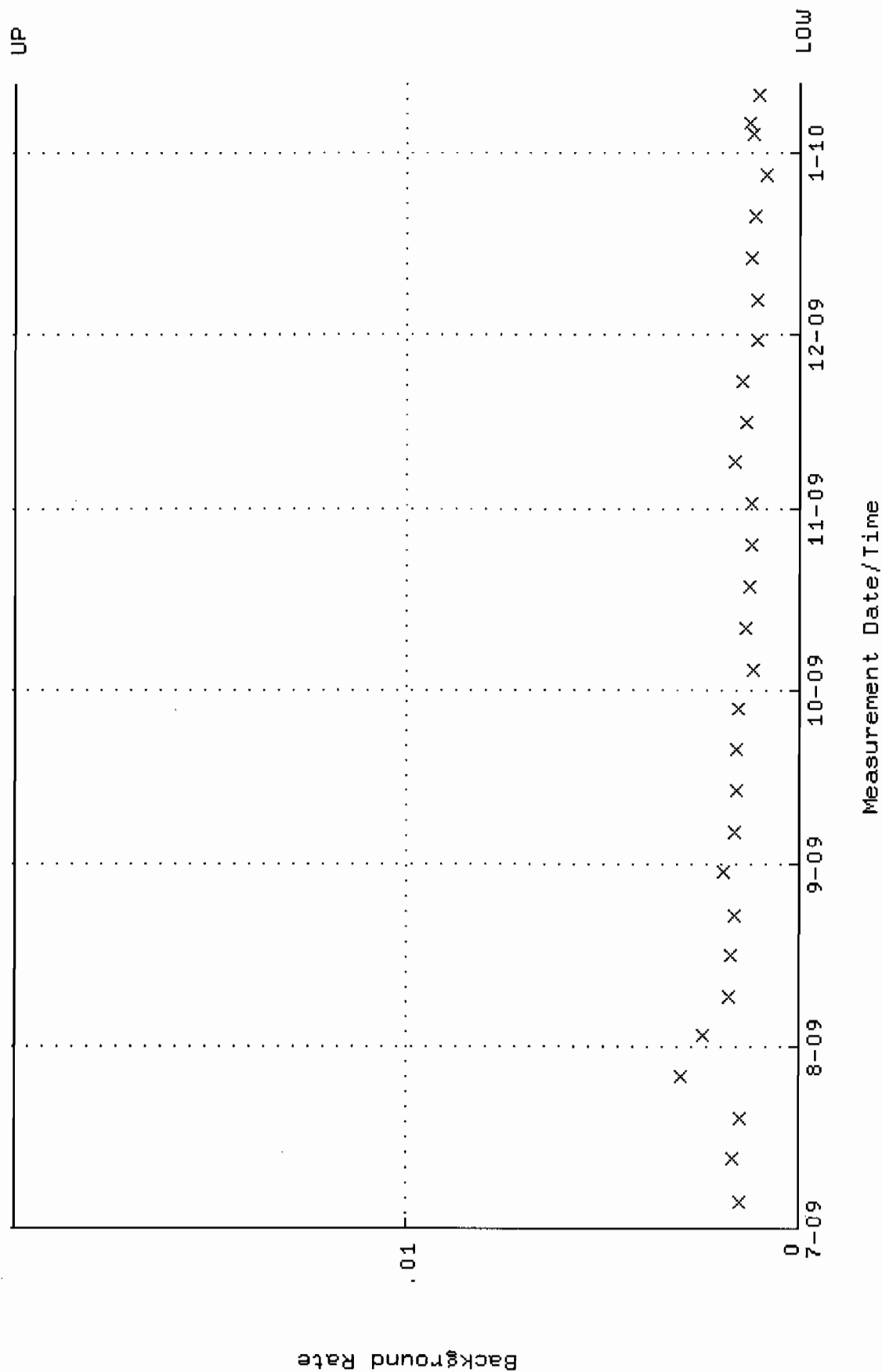
QA filename : DKA100:[ENV\_ALPHA.QA.W]W065.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.302750 through 0.322750



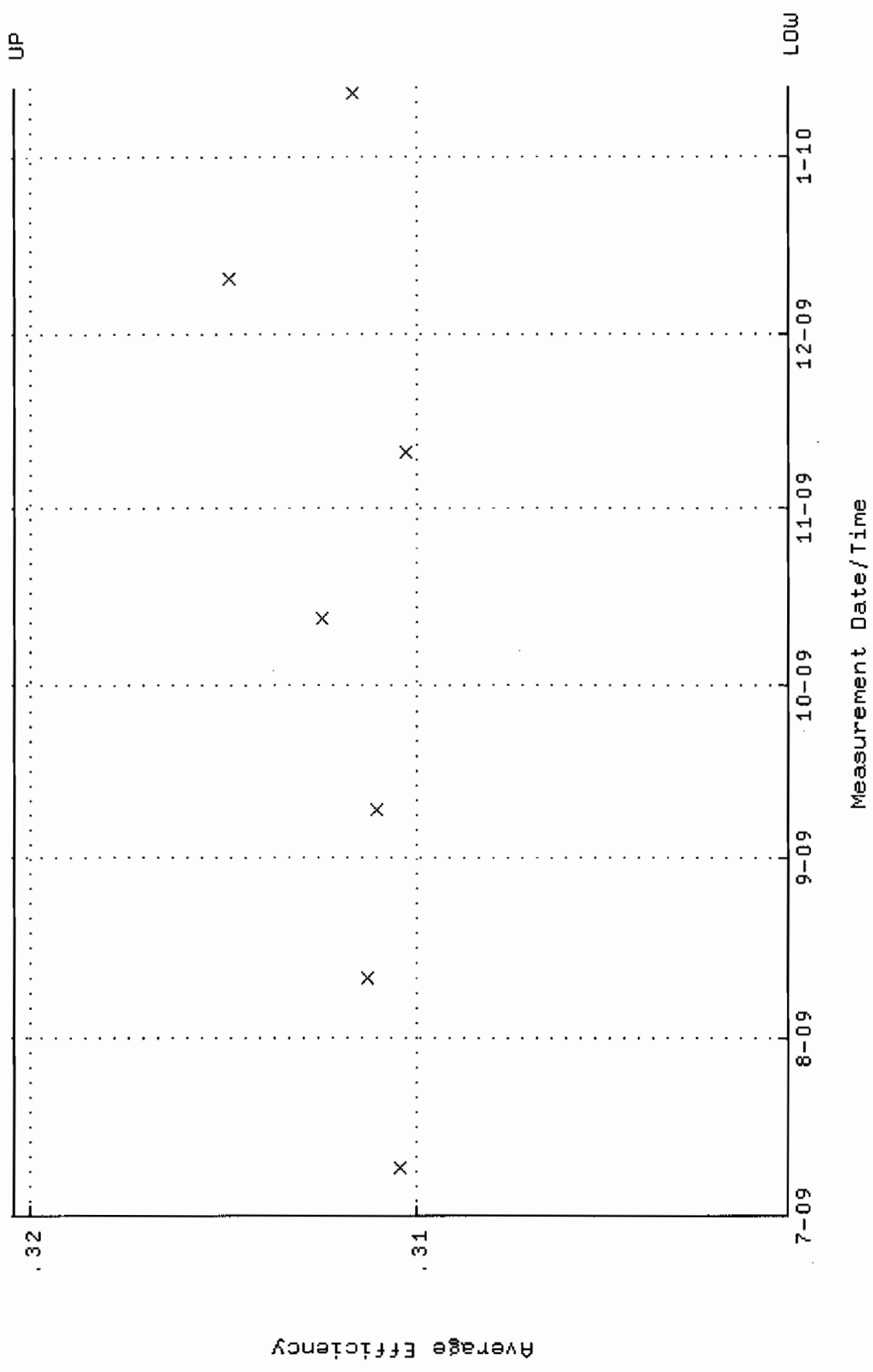
QA filename : DKA100:[ENV\_ALPHA.QA.W]W065.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.8638 through 96.0074



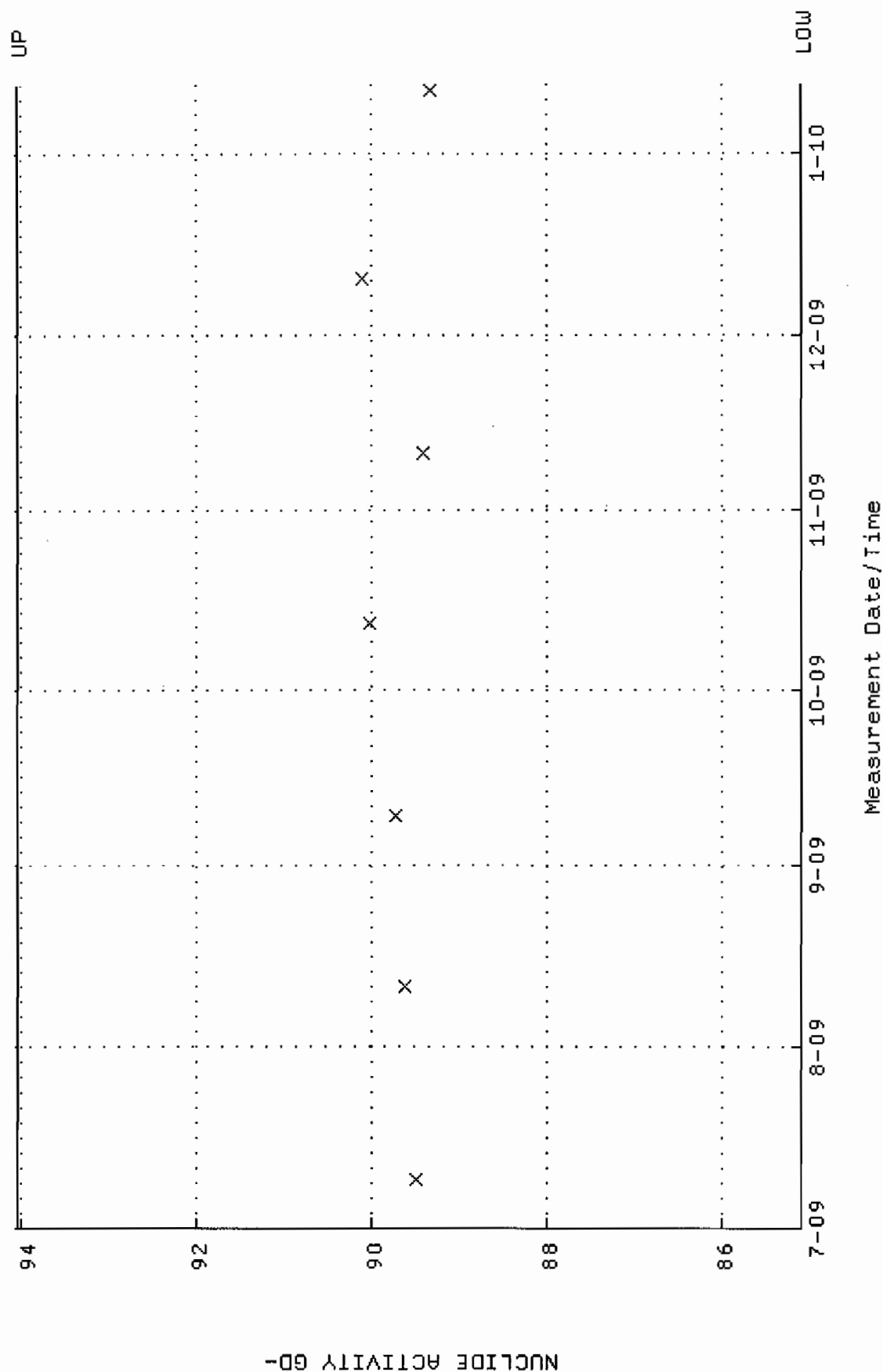
QA filename : DKA100:[ENV\_ALPHA.QA.B]B065.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



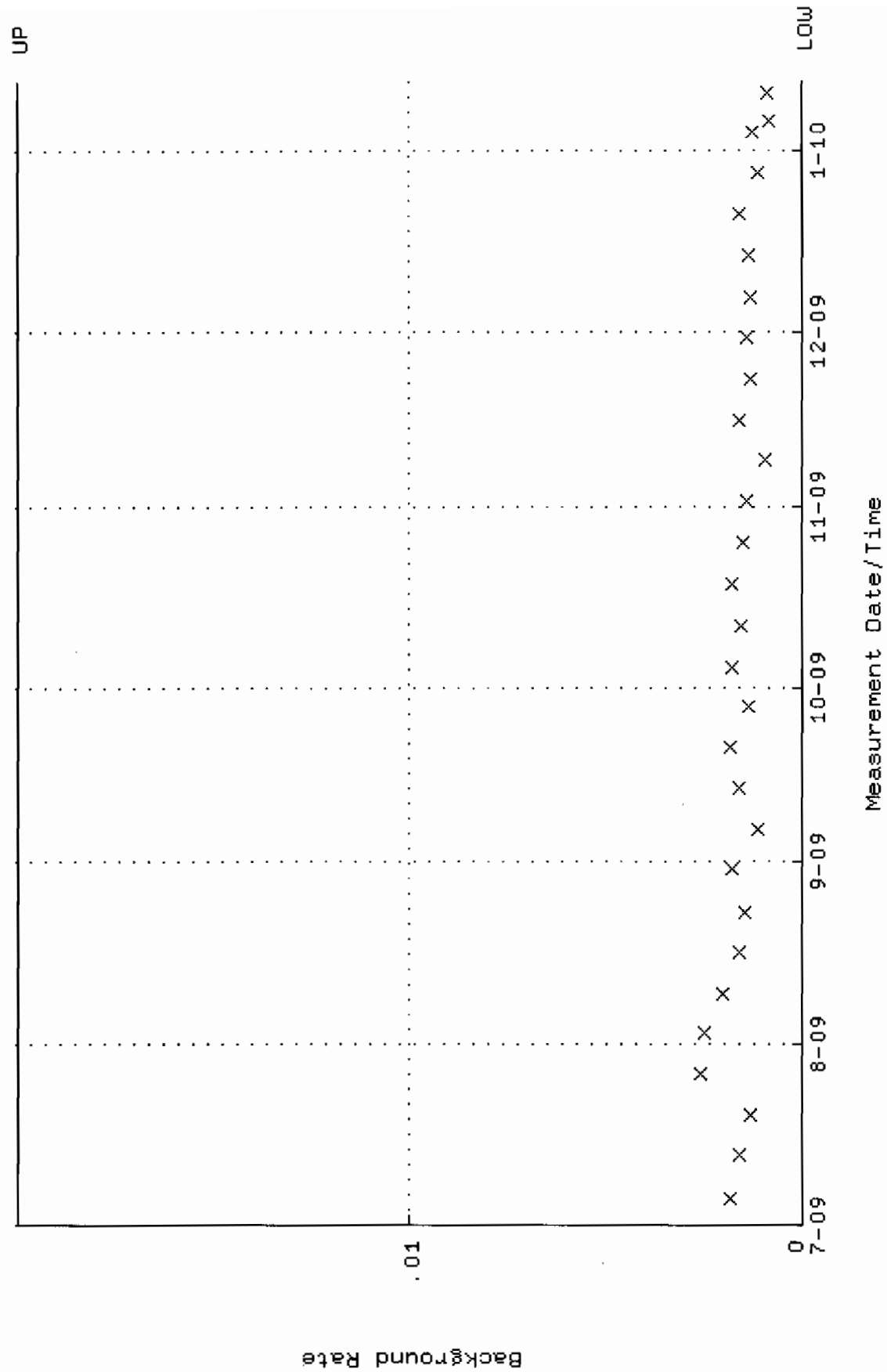
QA filename : DKA100:[ENV\_ALPHA.QA.W]W066.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.300416 through 0.320416



QA filename : DKA100:[ENV-ALPHA.QA.W]W066.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:10 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.0864 through 94.0428

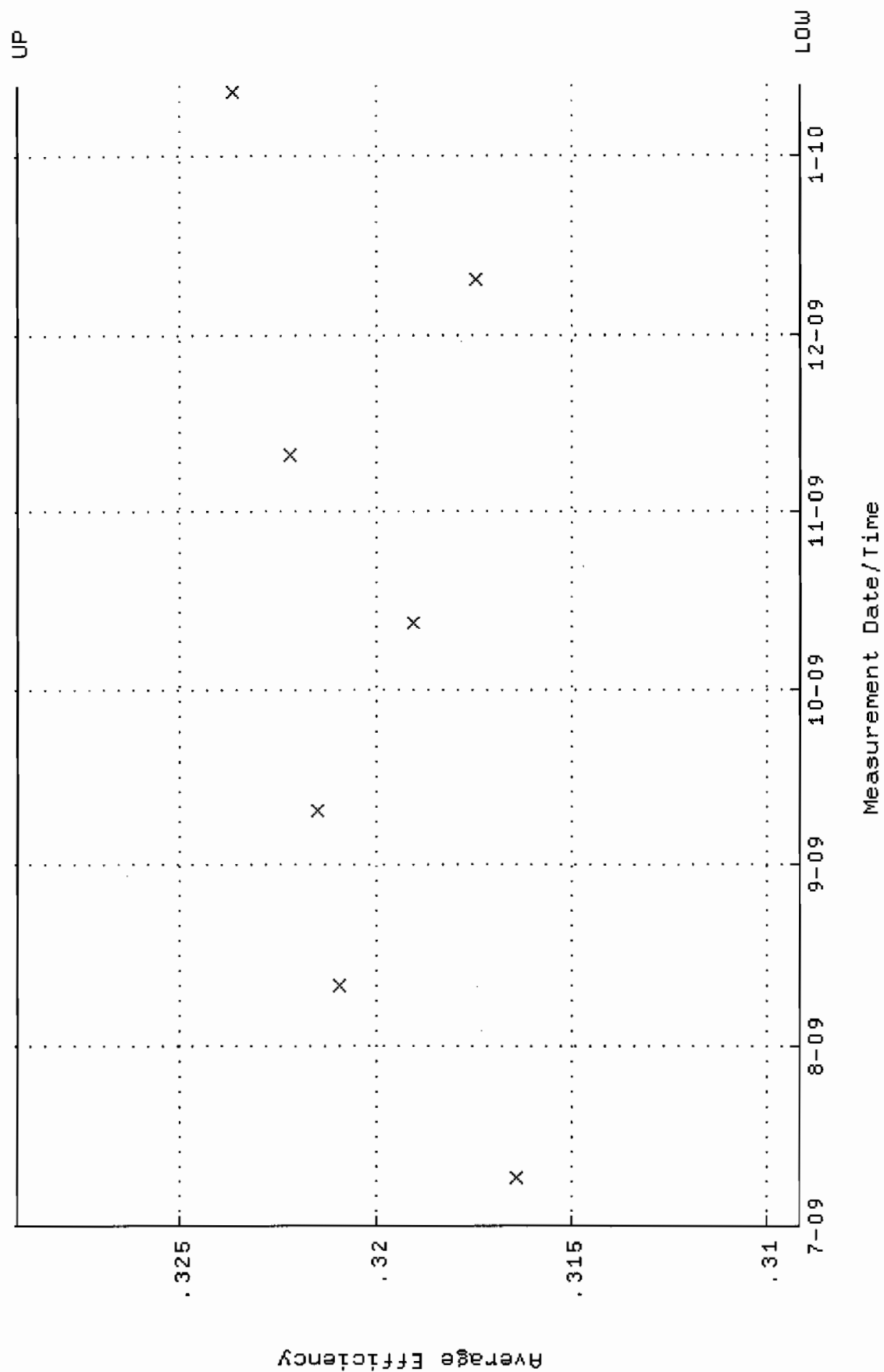


QA filename : DKA100:[ENV\_ALPHA.QA.B]B066.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:01 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

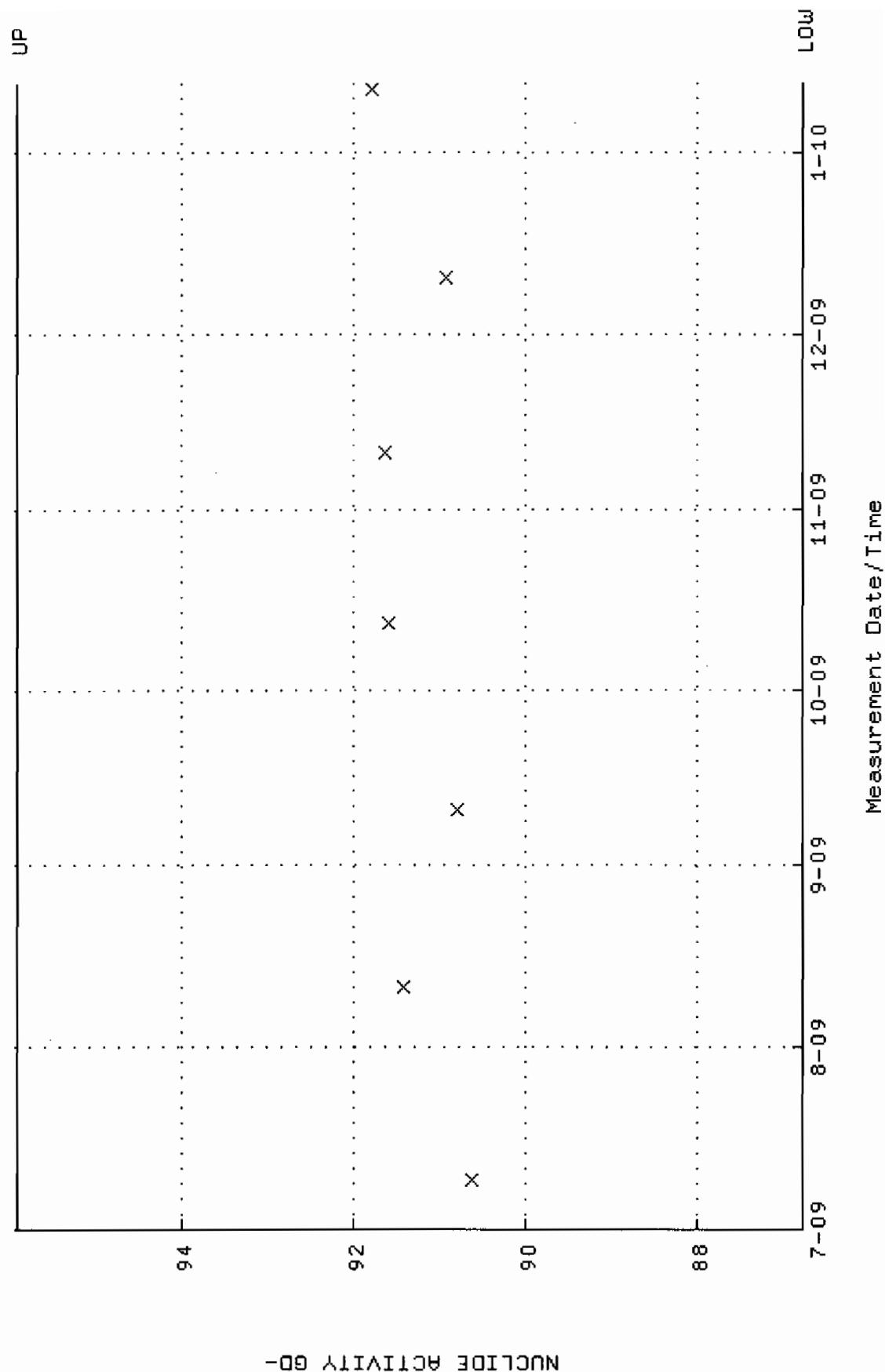




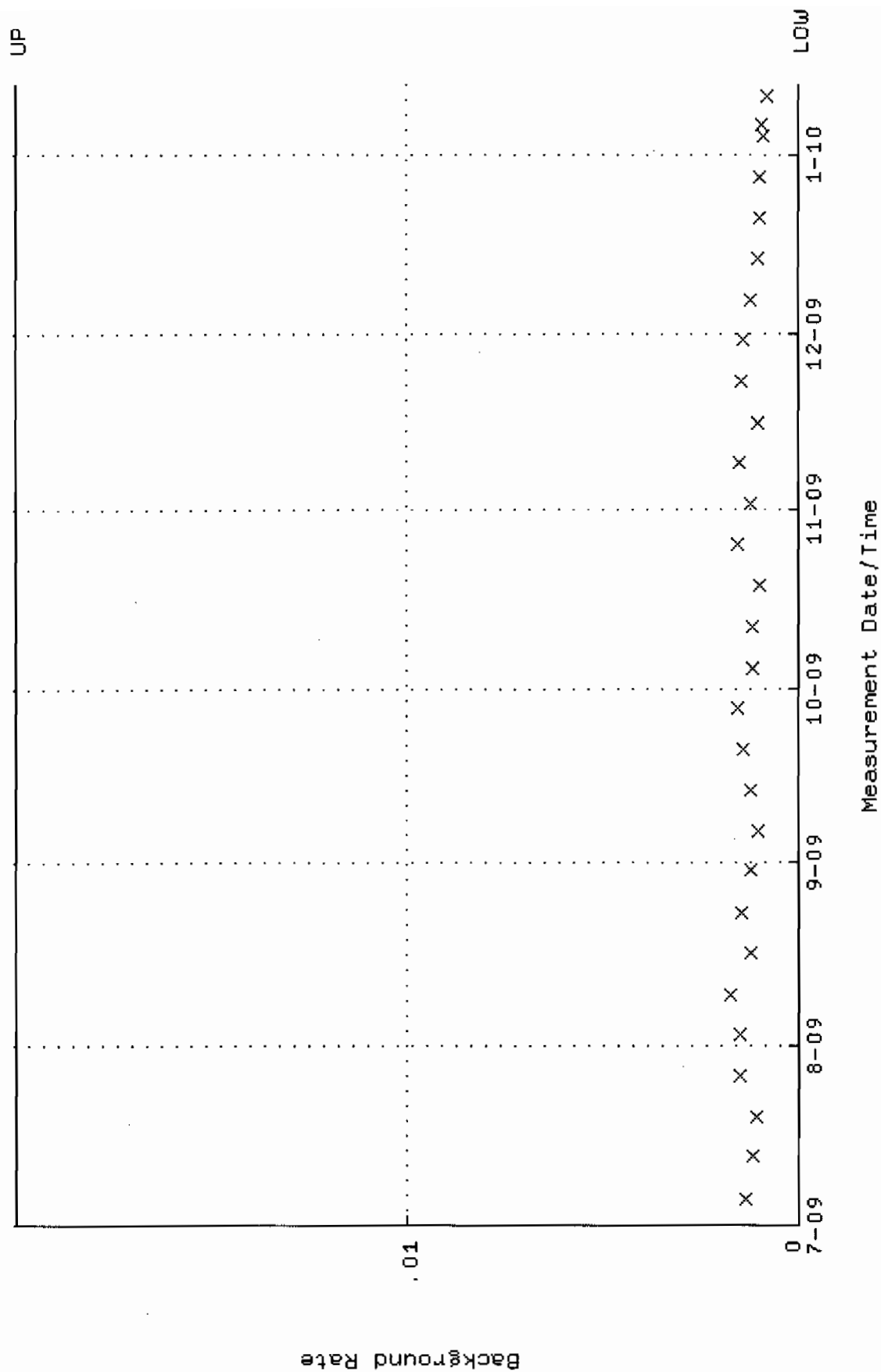
QA filename : DKA100:[ENV\_ALPHA.QA.W]W071.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.309161 through 0.329161



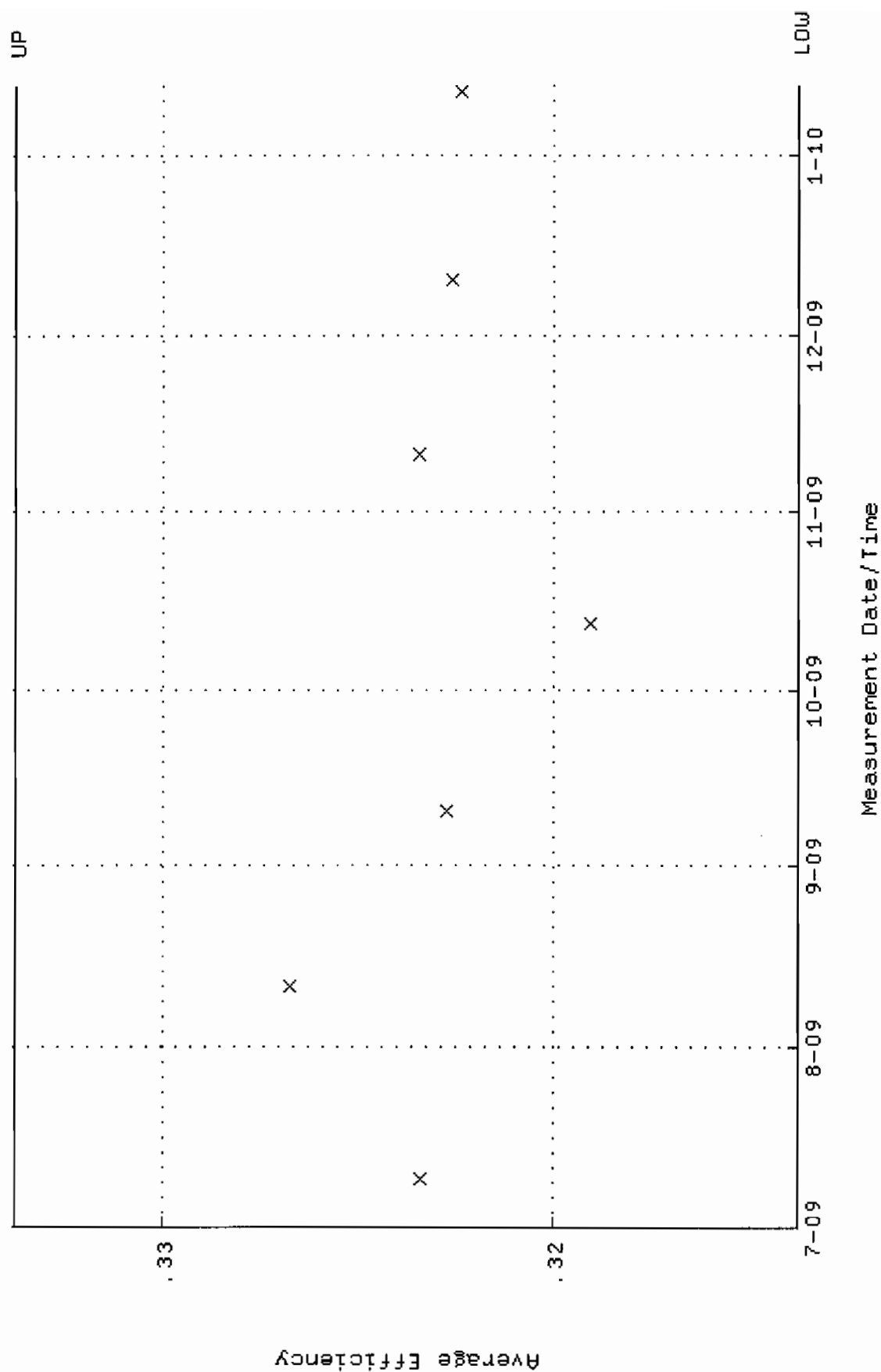
QA filename : DKA100:[ENV\_ALPHA.QA.W]U071.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.7769 through 95.9113



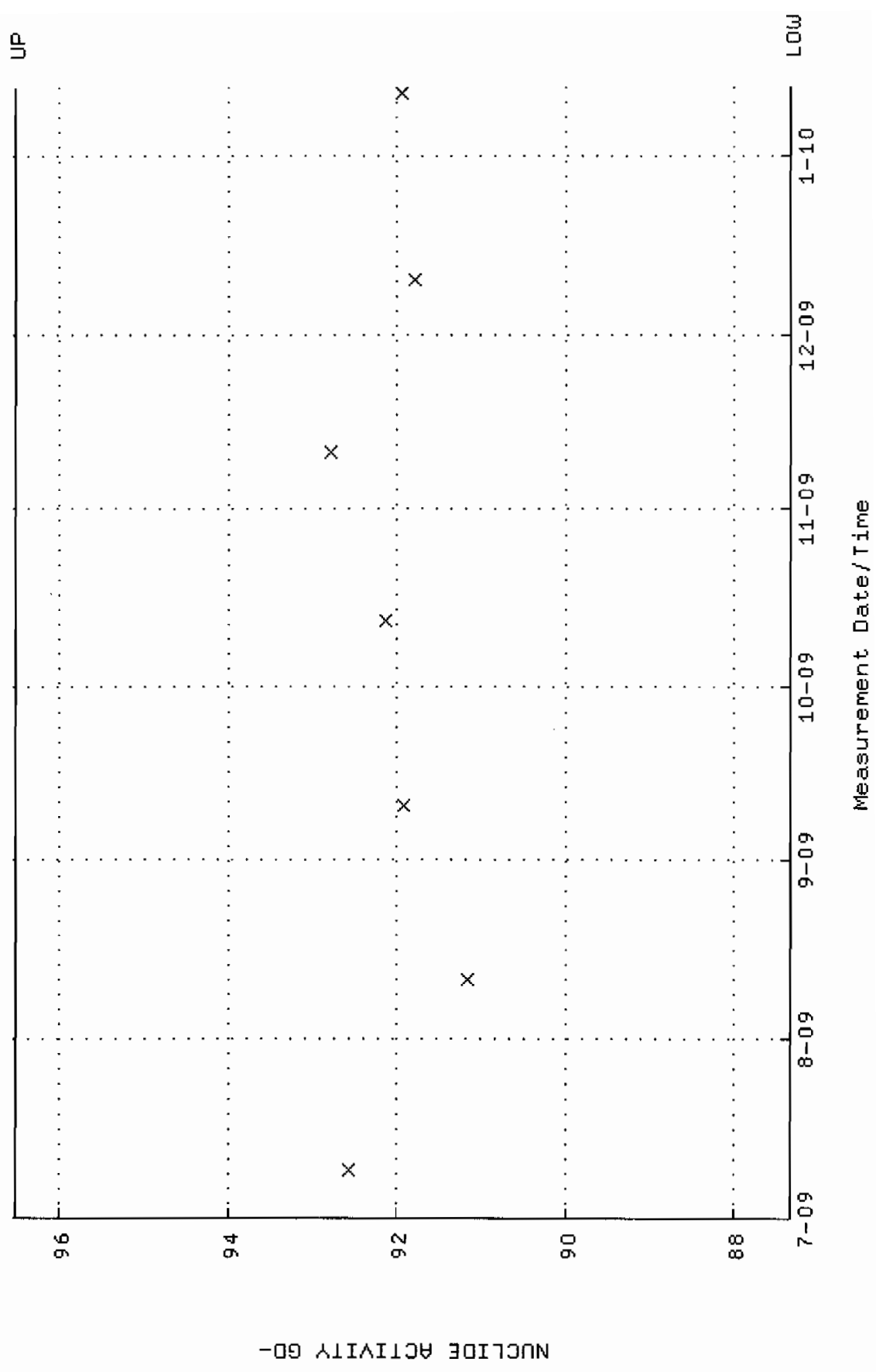
QA filename : DKA100:[ENV\_ALPHA.QA.B]B071.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:02 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



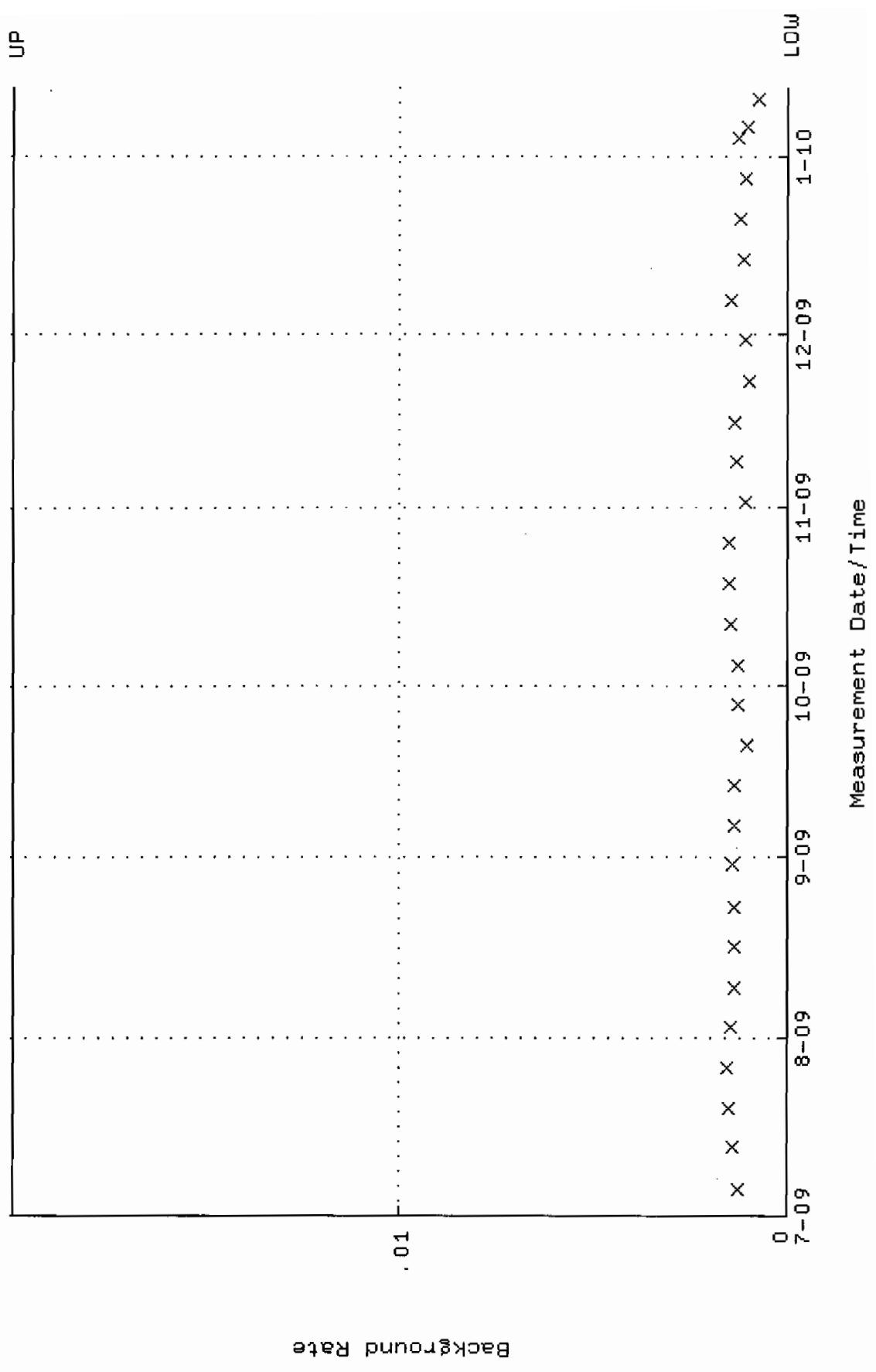
QA filename : DKA100:[ENV\_ALPHA.QA.W]W072.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.313761 through 0.333761



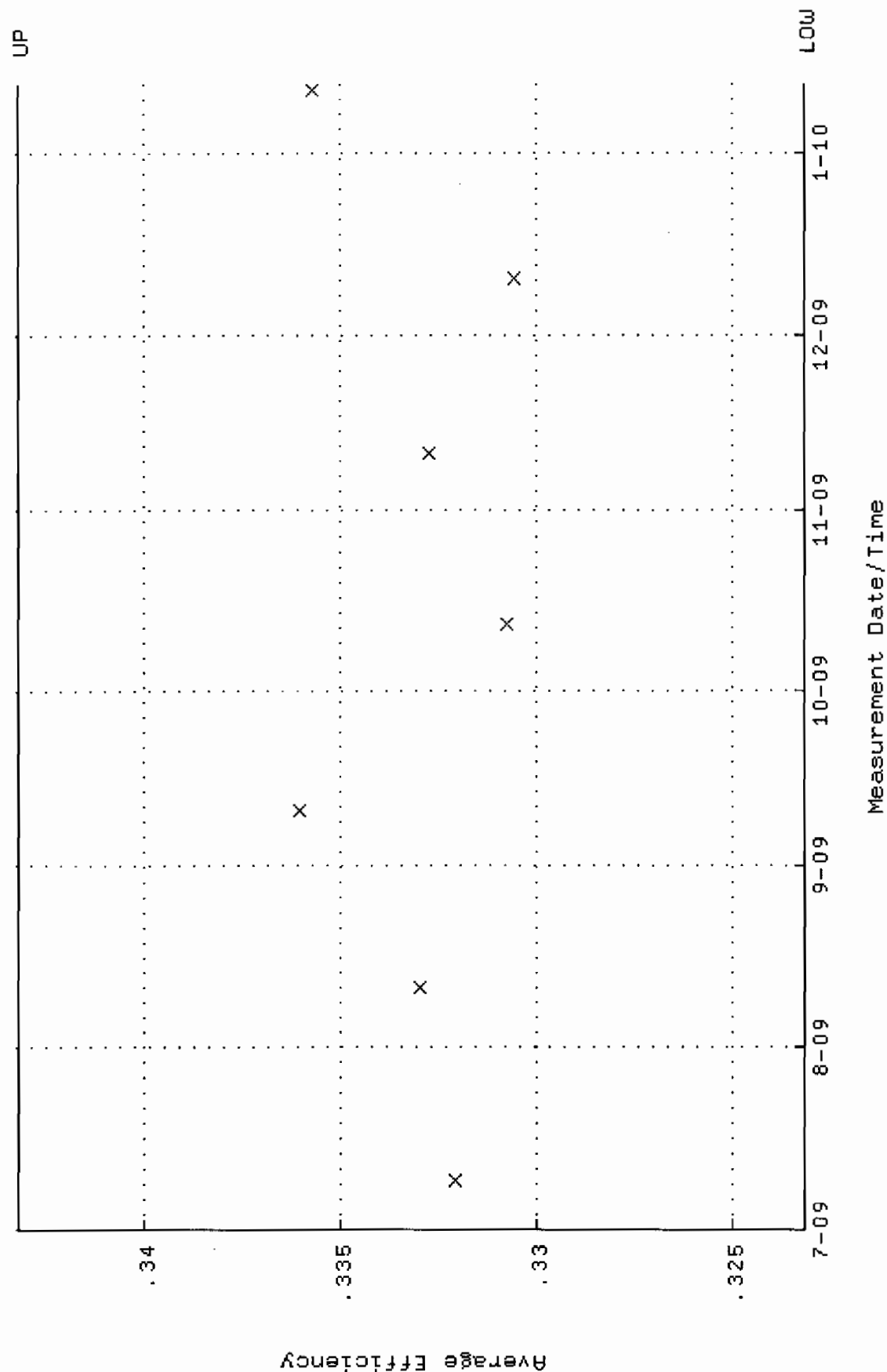
QA filename : DKA100:[ENV\_ALPHA.QA.W]w072.QAF;2  
Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
Lower/Upper Lmts: 87.3348 through 96.5280



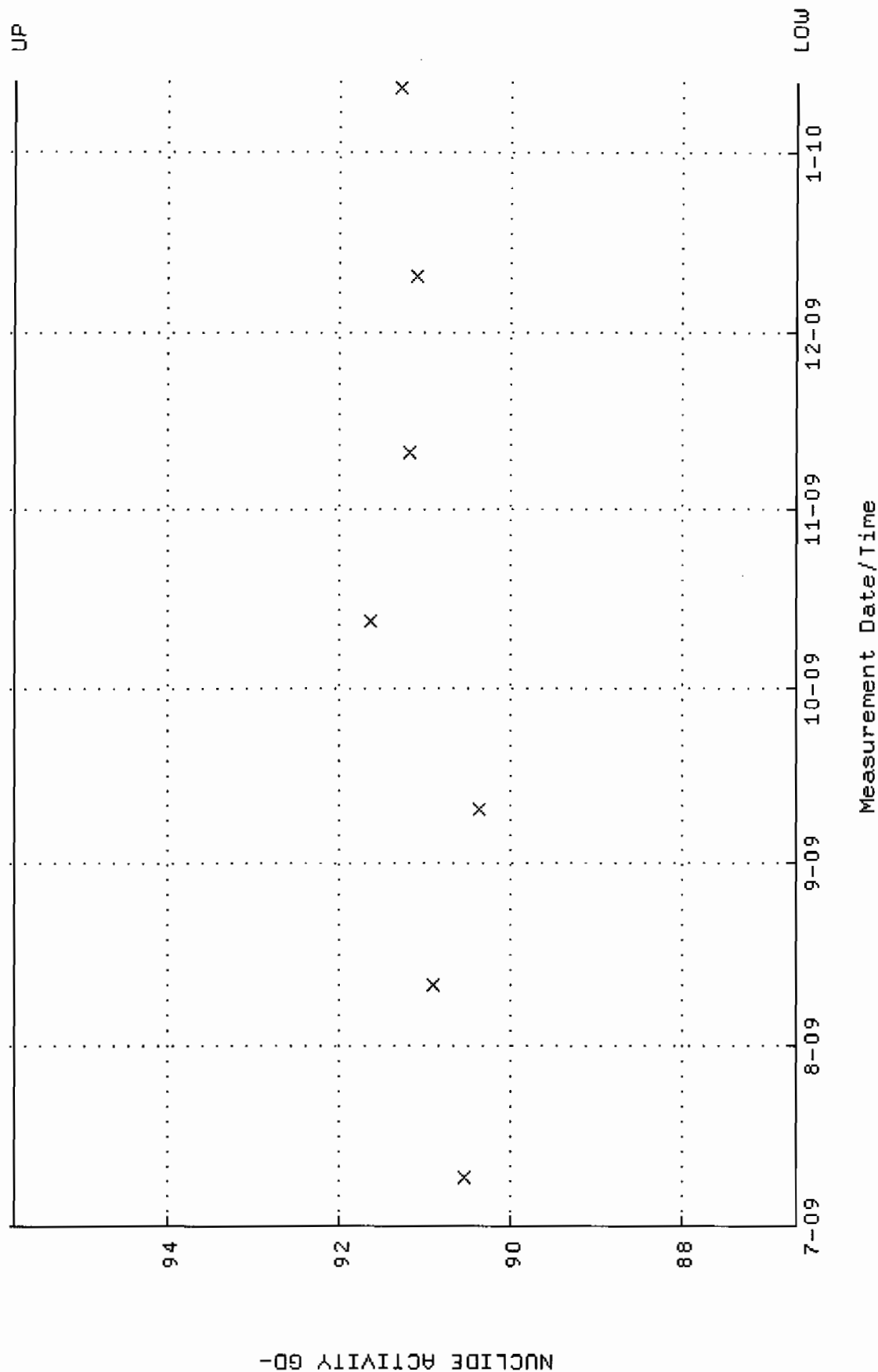
QA filename : DKA100:[ENV\_ALPHA.QA.B]B072.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:02 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]w073.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.323184 through 0.343184

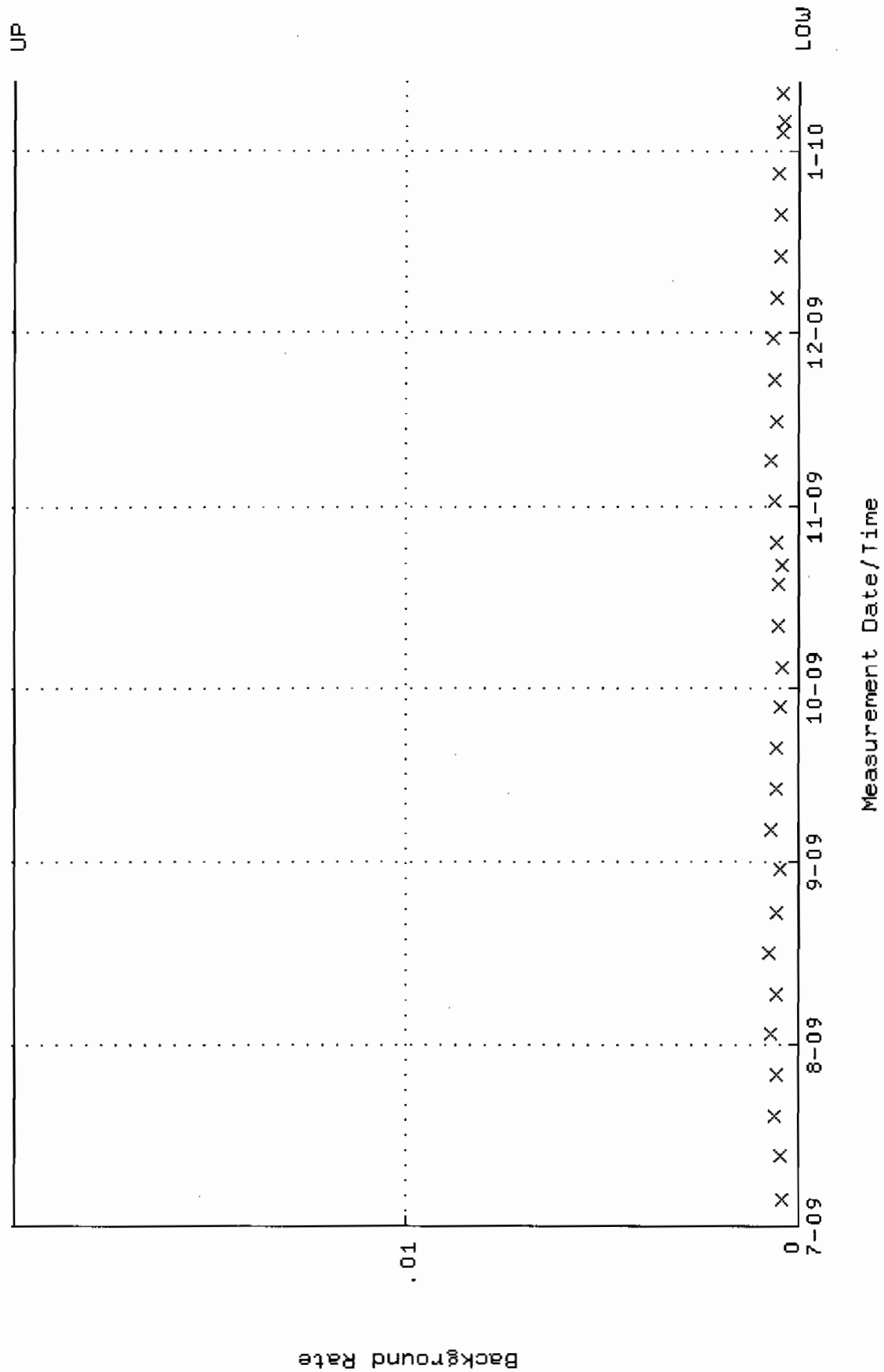


QA filename : DKA100:[ENV\_ALPHA.QA.W]W073.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.6734 through 95.7970

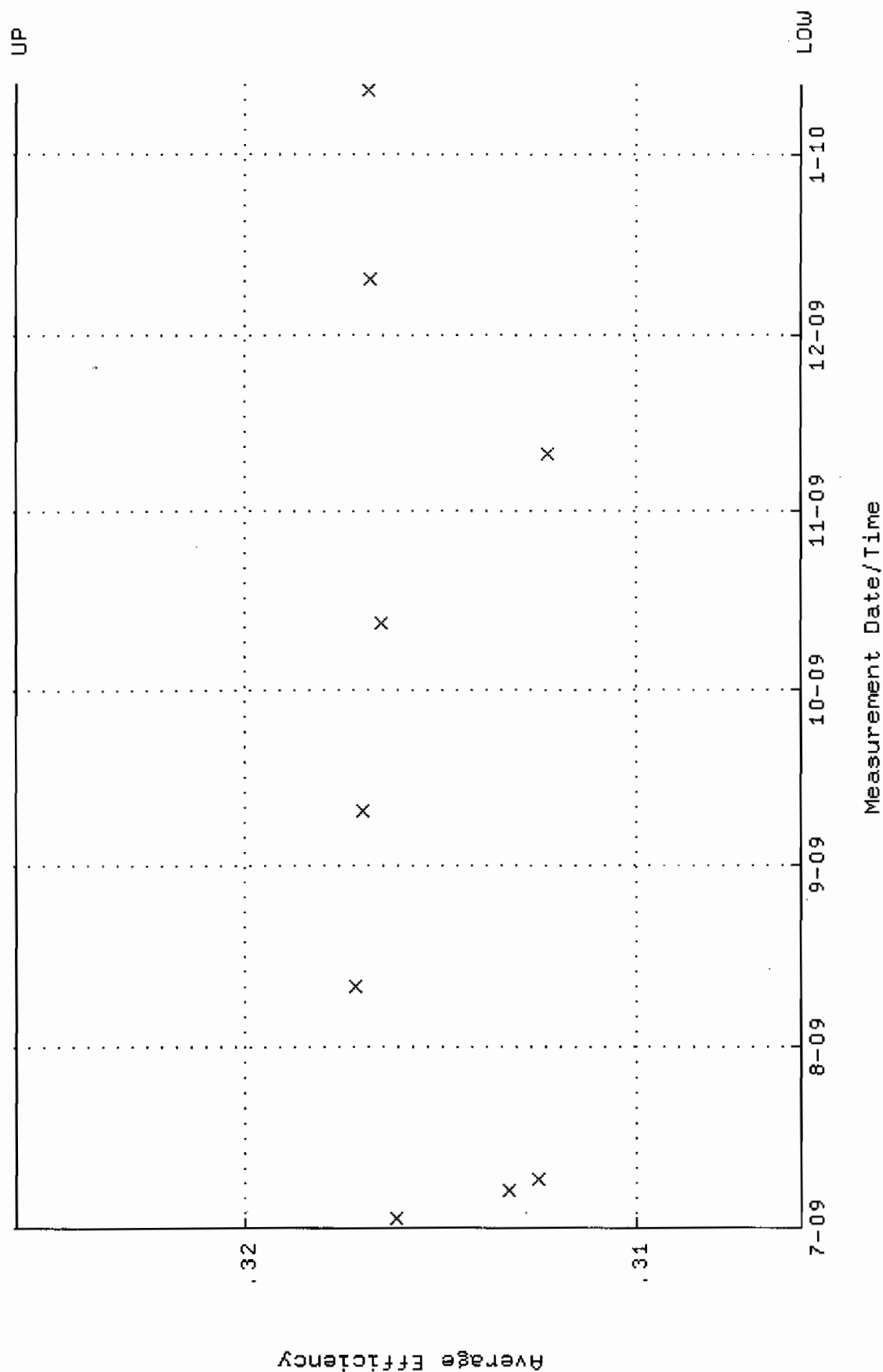




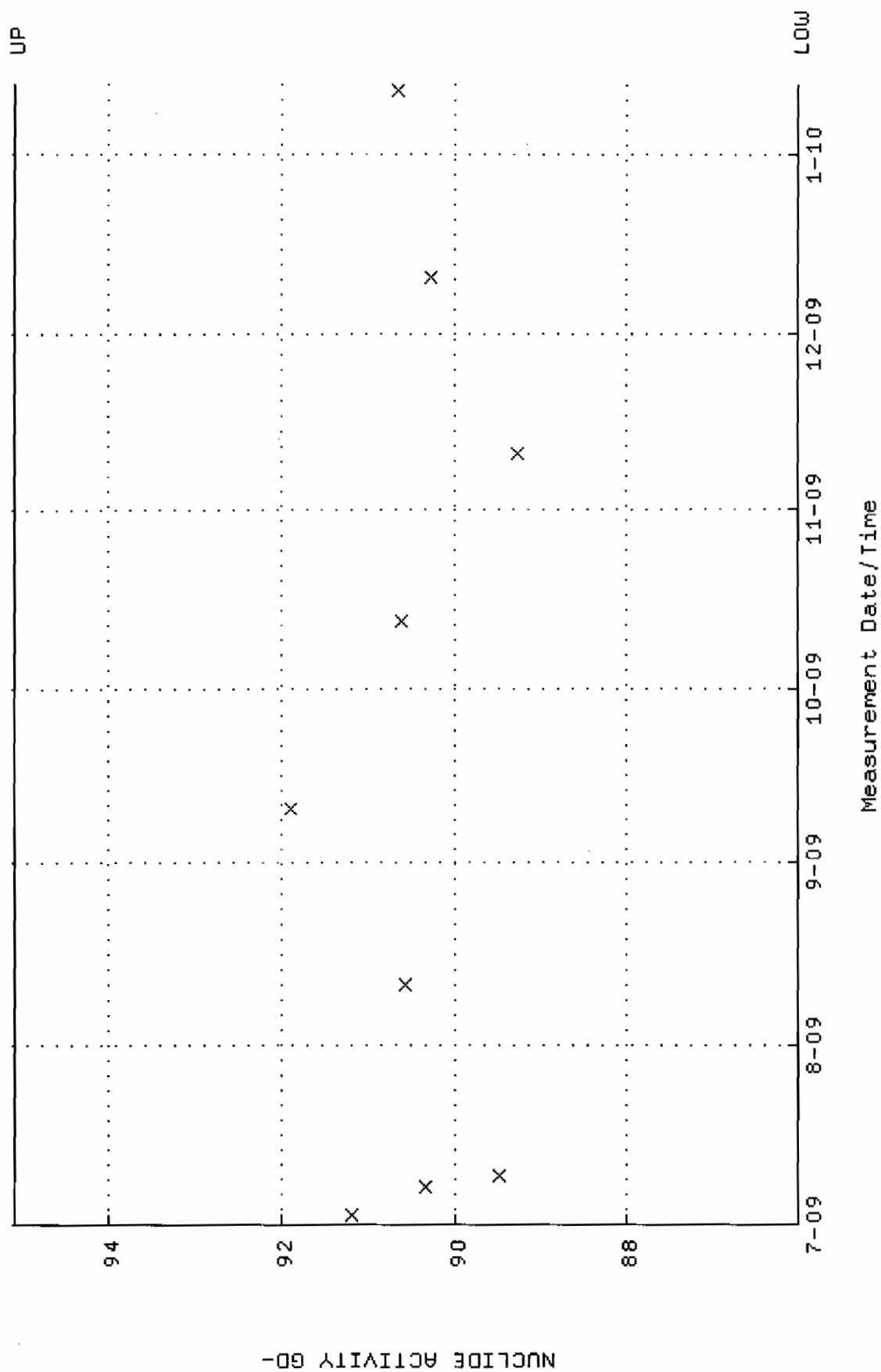
QA filename : DKA100:[ENV\_ALPHA.QA.B]B073.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:02 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



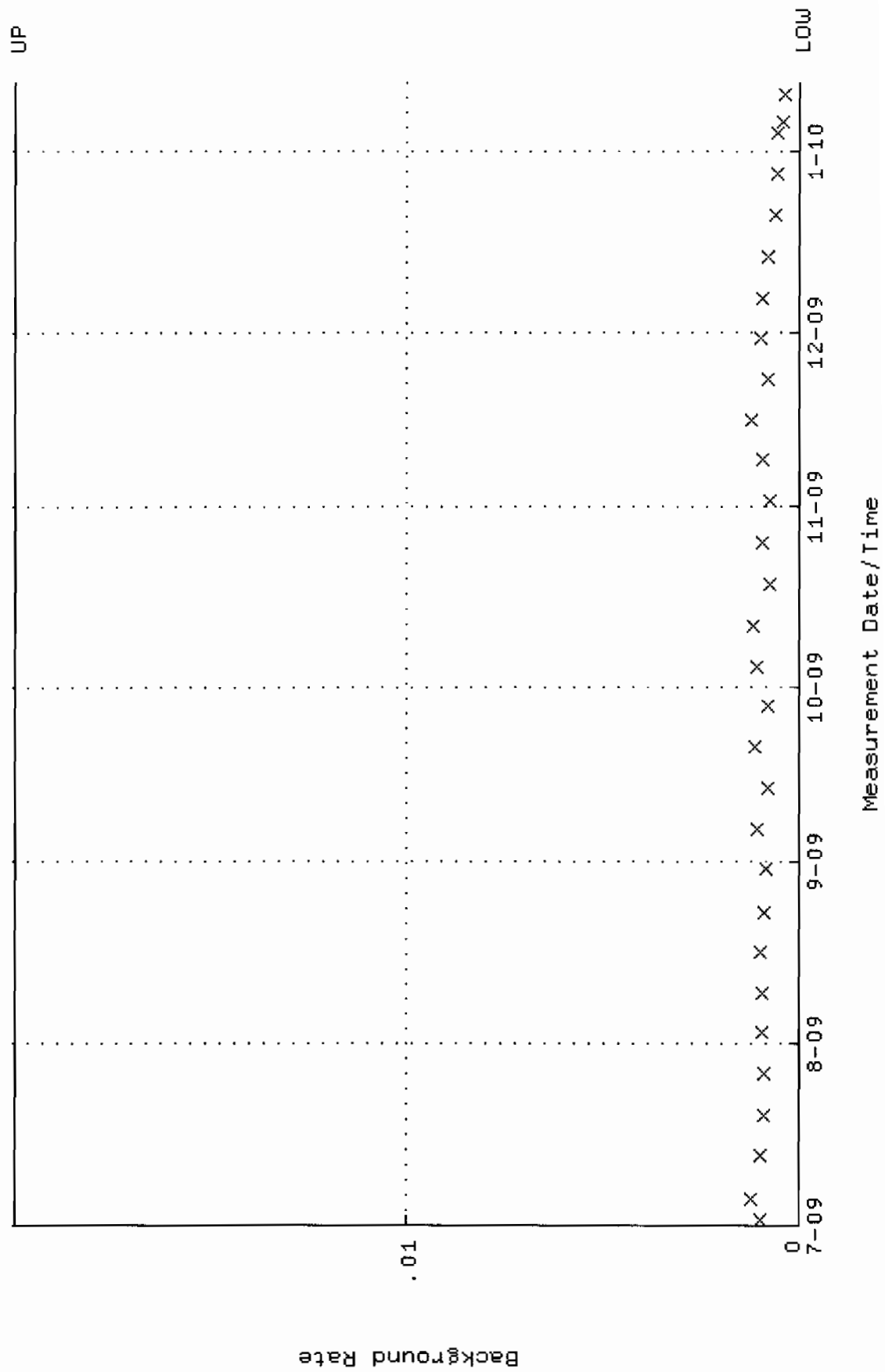
QA filename : DKA100:[ENV\_ALPHA.QA.W]W074.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 2-JUL-2009 15:04:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.305830 through 0.325830



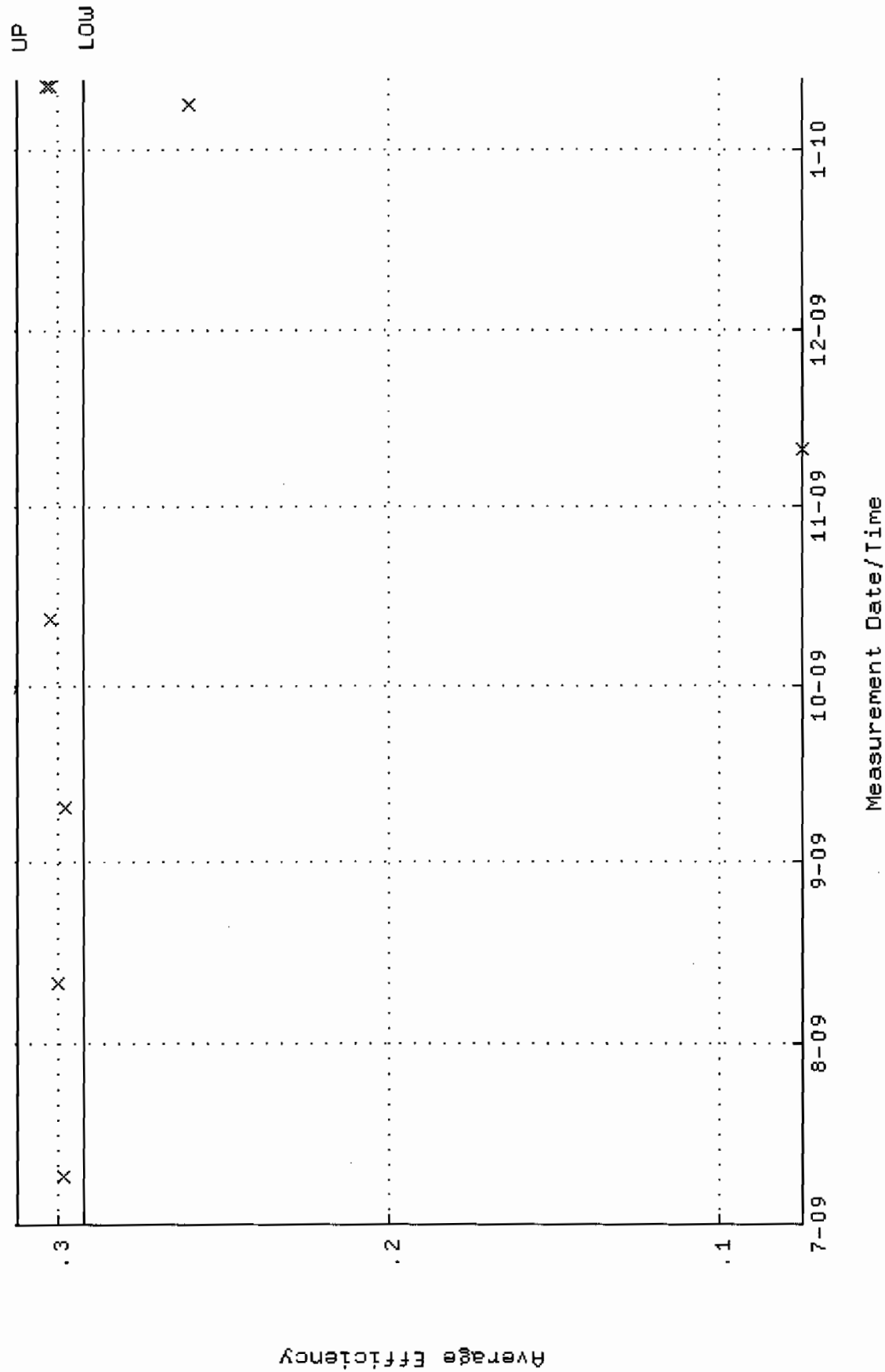
QA filename : DKA100:[ENV\_ALPHA.QA.W]W074.QAF;4  
 Parameter Name : NLACTVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 2-JUL-2009 15:04:13 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.0289 through 95.0845



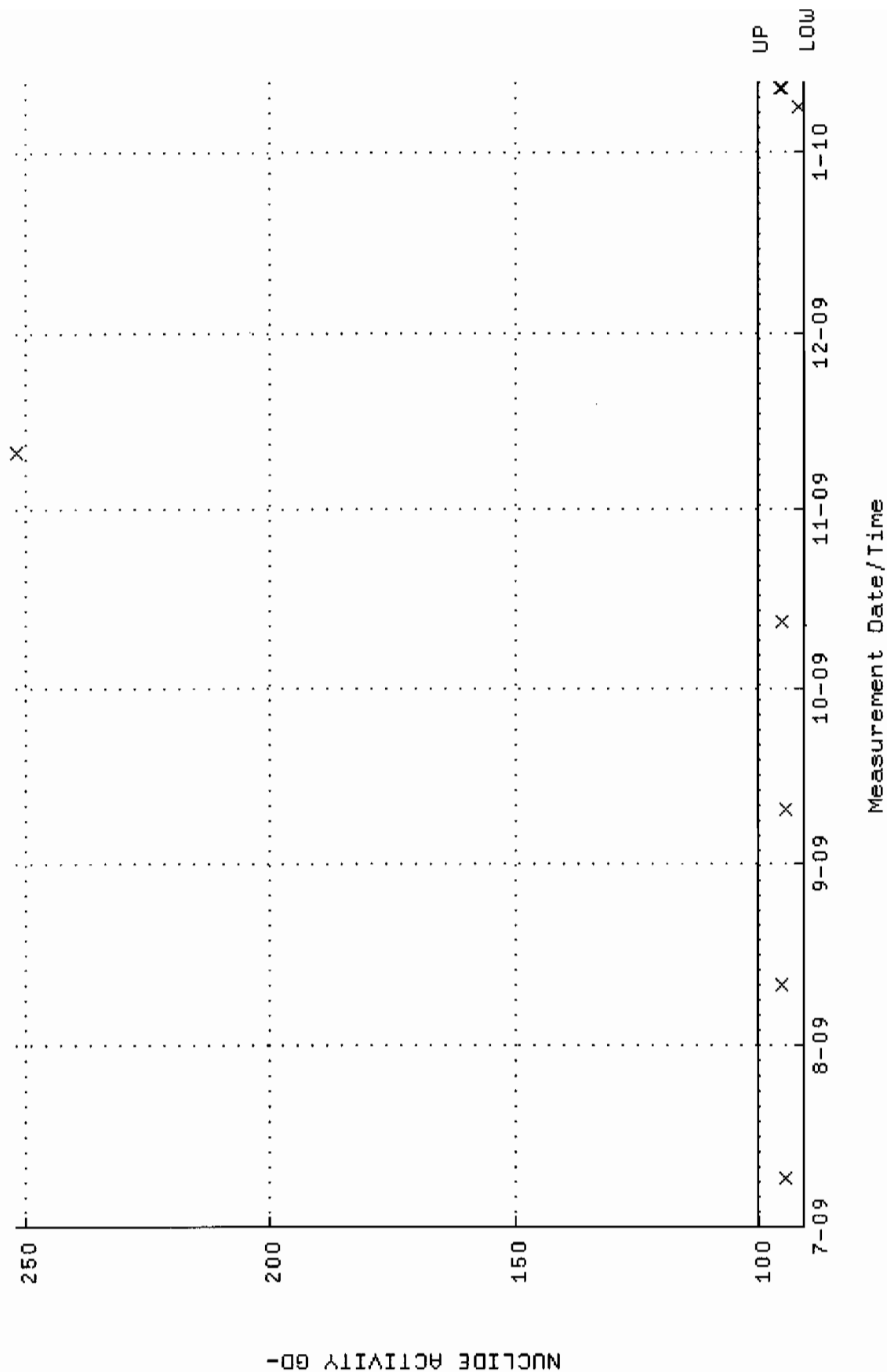
QA filename : DKA100:[ENV\_ALPHA.QA,B]B074.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 1-JUL-2009 21:39:57 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



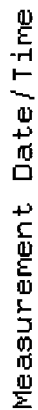
QA filename : DKA100:[ENV\_ALPHA.QA.W]W075.QAF;3  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.292134 through 0.312134



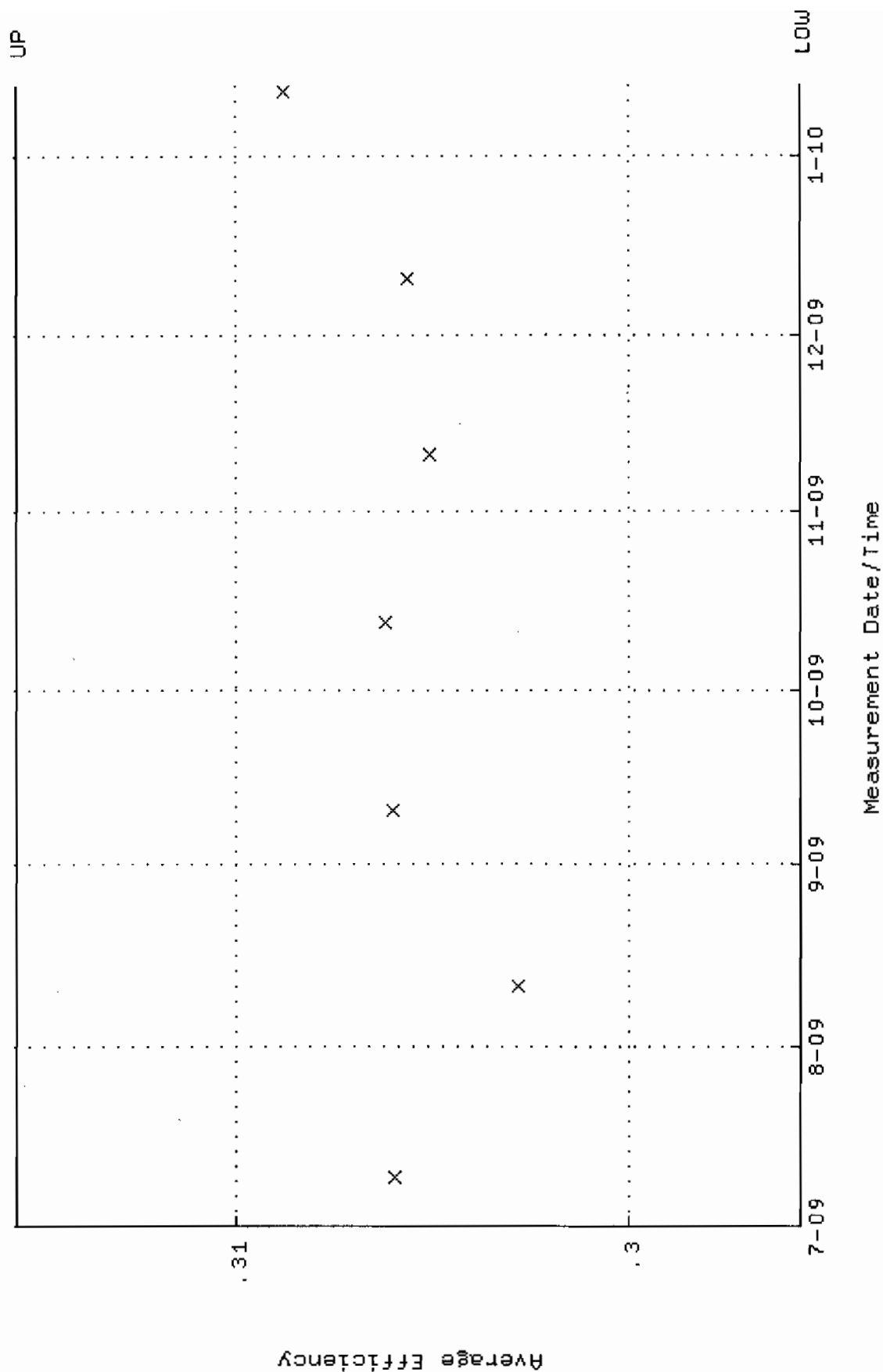
QA filename : DKA100:[ENV\_ALPHA.QA.W]W075.QAF;3  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 91.1212 through 100.713



Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

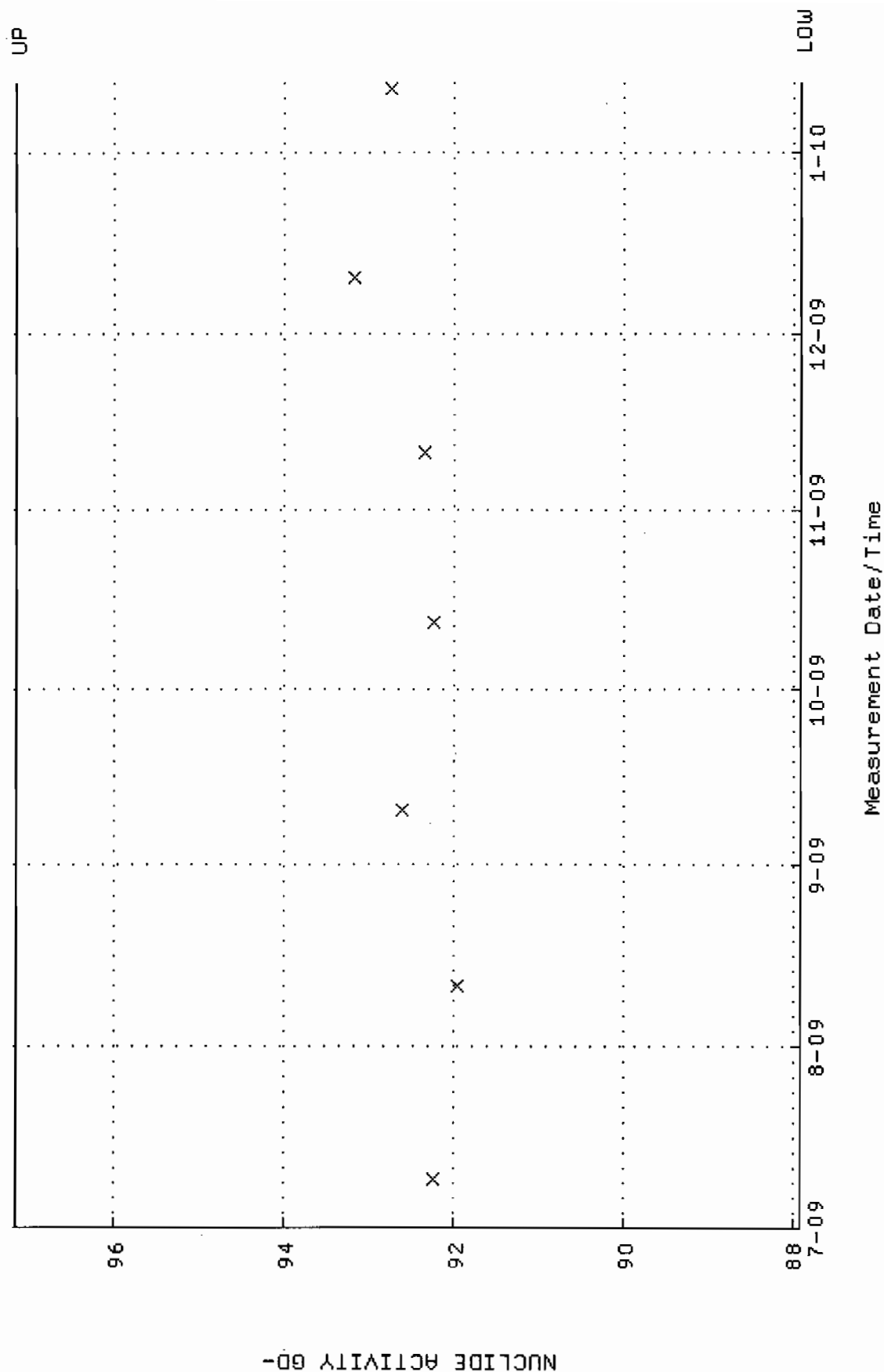


QA filename : DKA100:[ENV\_ALPHA.QA.W]W076.QAF;2  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.295613 through 0.315613

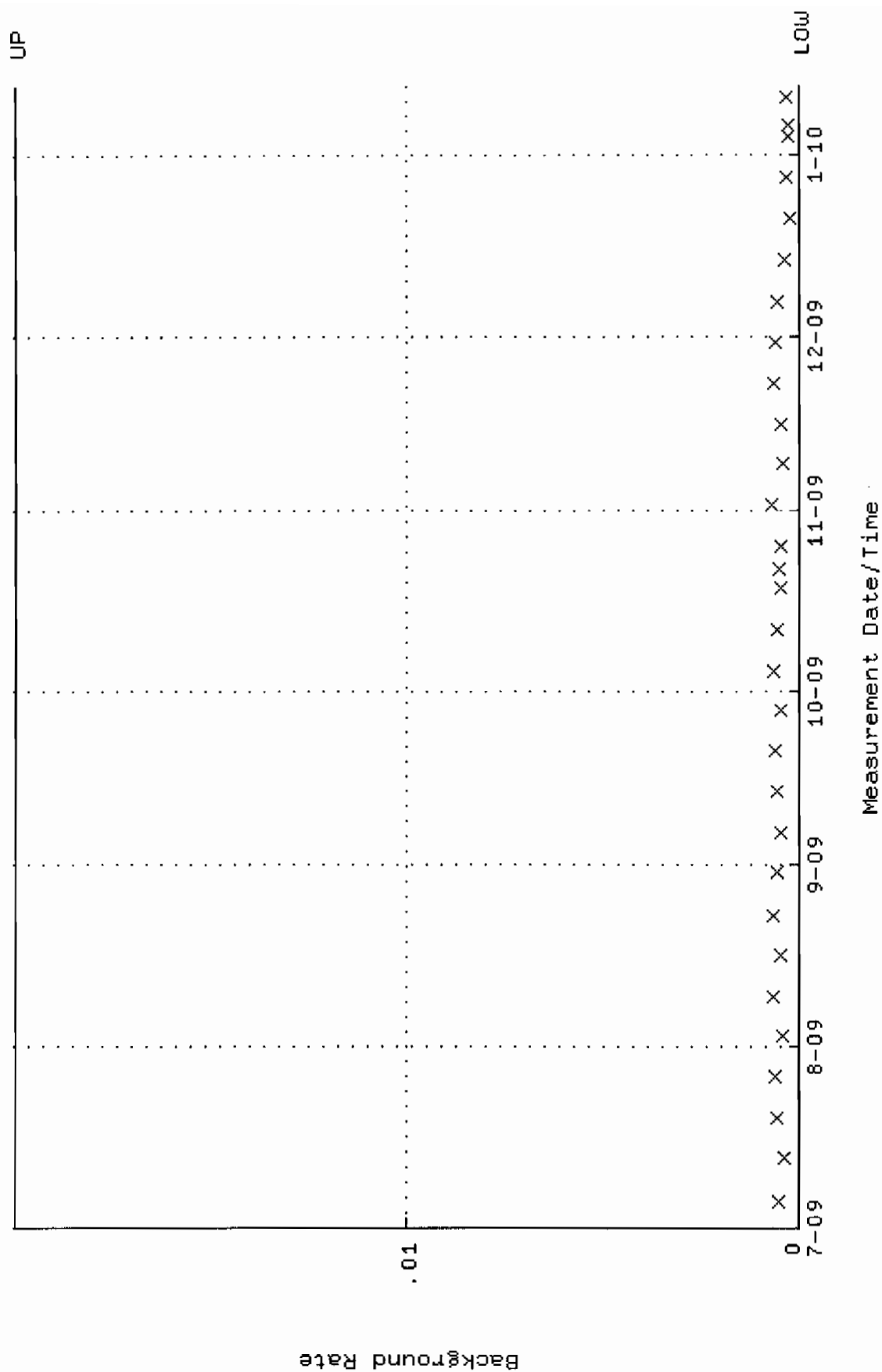




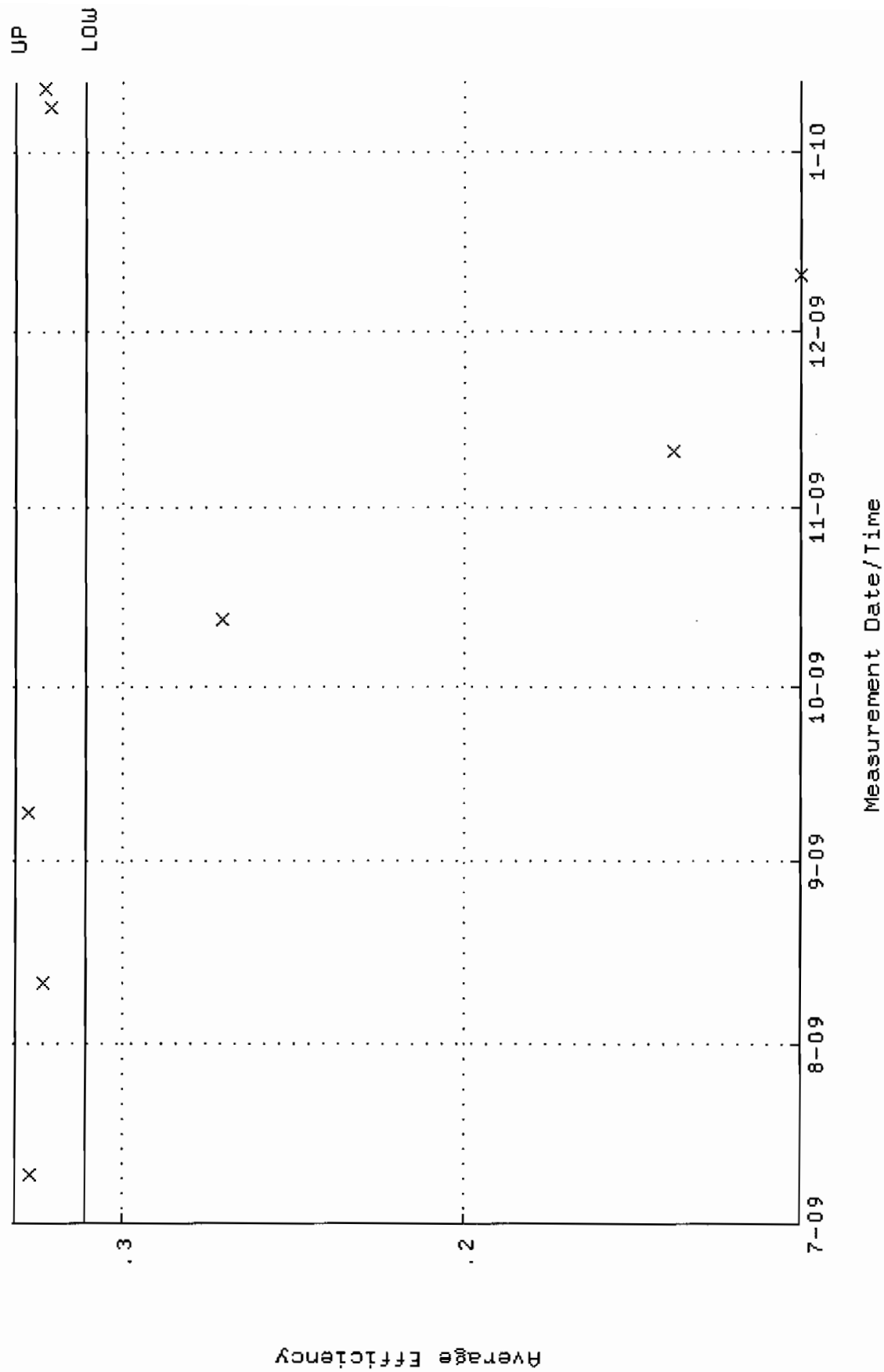
QA filename : DKA100:[ENVY\_ALPHA.QA.W]W076.QAF;2  
Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
Lower/Upper Lmts: 87.9031 through 97.1561



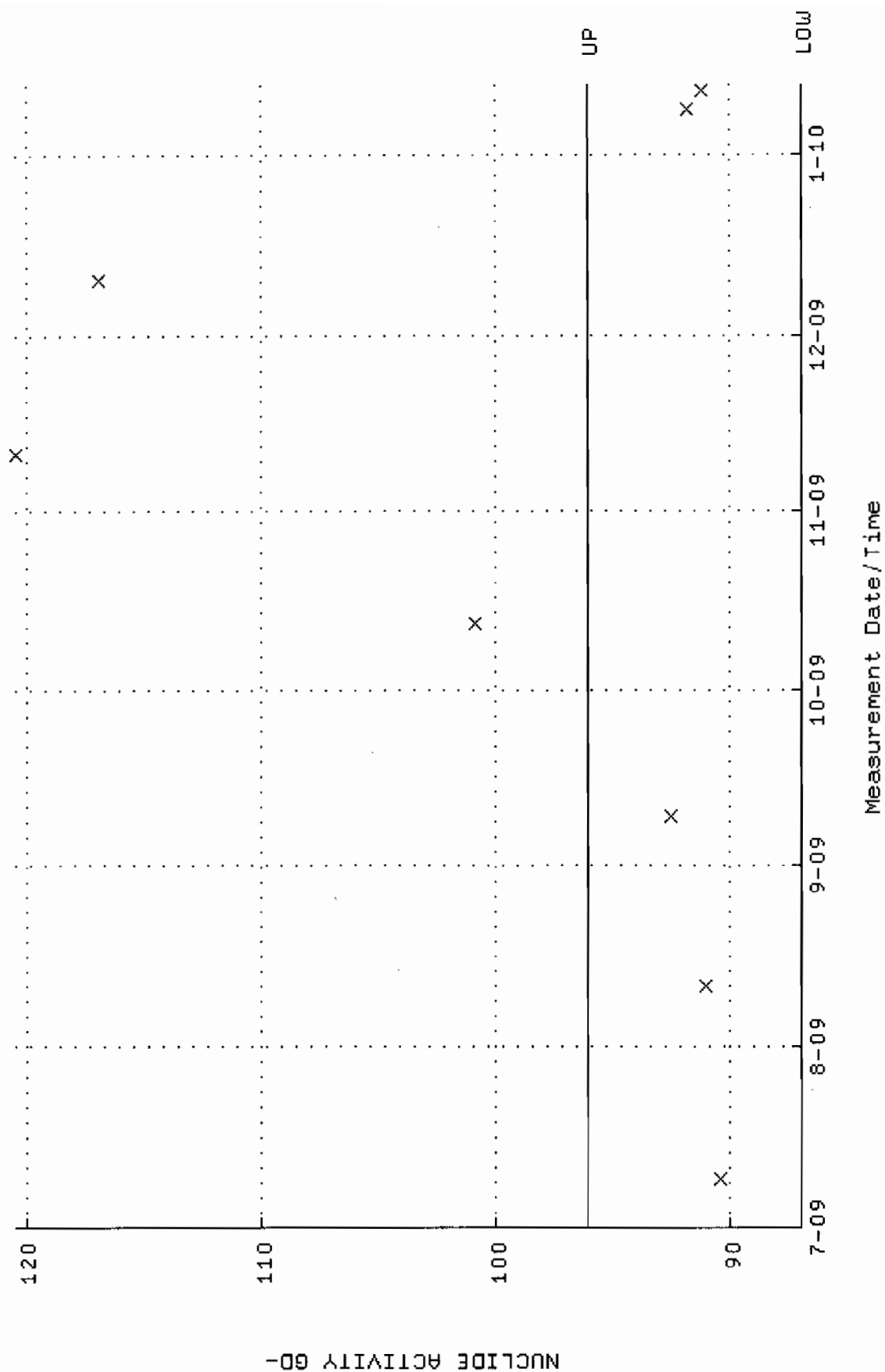
QA filename : DKA100:[ENV\_ALPHA.QA.B]B076.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:02 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



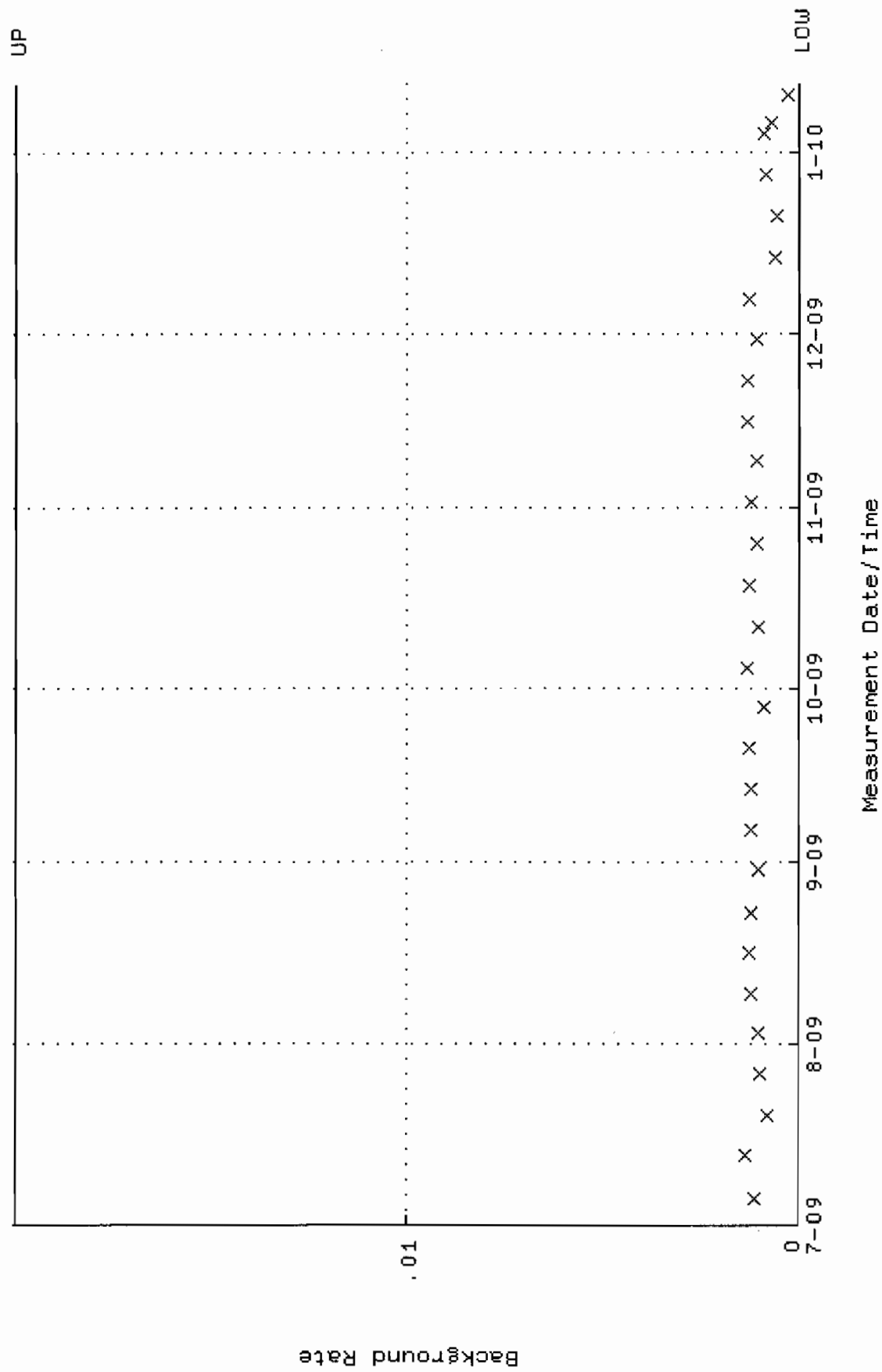
QA filename : DKA100:[ENV\_ALPHA.QA.W]W082.QAF;5  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.311357 through 0.331357



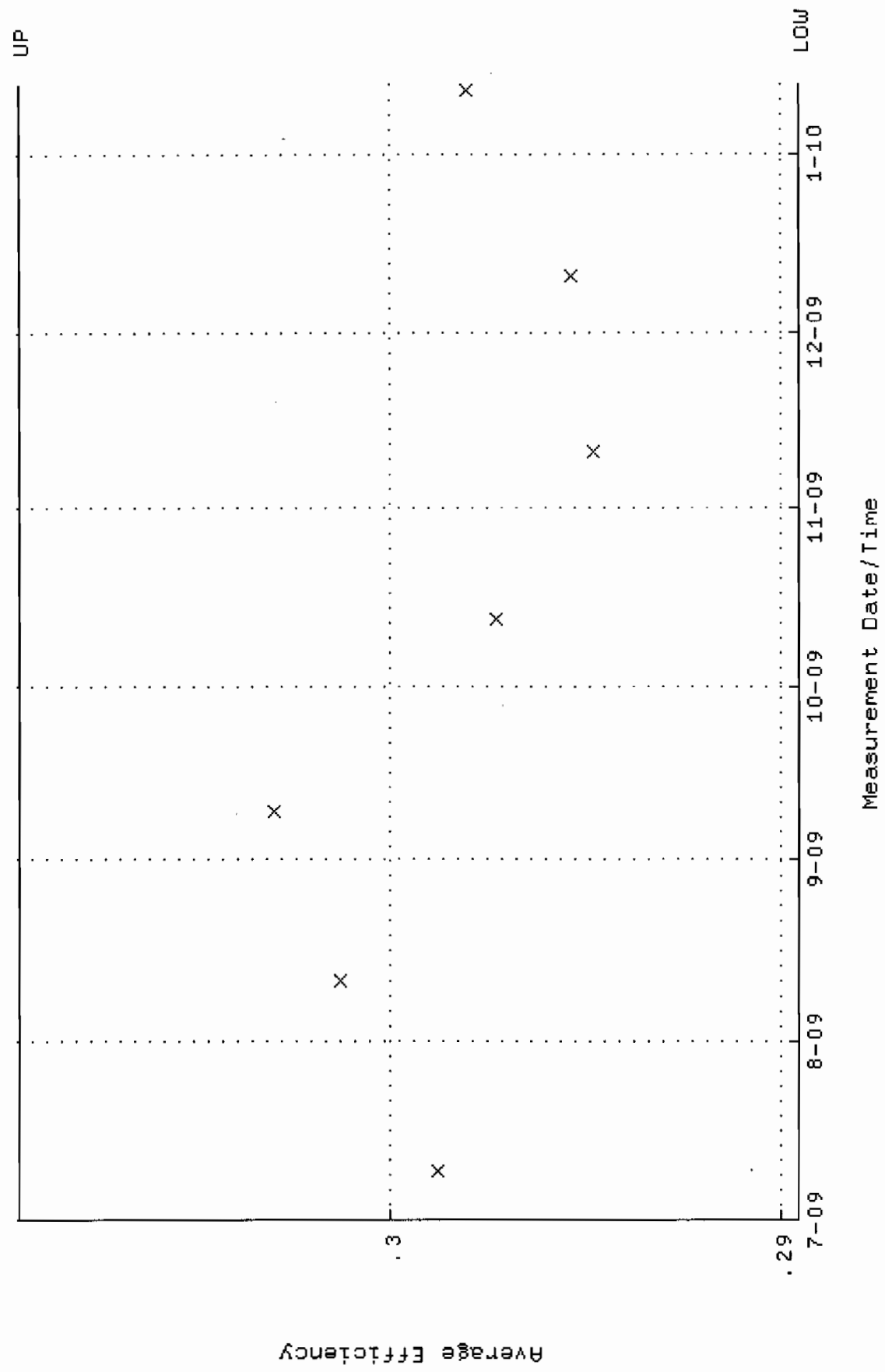
QA filename : DKA100:[ENV\_ALPHA.QA.W]W082.QAF;5  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:11 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.9094 through 96.0578



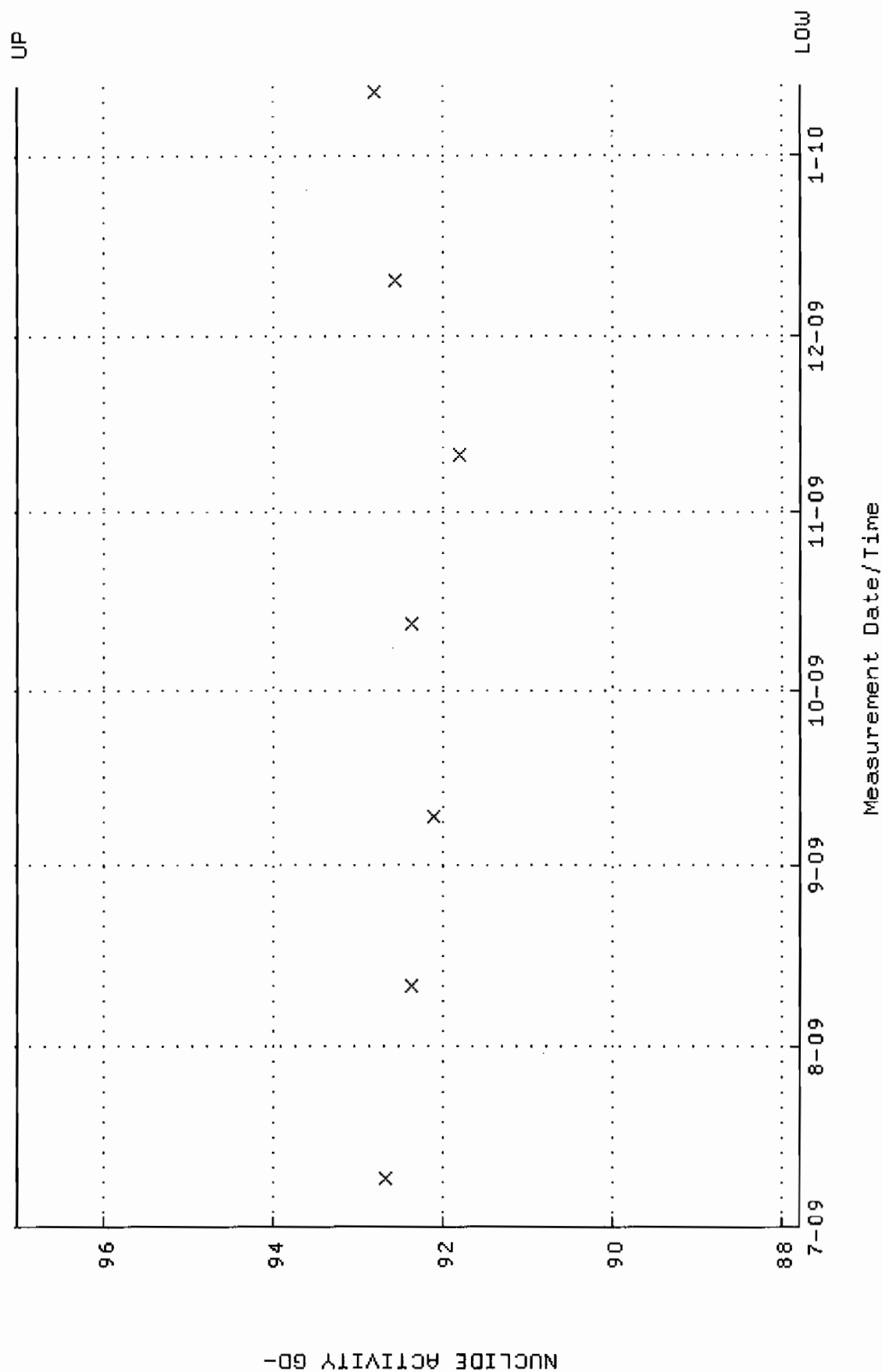
QA filename : DKA100:[ENV\_ALPHA.QA.B]B082.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:03 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



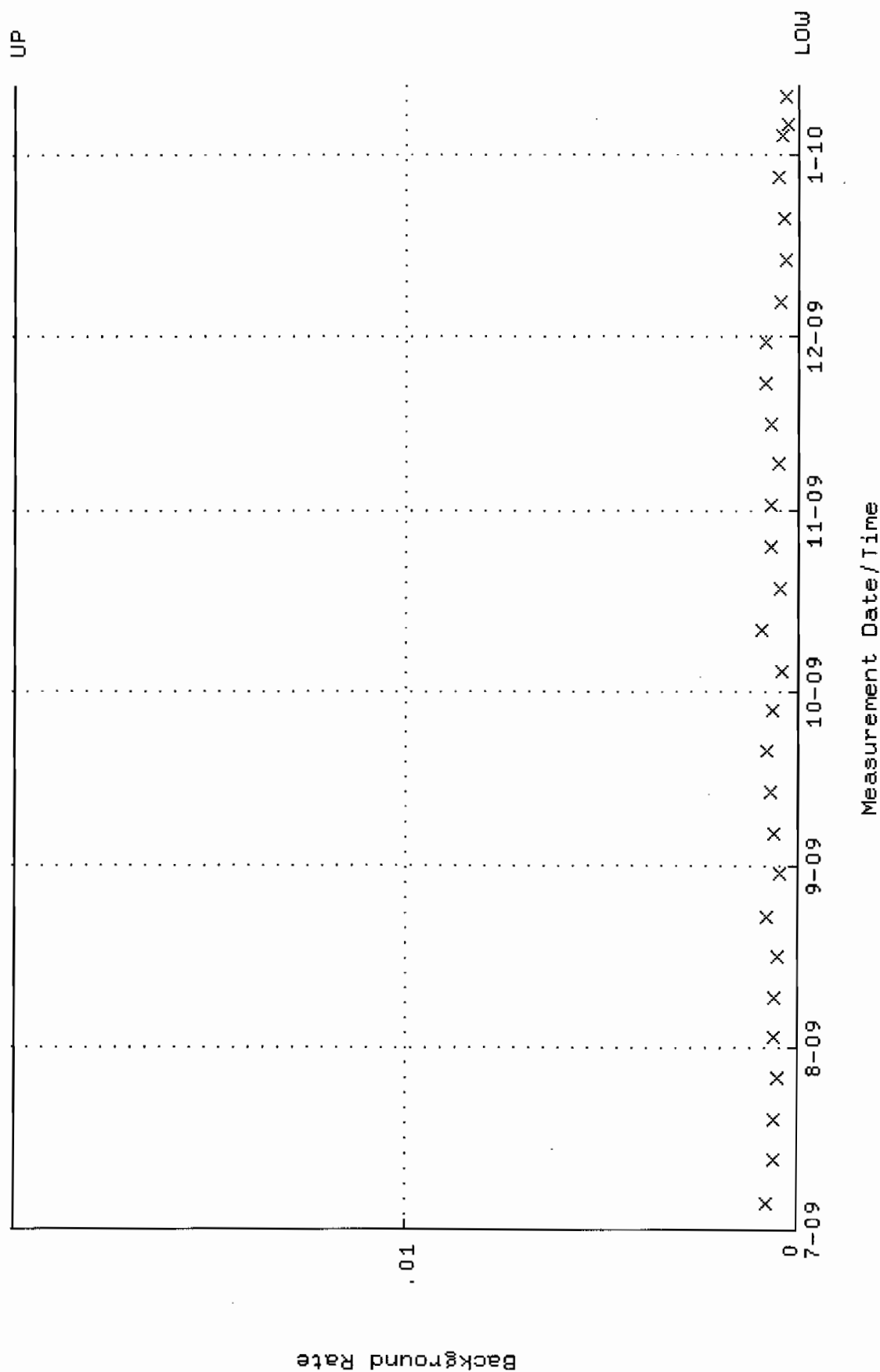
QA filename : DKA100:[ENV\_ALPHA.QA.W]W086.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.289508 through 0.309508



QA filename : DKA100:[ENV\_ALPHA.QA.W]W086.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.7898 through 97.0308

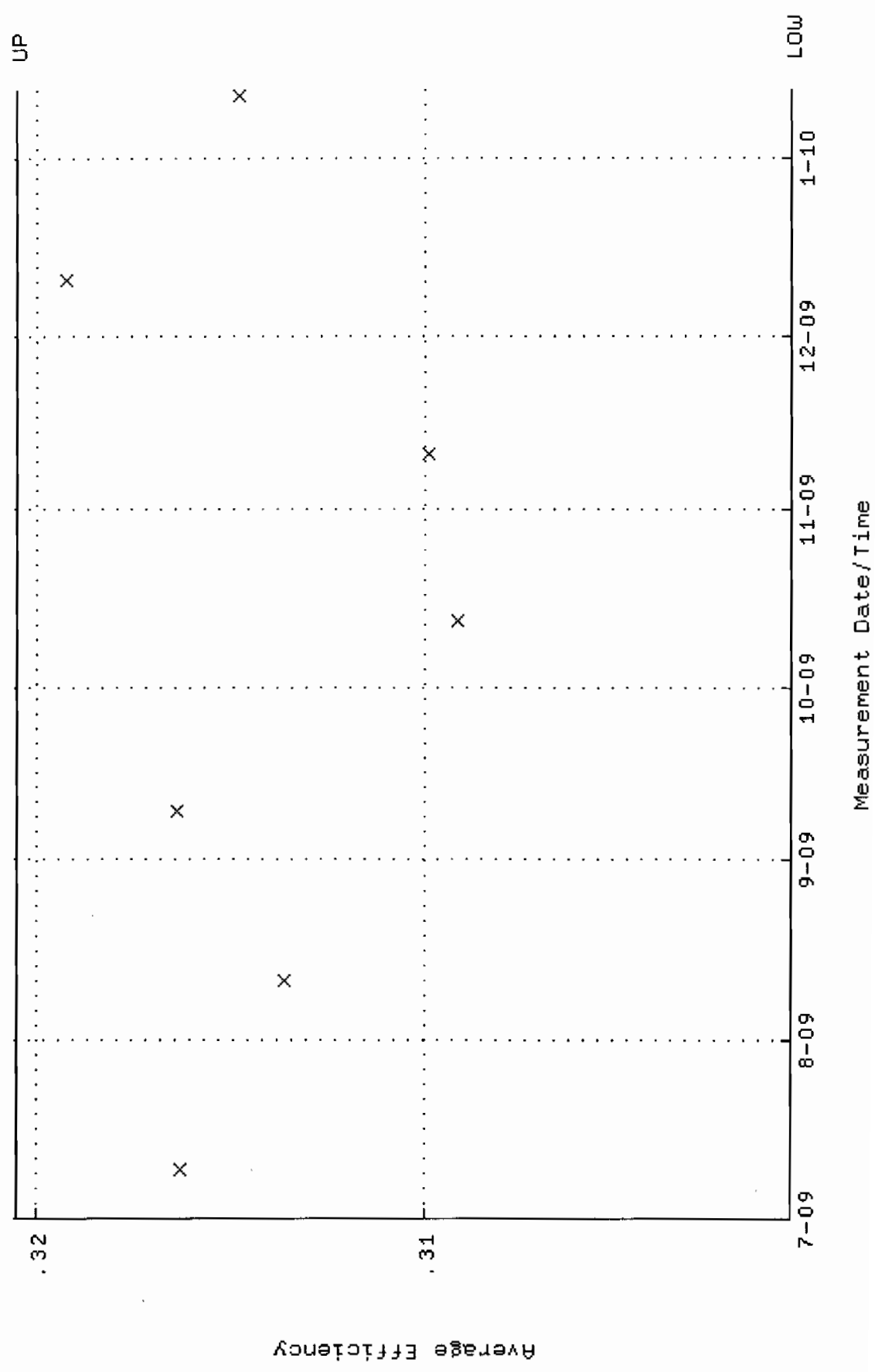


QA filename : DKA100:[ENV\_ALPHA.QA.B]B086.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02

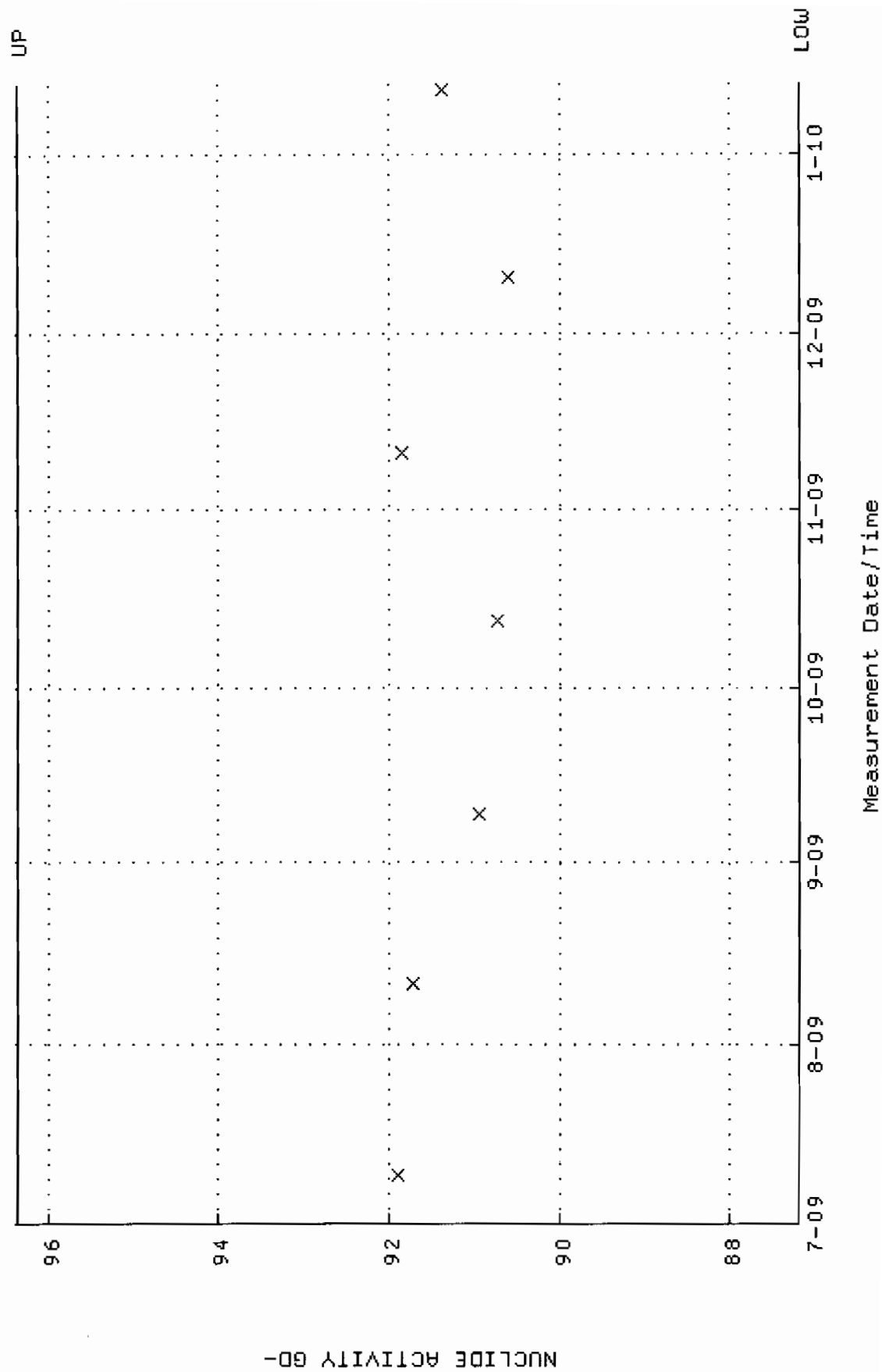




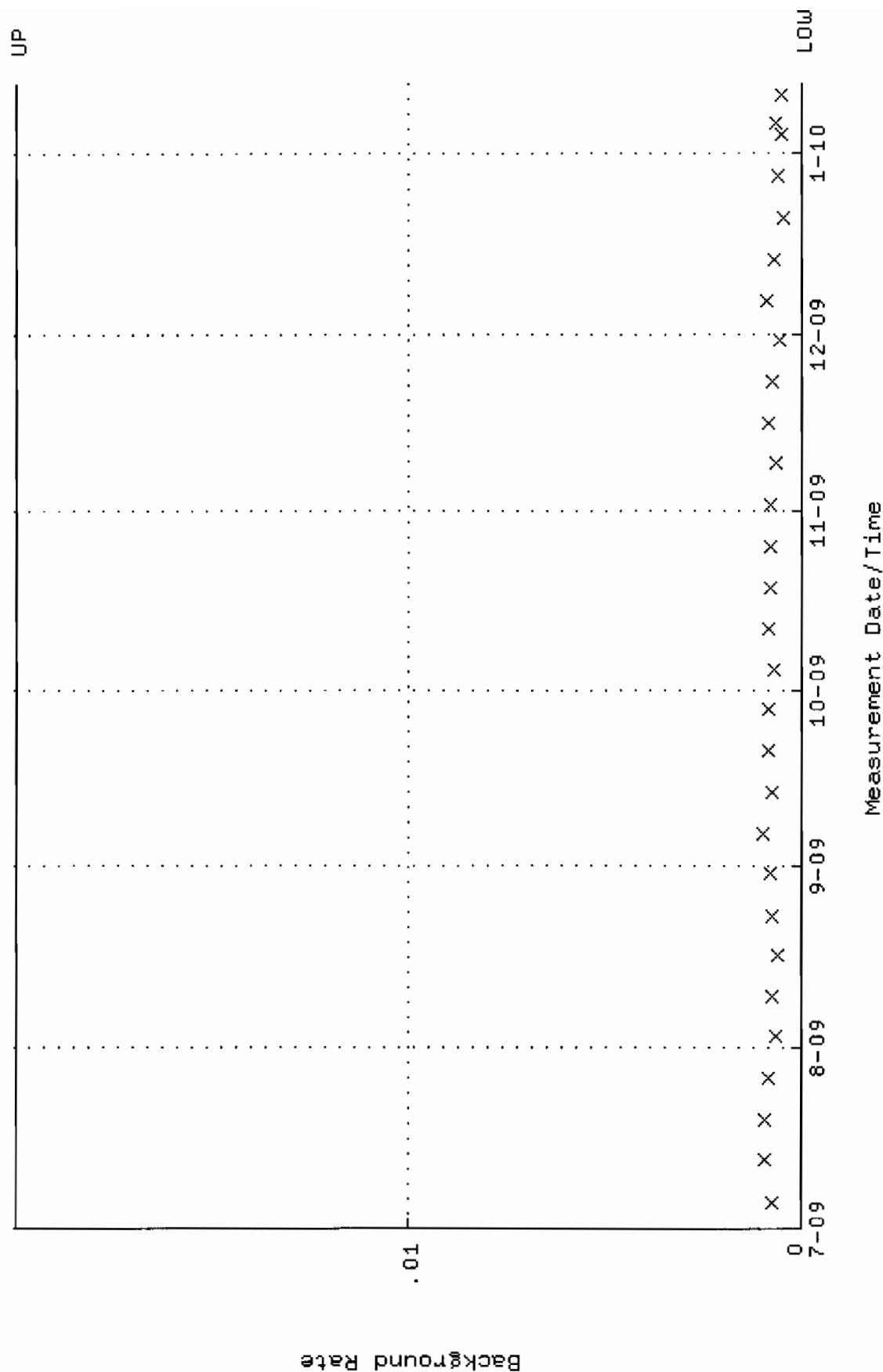
QA filename : DKA100:[ENV\_ALPHA.QA.W]W087.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.300530 through 0.320530



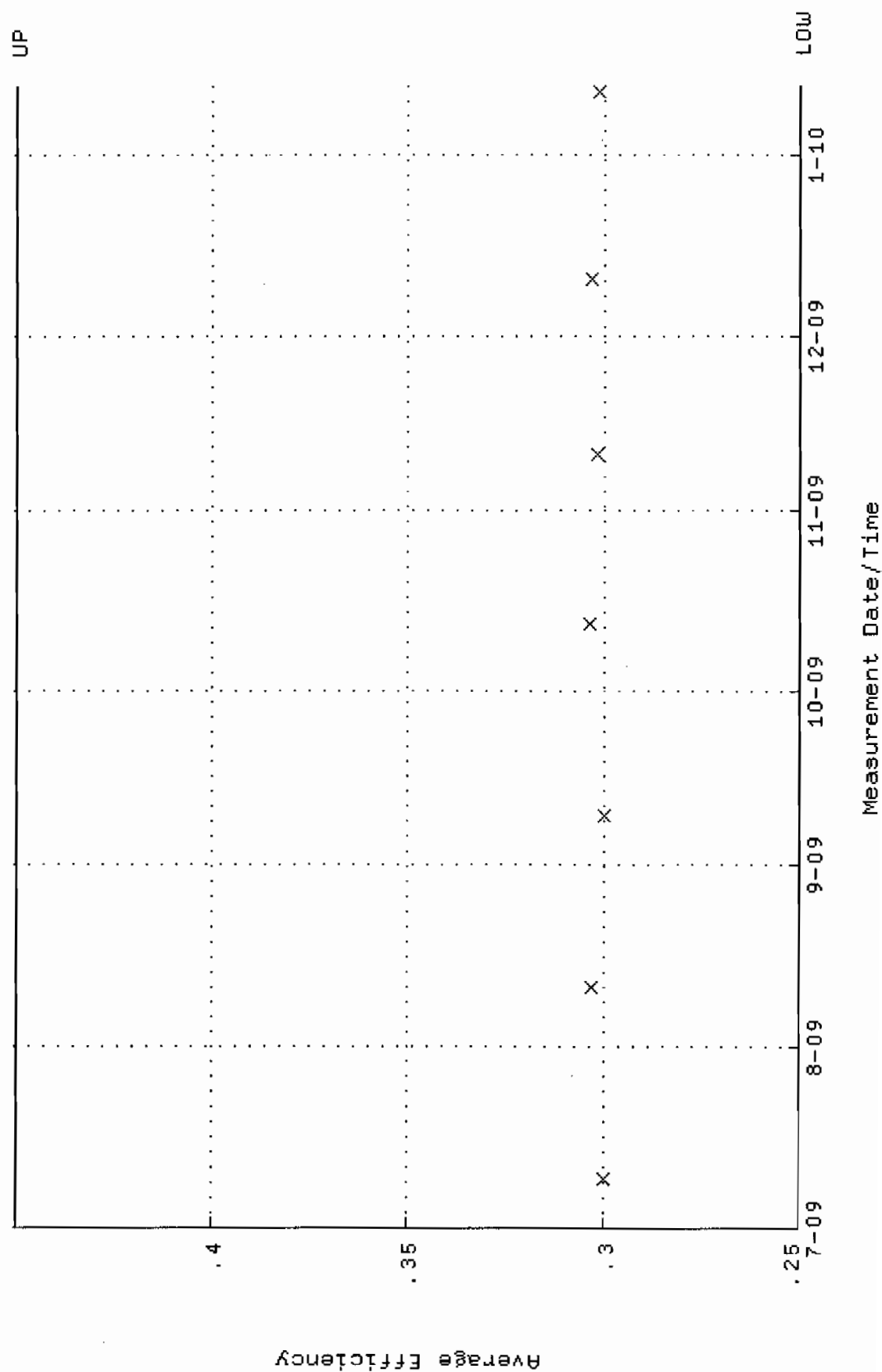
QA filename : DKA100:[ENV\_ALPHA.QA.W]W087.QAF;4  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.1845 through 96.3619



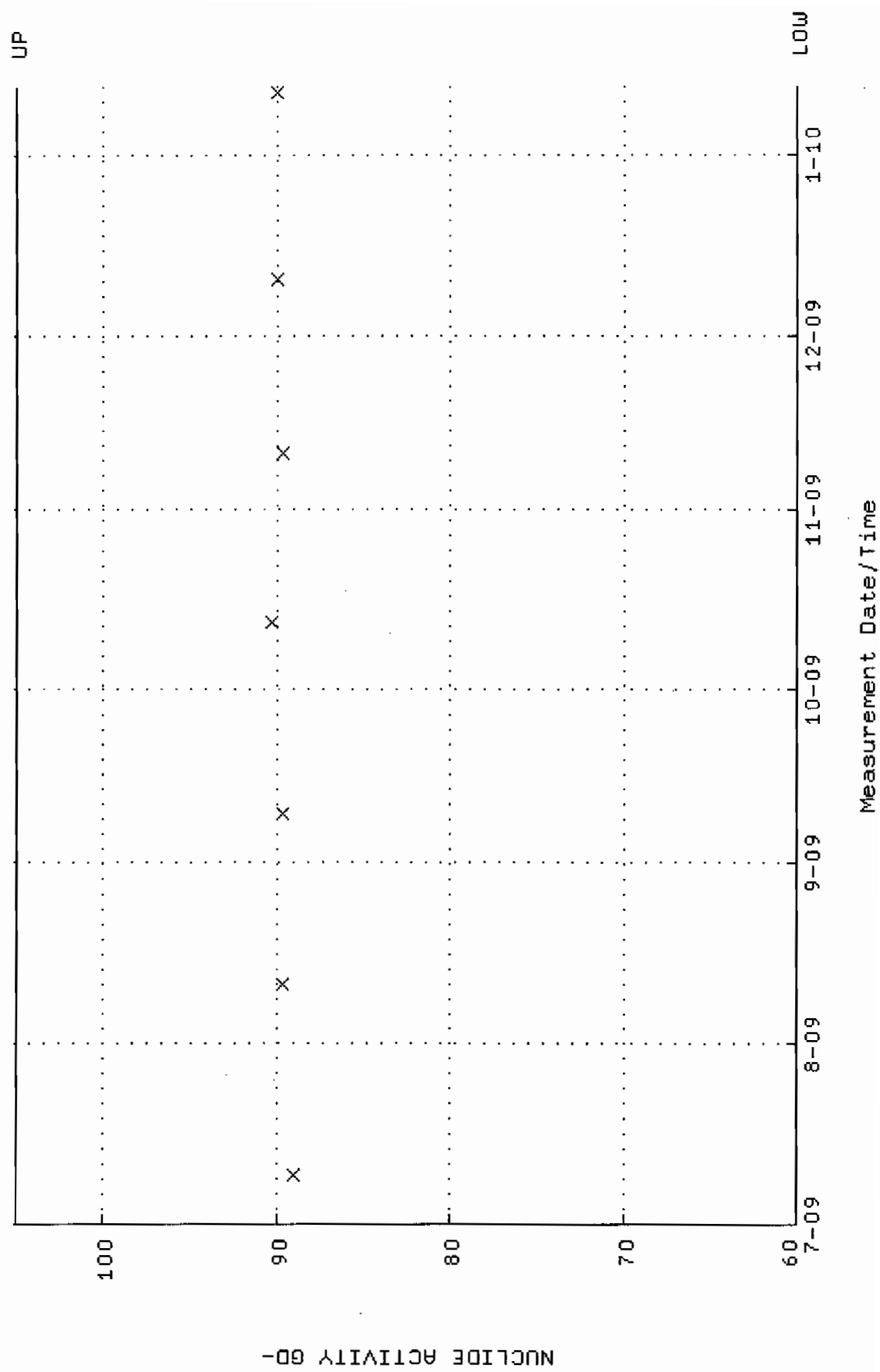
QA filename : DKA100:[ENV\_ALPHA.QA.B]B087.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



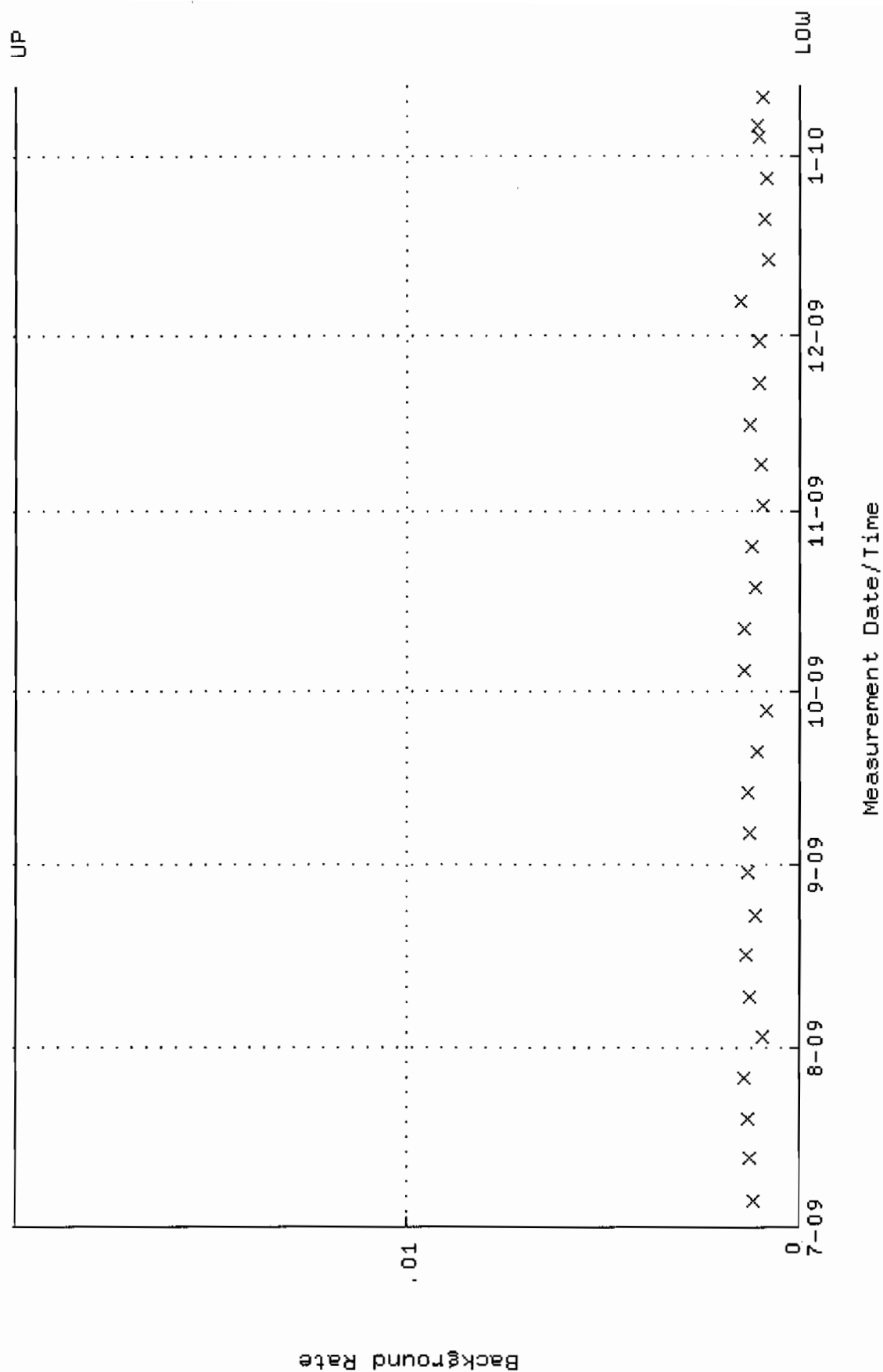
QA filename : DKA100:[ENV\_ALPHA.QA.W]W088.QAF;4  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250000 through 0.450000



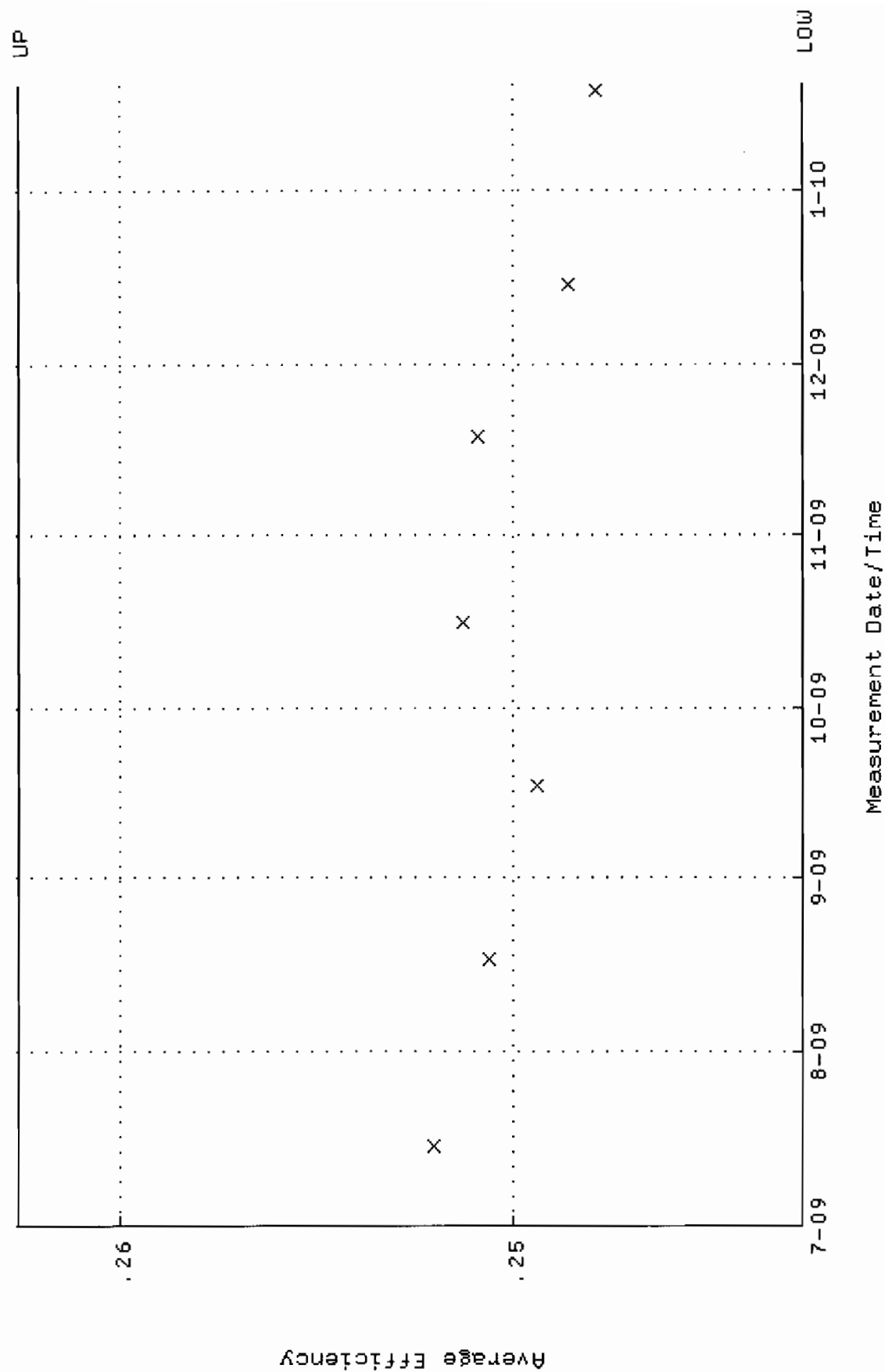
QA filename : DKA100:[ENVY\_ALPHA.QA.W]W088.QAF;4  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 9-JUL-2009 08:08:12 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 60.0000 through 105.000



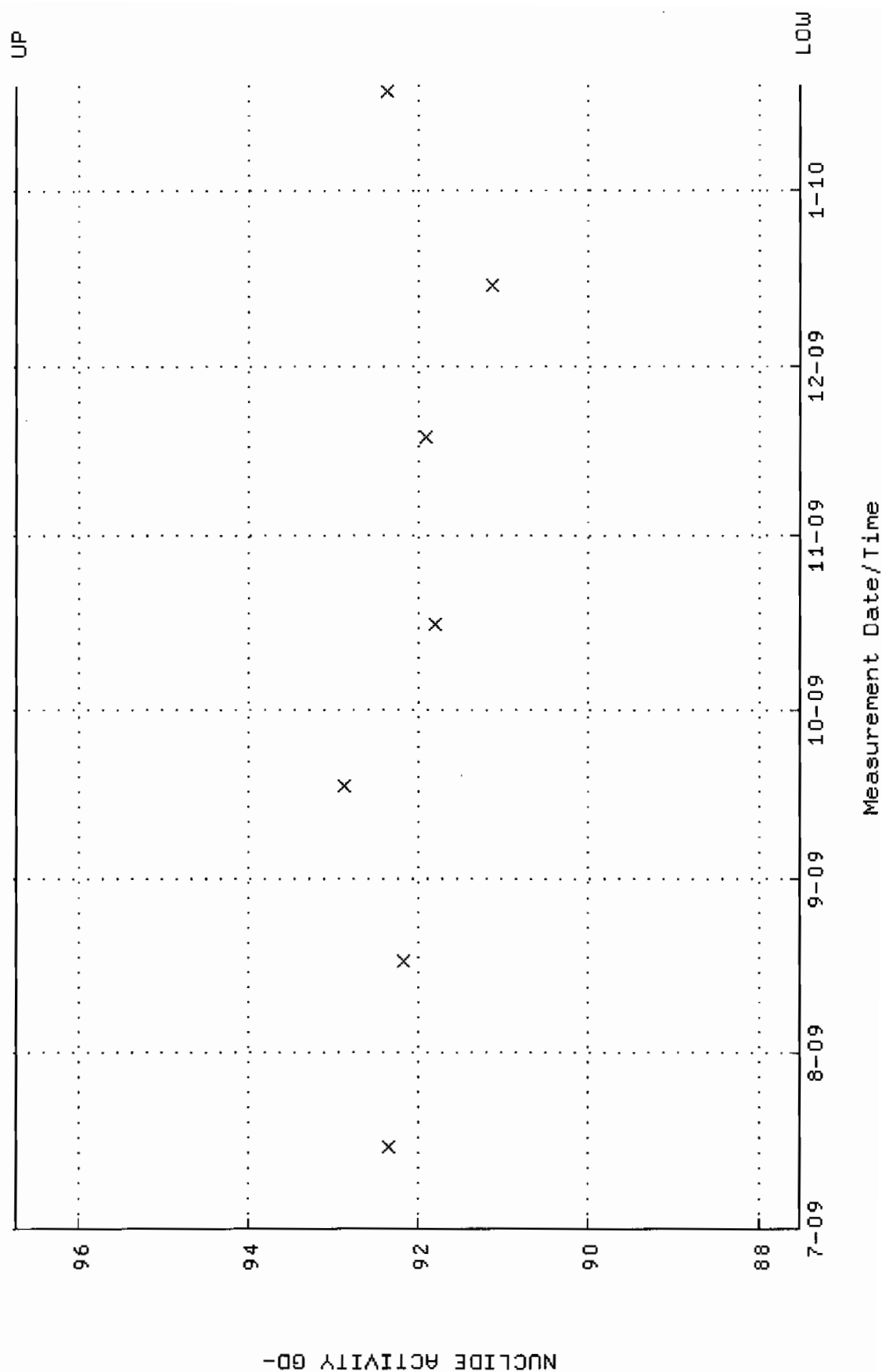
QA filename : DKA100:[ENV\_ALPHA.QA.B]B088.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:12:04 through 12-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 2.000000E-02



QA filename : DKA100:[ENV\_ALPHA.QA.W]w113.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:37:50 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.242598 through 0.262598

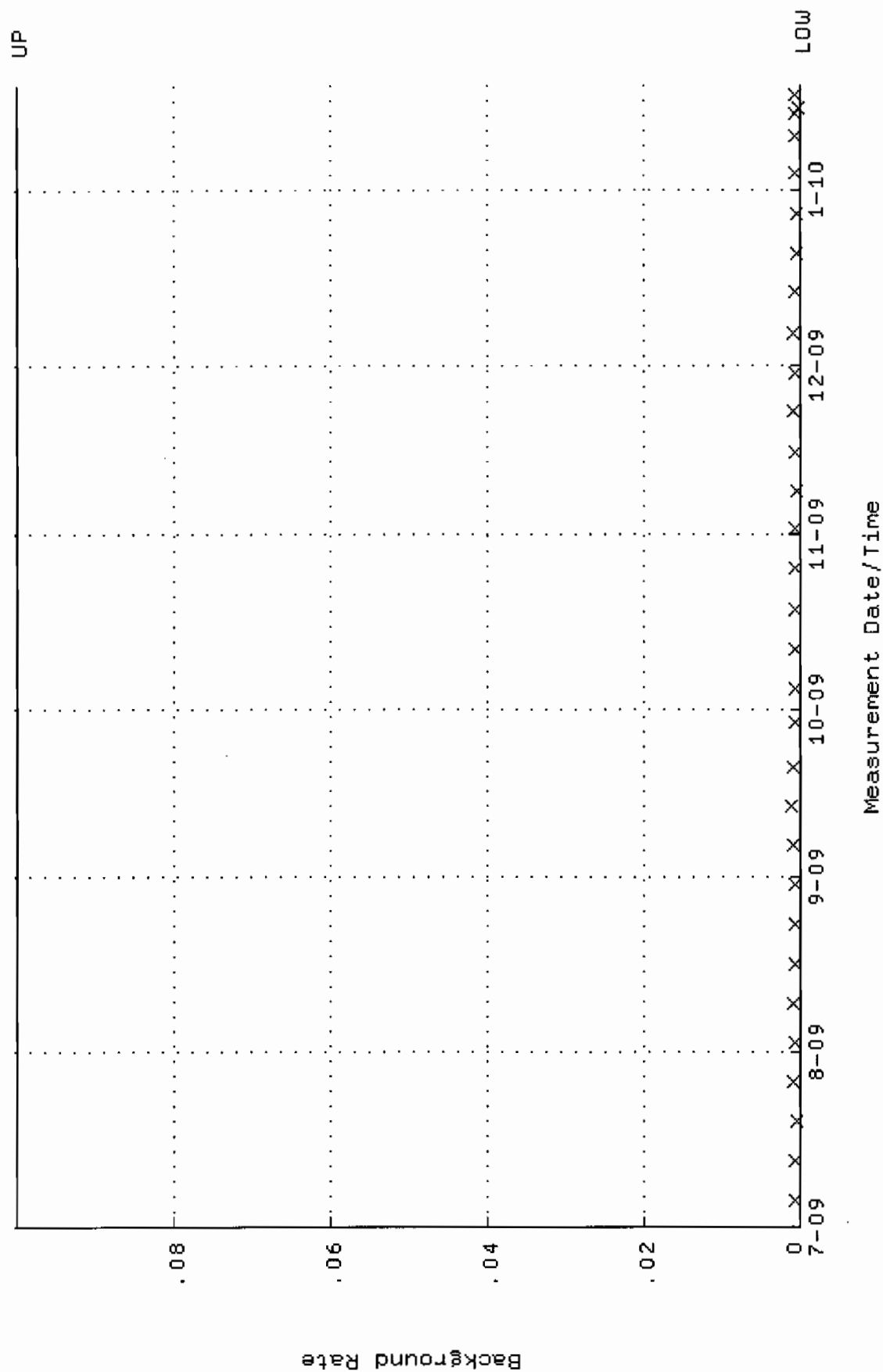


QA filename : DKA100:[ENV\_ALPHA.QA.W]W113.QAF;1  
 Parameter Name : NLACTVY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:50 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.5172 through 96.7296

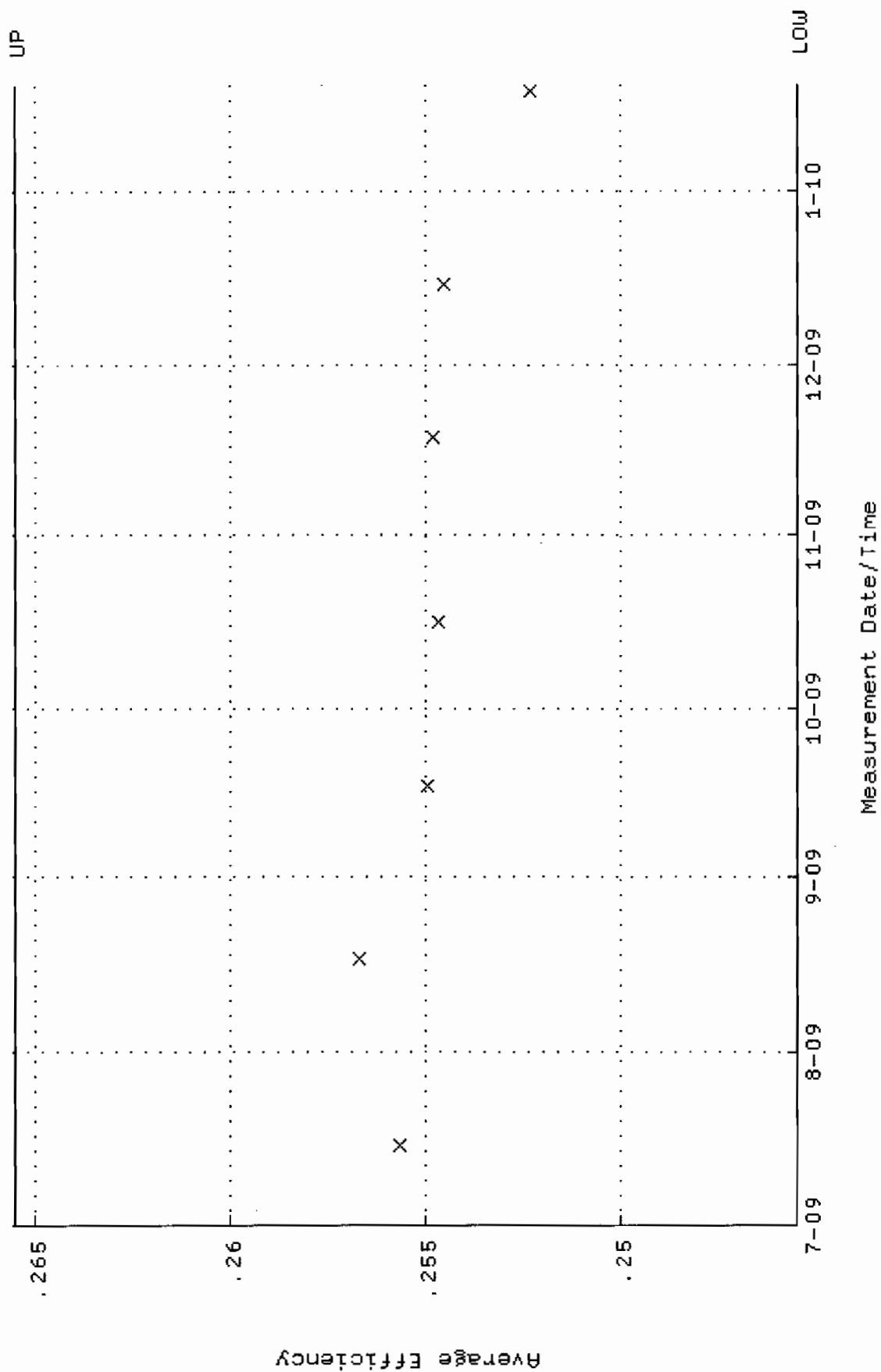




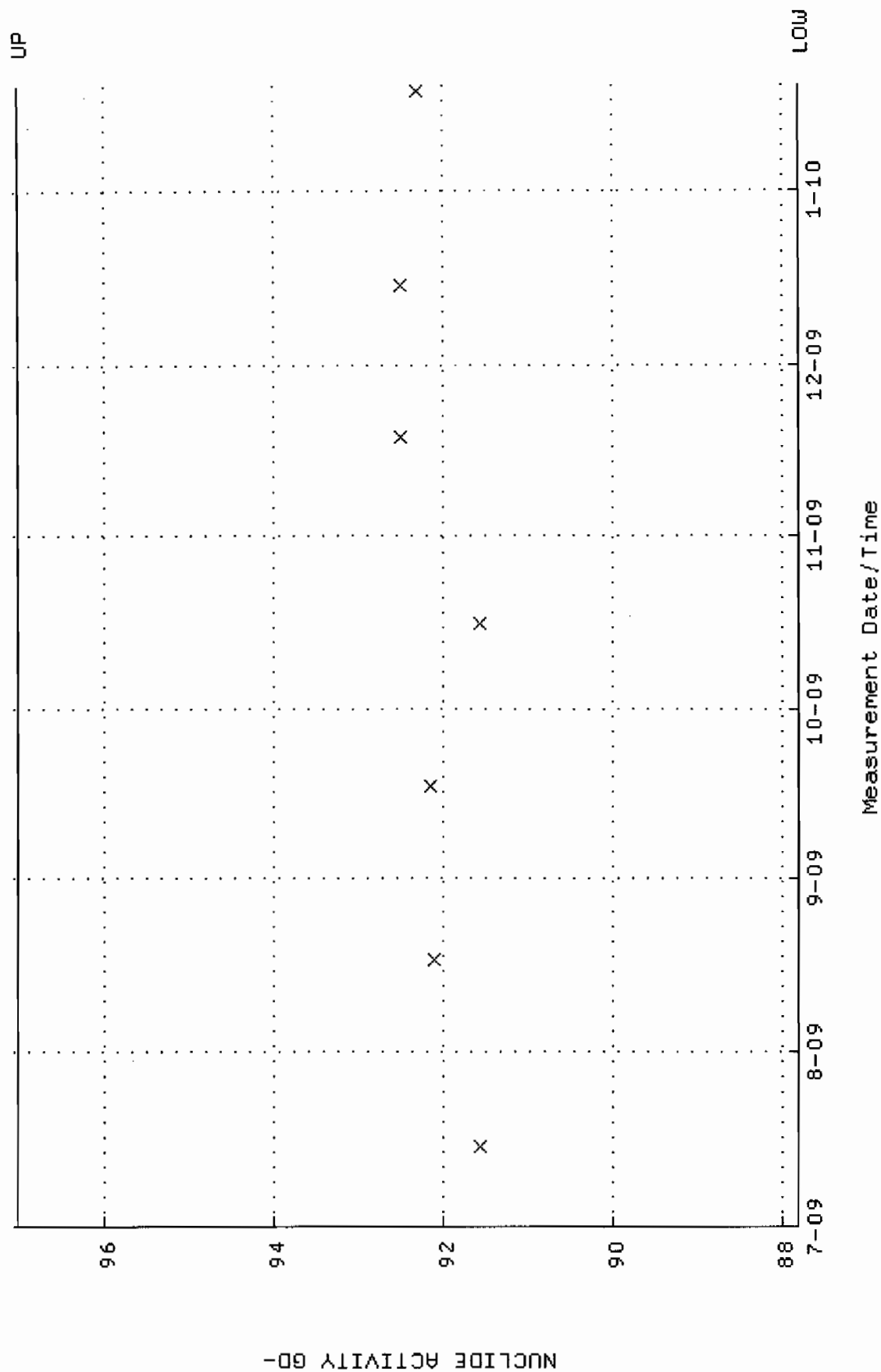
QA filename : DKA100:[ENV\_ALPHA.QA.B]B113.QAF;2  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:44 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



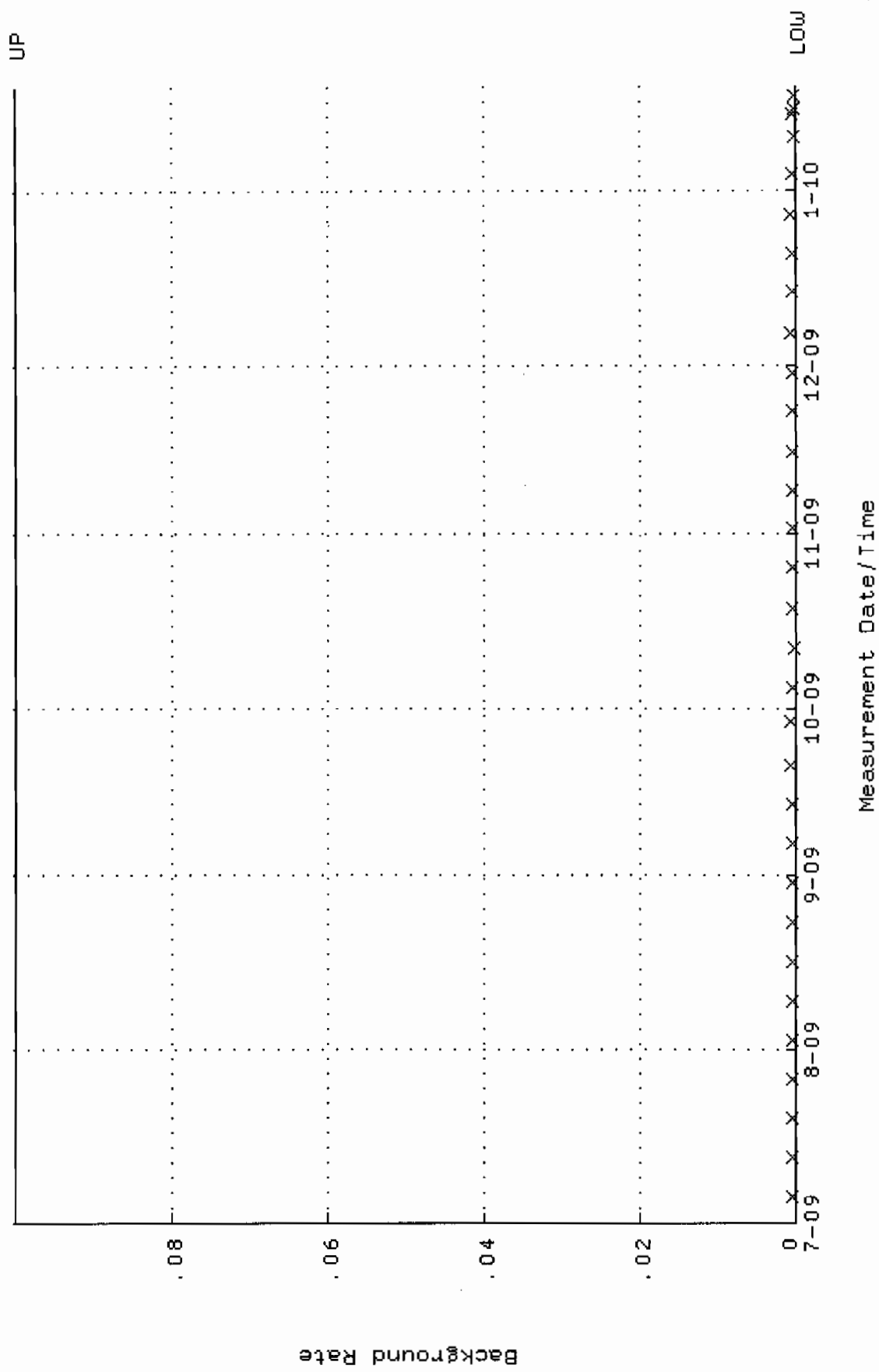
QA filename : DKA100:[ENV\_ALPHA.QA.W]U114.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:37:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.245499 through 0.265499



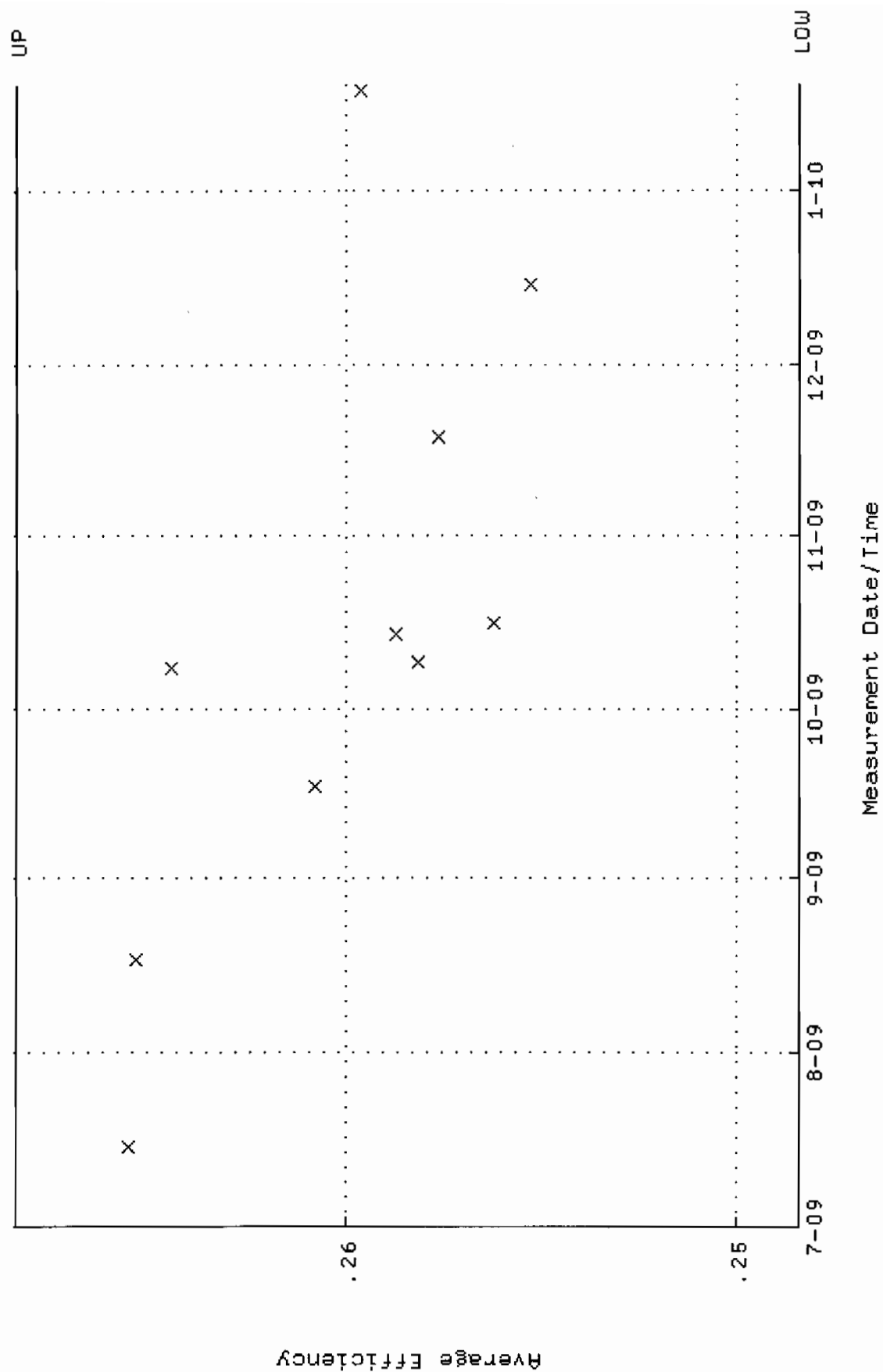
QA filename : DKA100:[ENV\_ALPHA.QA.W]W114.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.8108 through 97.0540



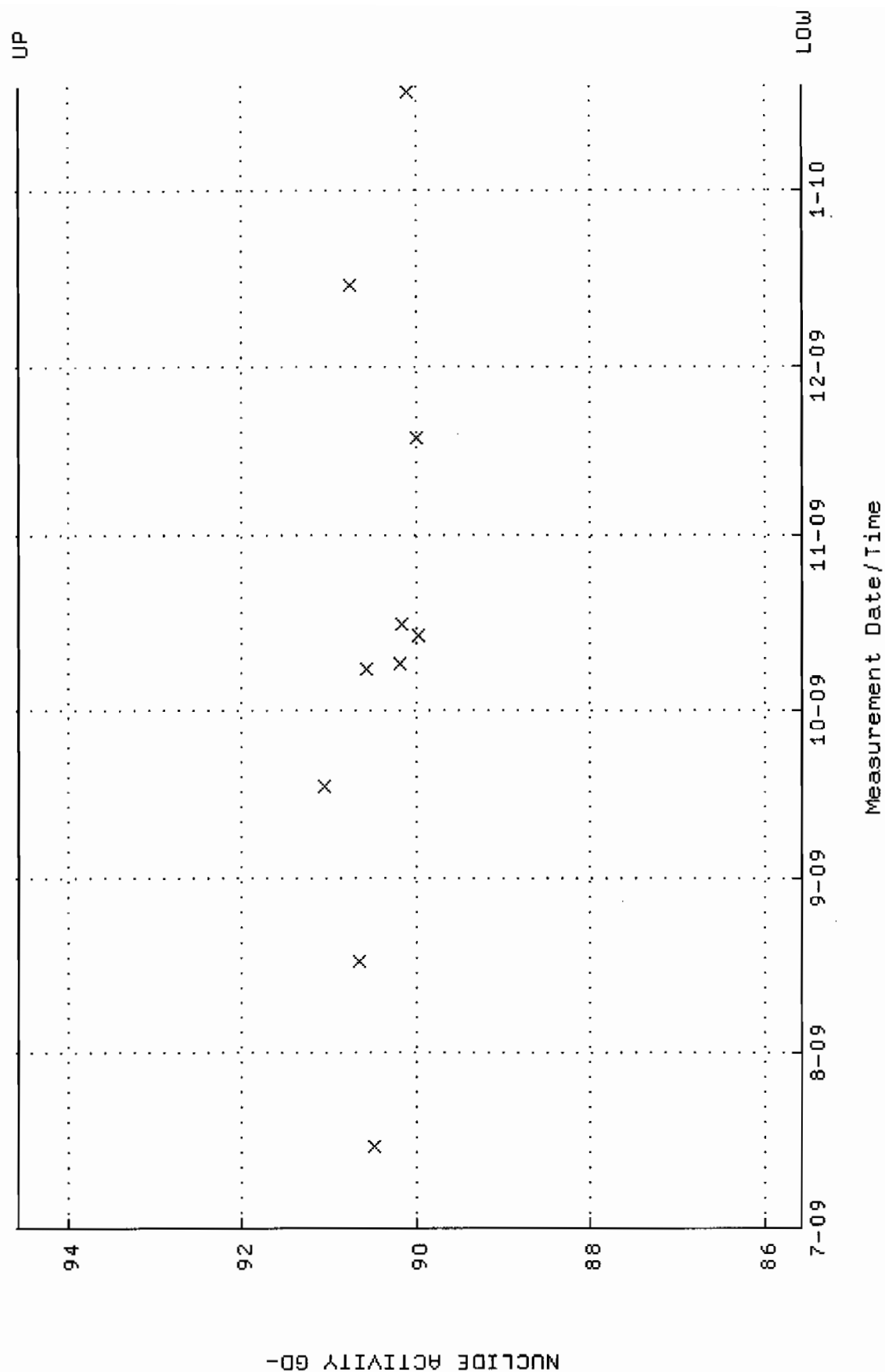
QA filename : DKA100:[ENV\_ALPHA.QA.B]B114.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:49 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



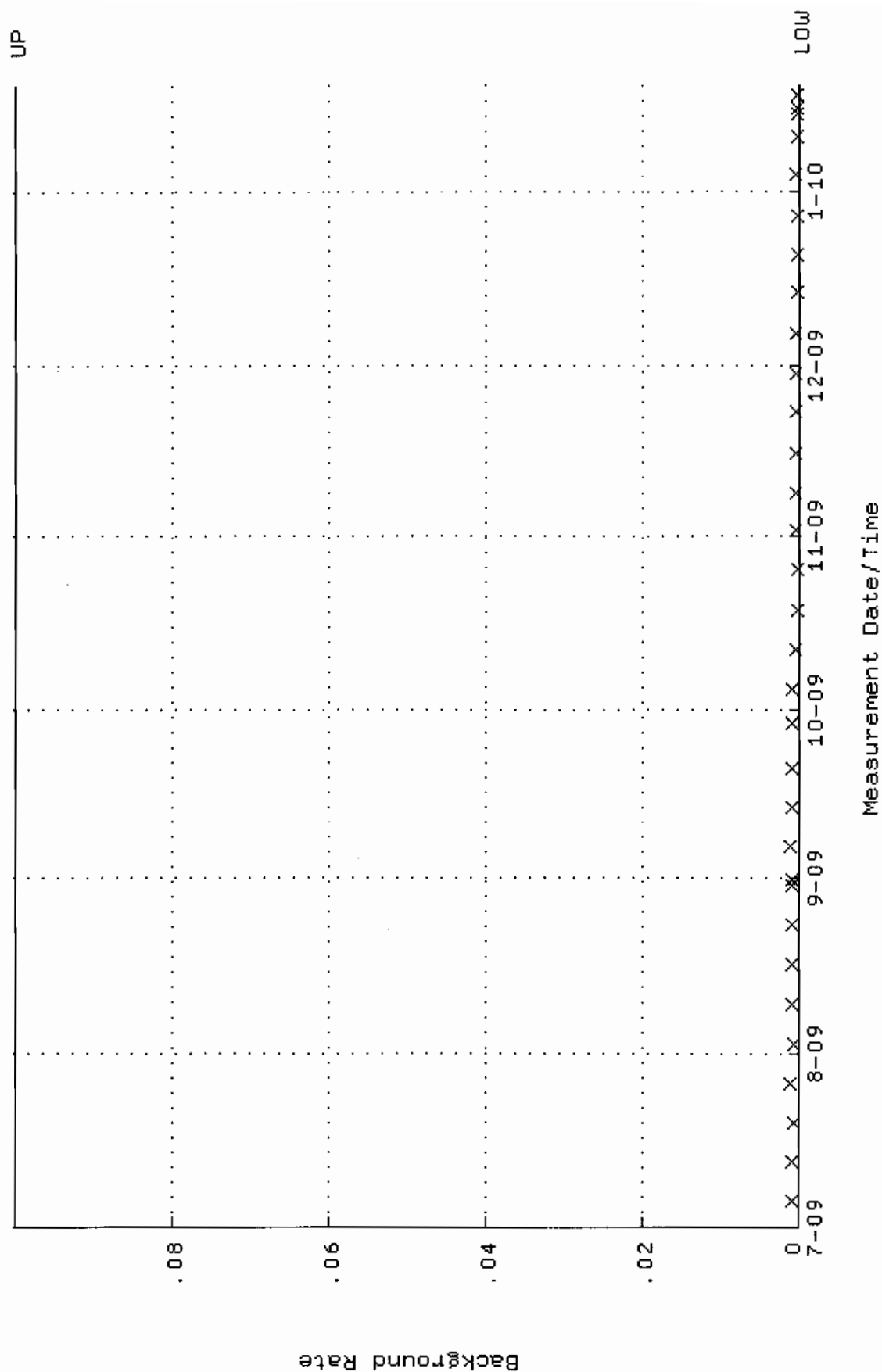
QA filename : DKA100:[ENV\_ALPHA.QA.W]W115.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:37:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.248404 through 0.268404



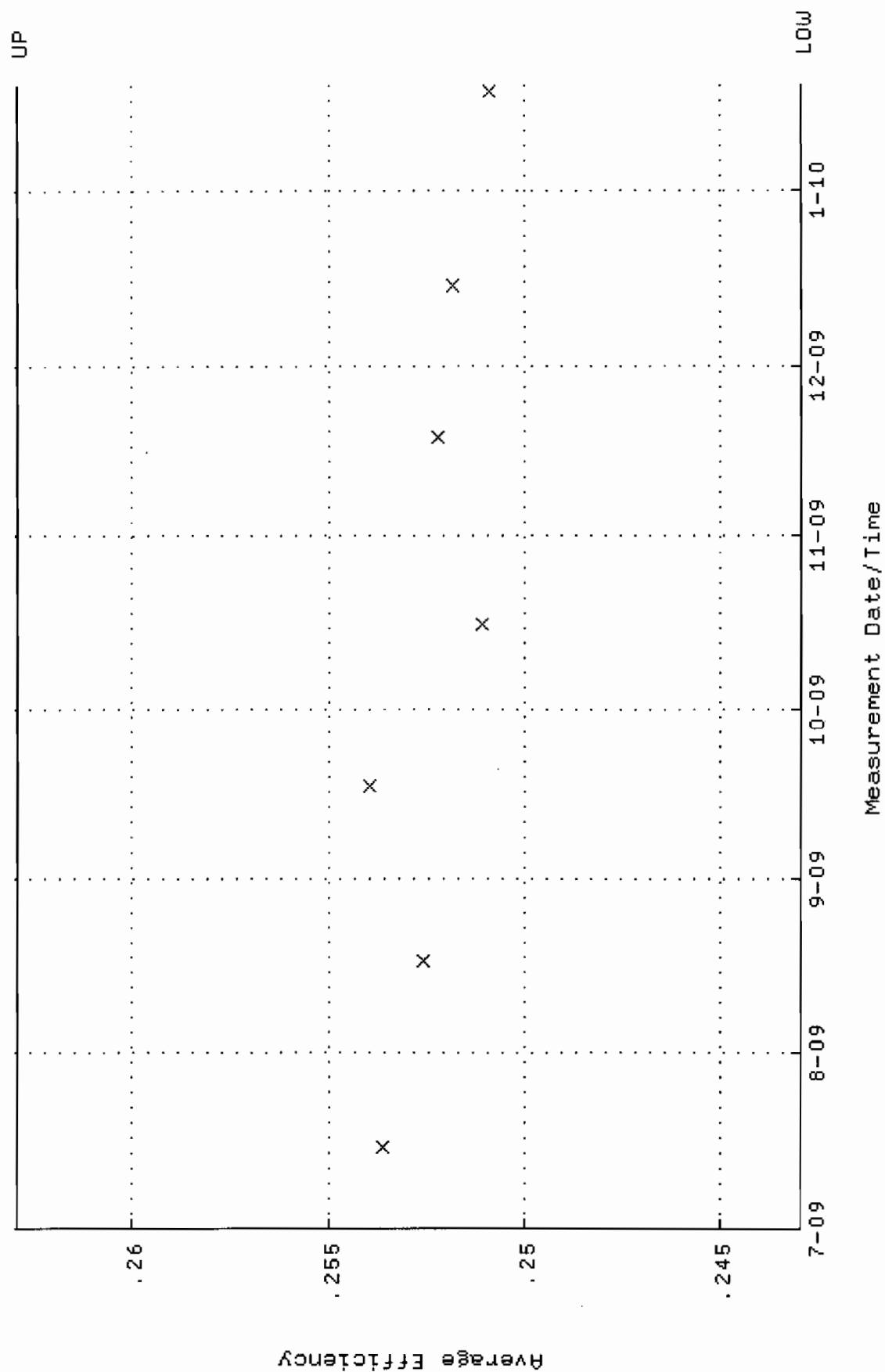
QA filename : DKA100:[ENV\_ALPHA.QA.W]w115.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:37:59 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.5661 through 94.5731



QA filename : DKA100:[ENV\_ALPHA.QA.B]B115.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:54:54 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

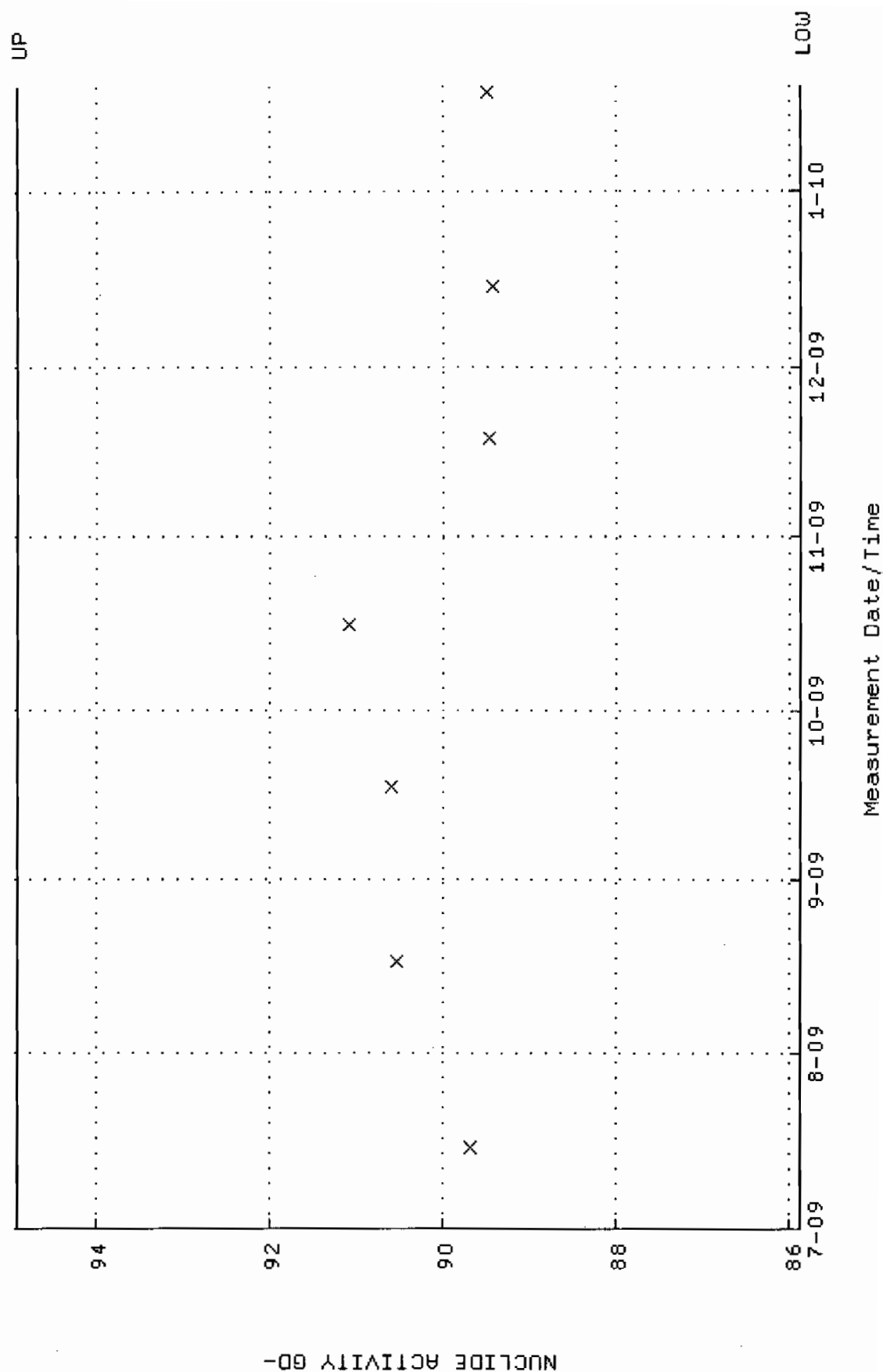


QA filename : DKA100:[ENV\_ALPHA,QA.W]W117.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38:07 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.242940 through 0.262940

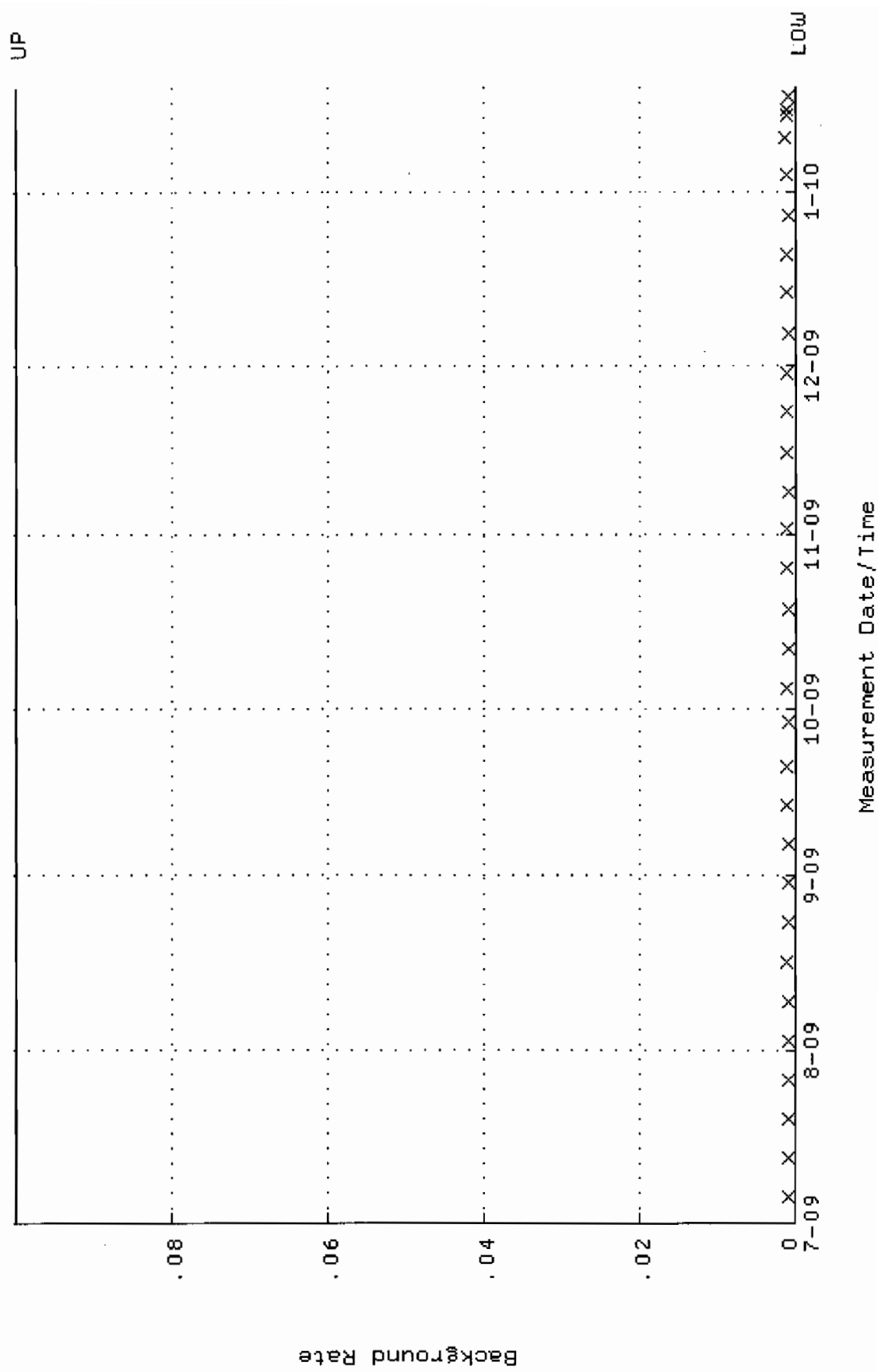




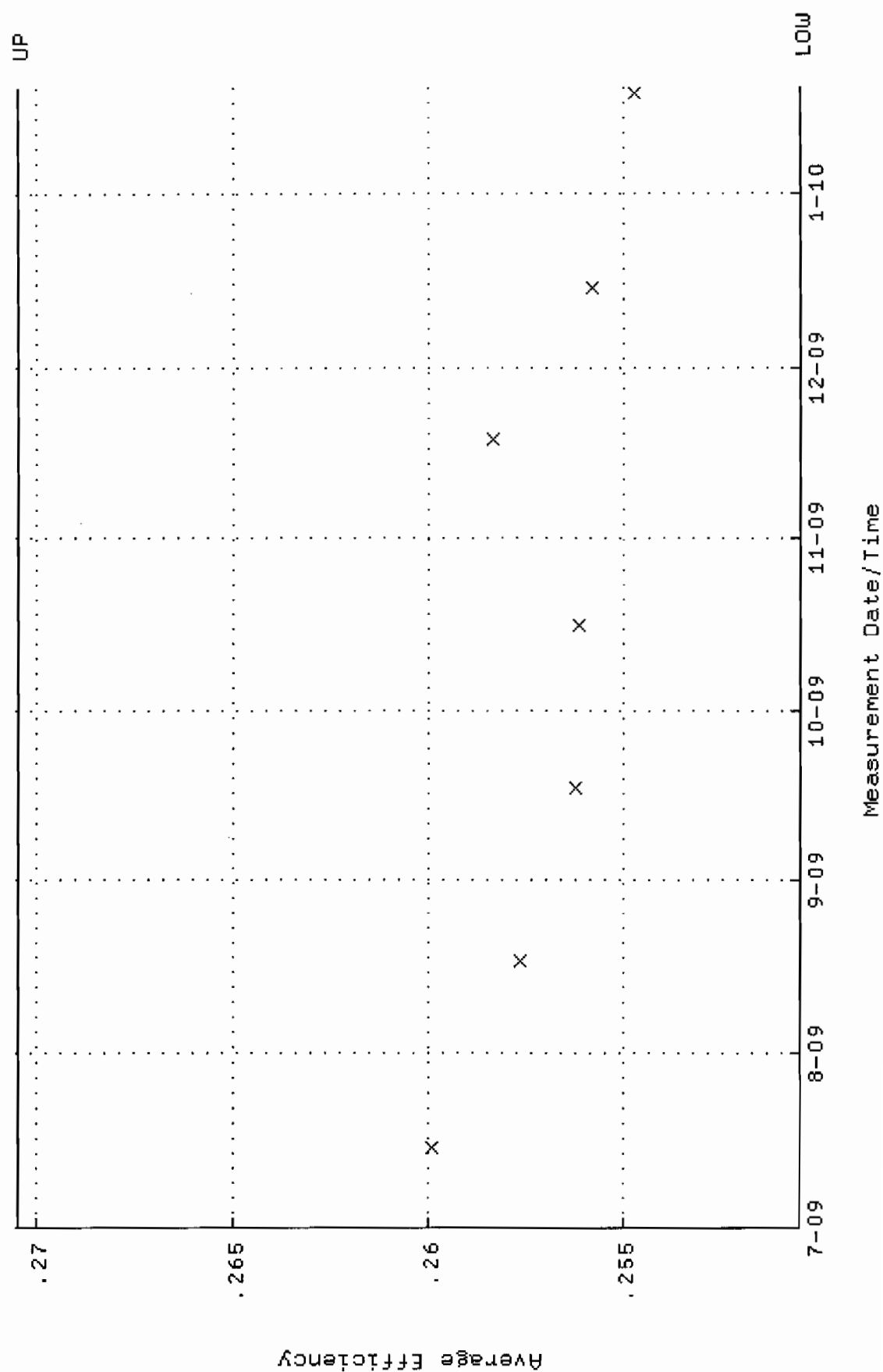
QA filename : DKA100:[ENVY\_ALPHA.QA.W]W117.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:07 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 85.8693 through 94.9081



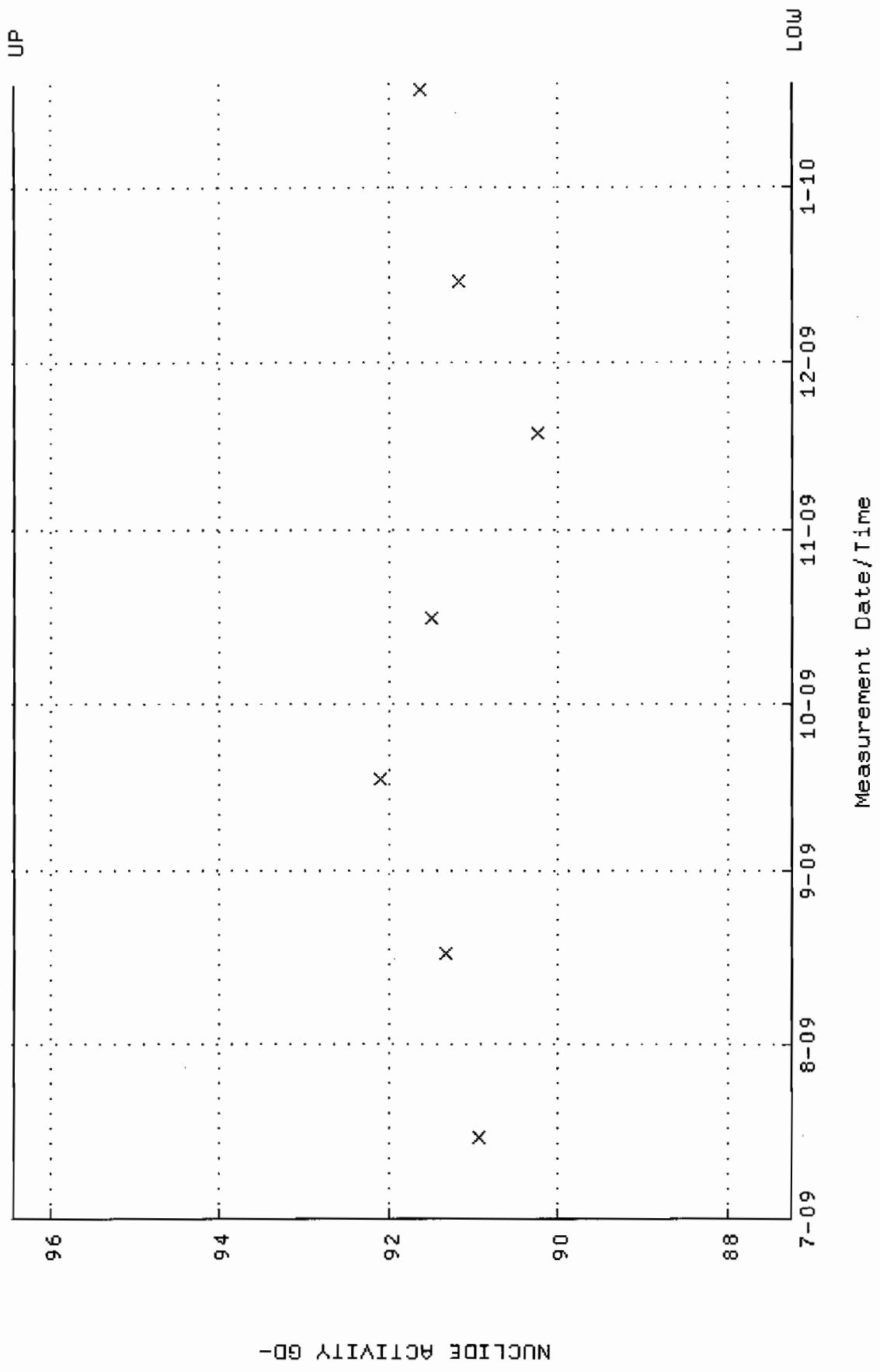
QA filename : DKA100:[ENV\_ALPHA.QA.B]B117.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:03 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



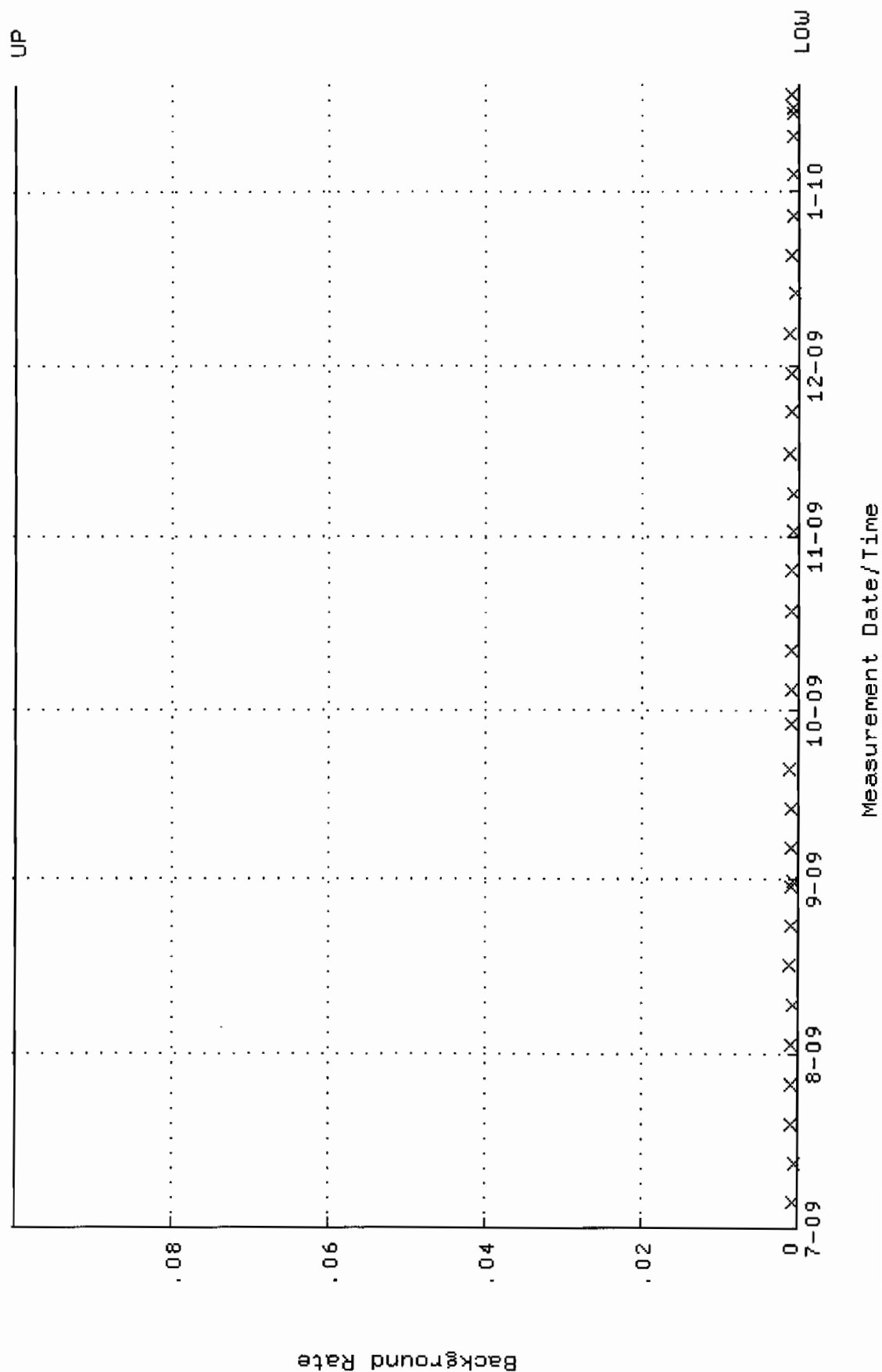
QA filename : DKA100:[ENV\_ALPHA.QA.W]W118.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-JUL-2009 08:38:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.250490 through 0.270490



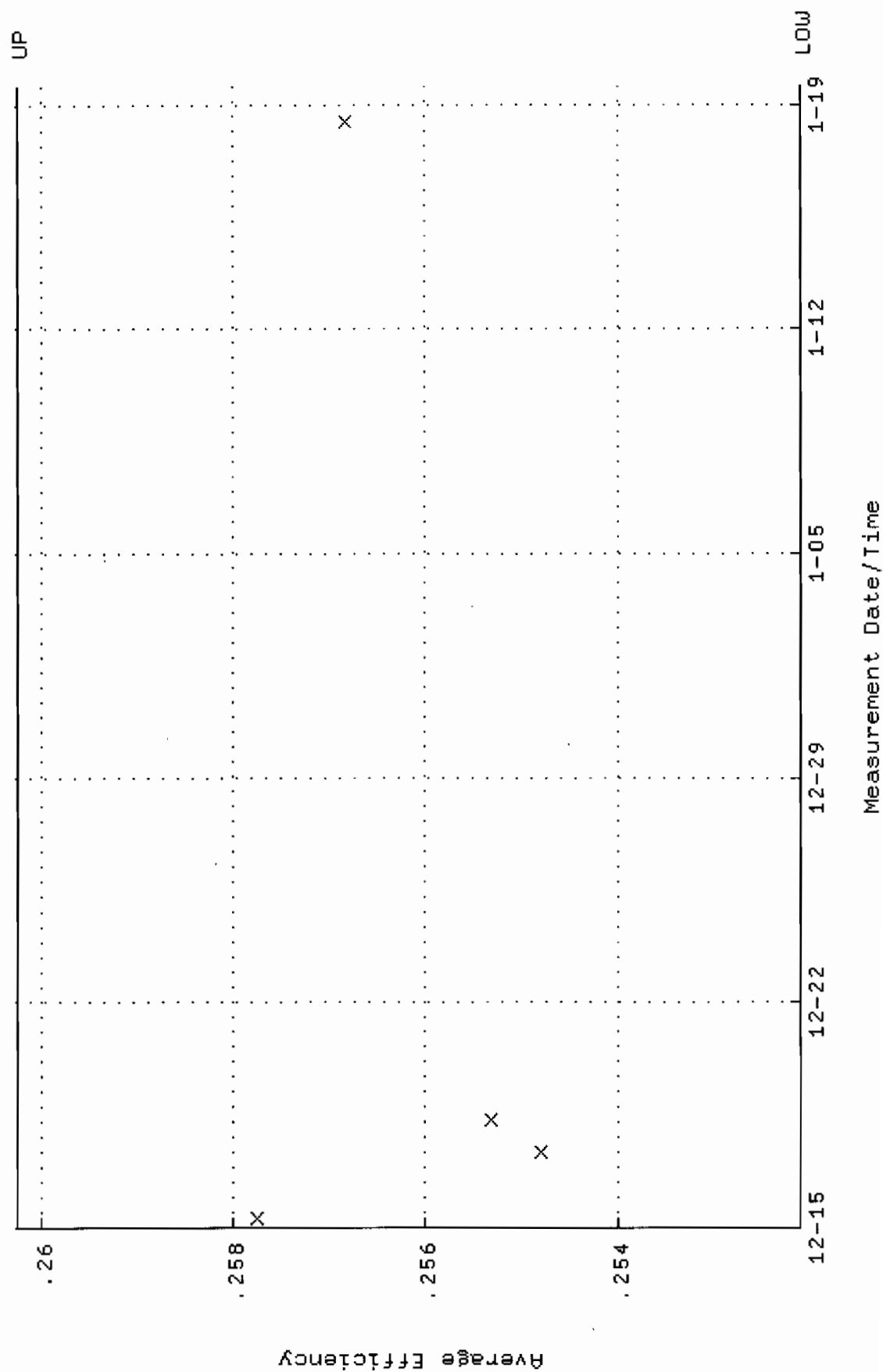
QA filename : DKA100:[ENV\_ALPHA.QA.W]w118.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-JUL-2009 08:38:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.2440 through 96.4276



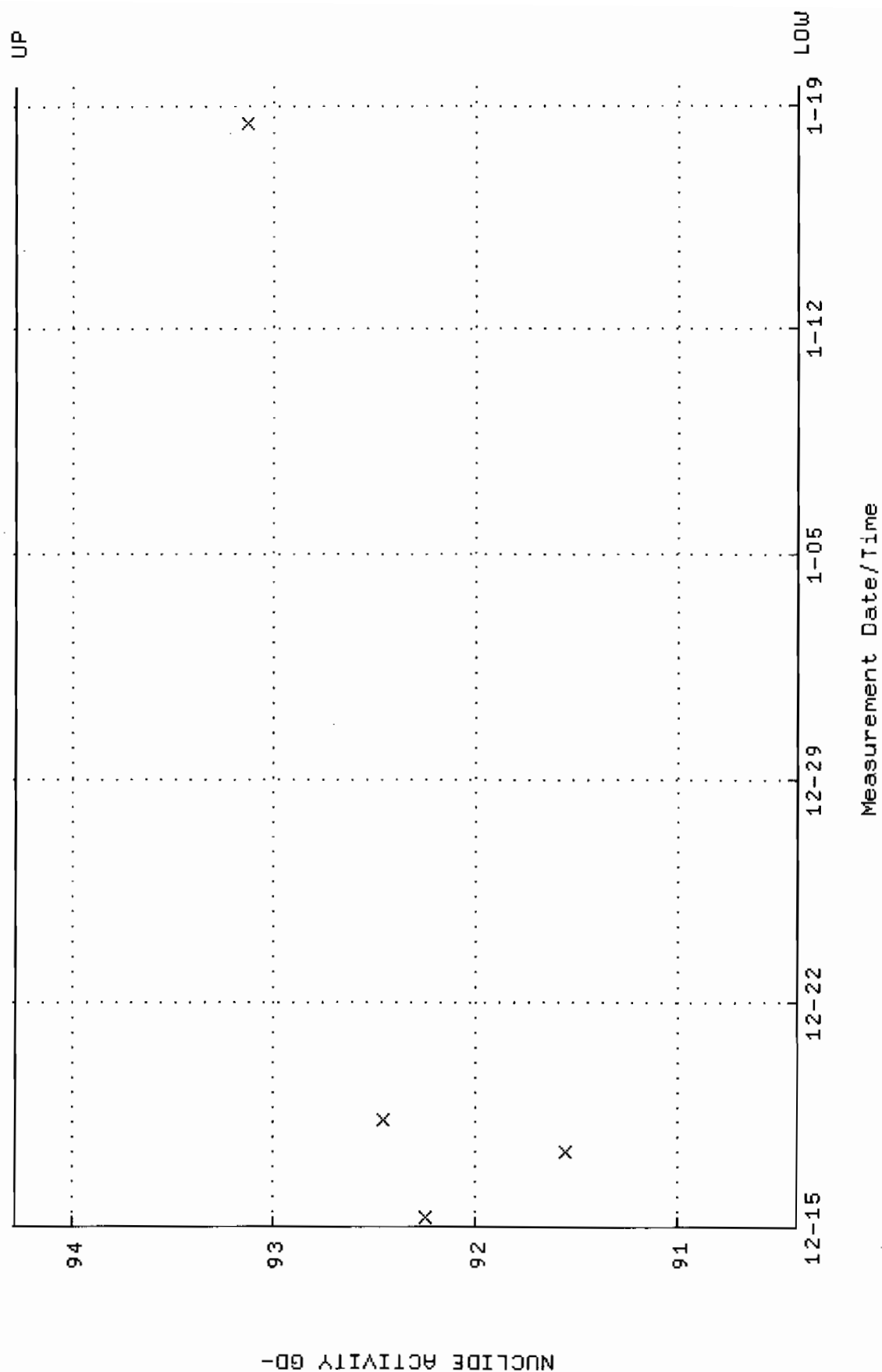
QA filename : DKA100:[ENV\_ALPHA.QA.B]B118.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:08 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



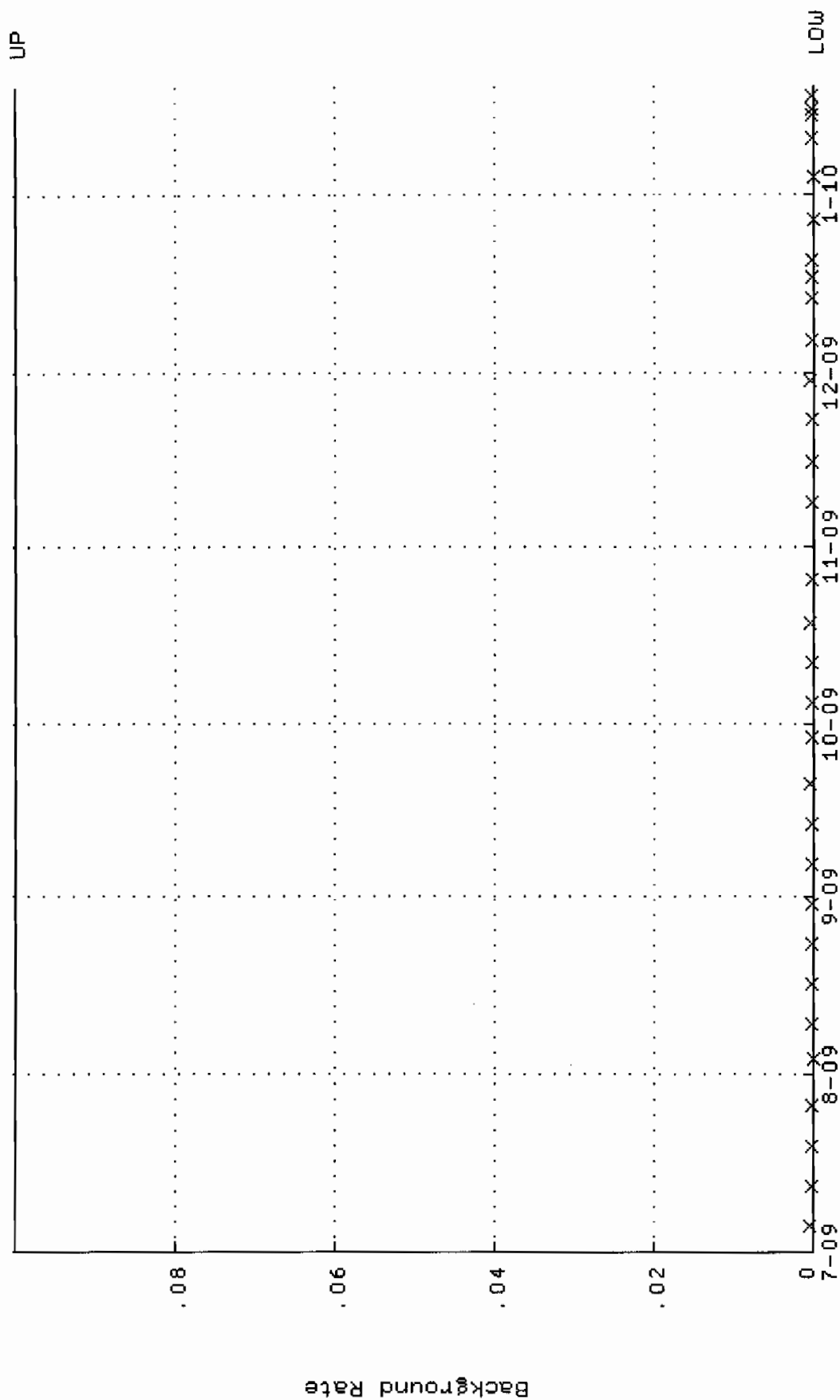
QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.252093 through 0.260243



QA filename : DKA100:[ENV\_ALPHA.QA.W]W119.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 15-DEC-2009 06:21:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.4107 through 94.2781

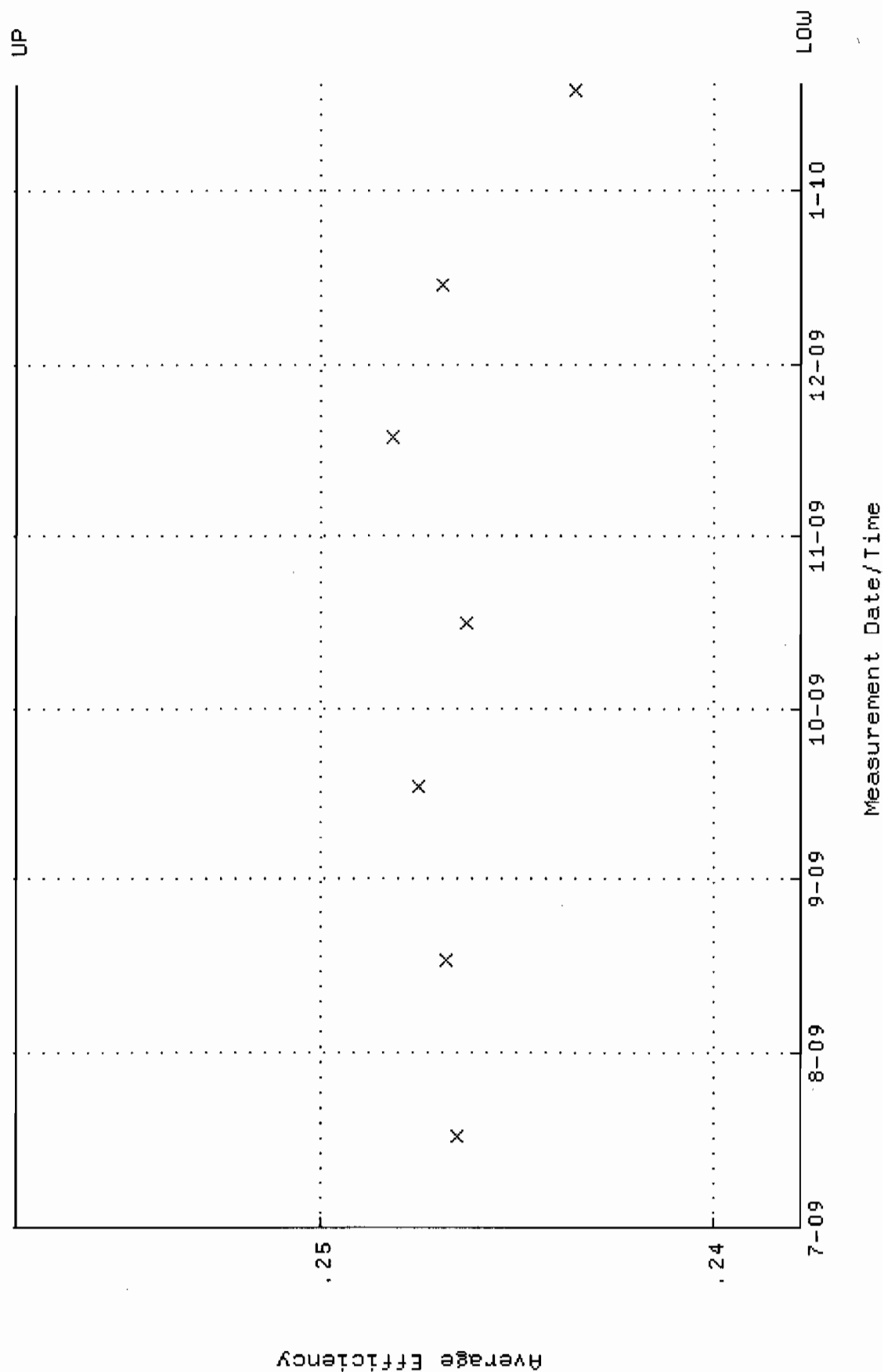


QA filename : OKA100:[ENV\_ALPHA.QA.B]B119.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:14 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

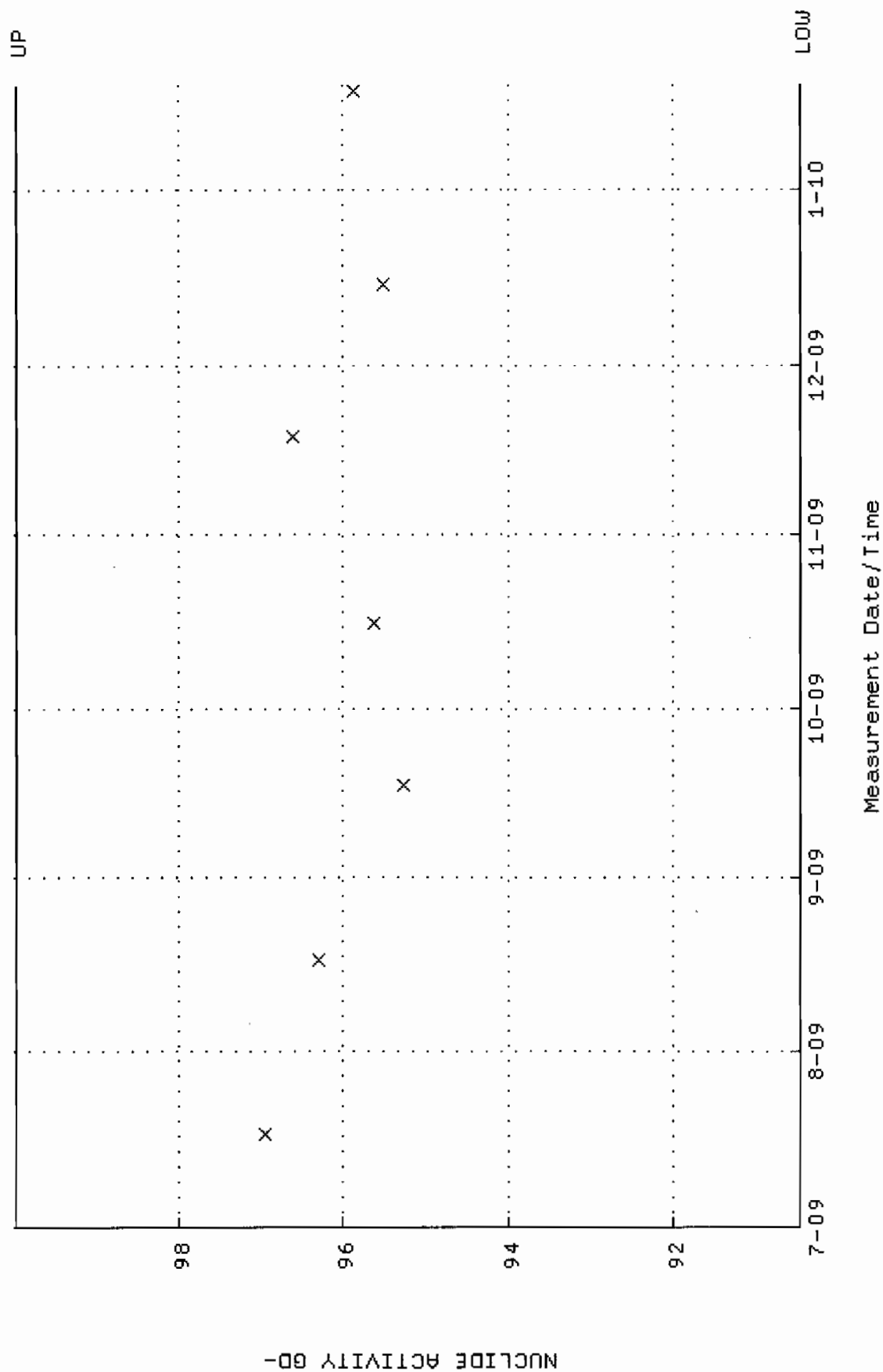




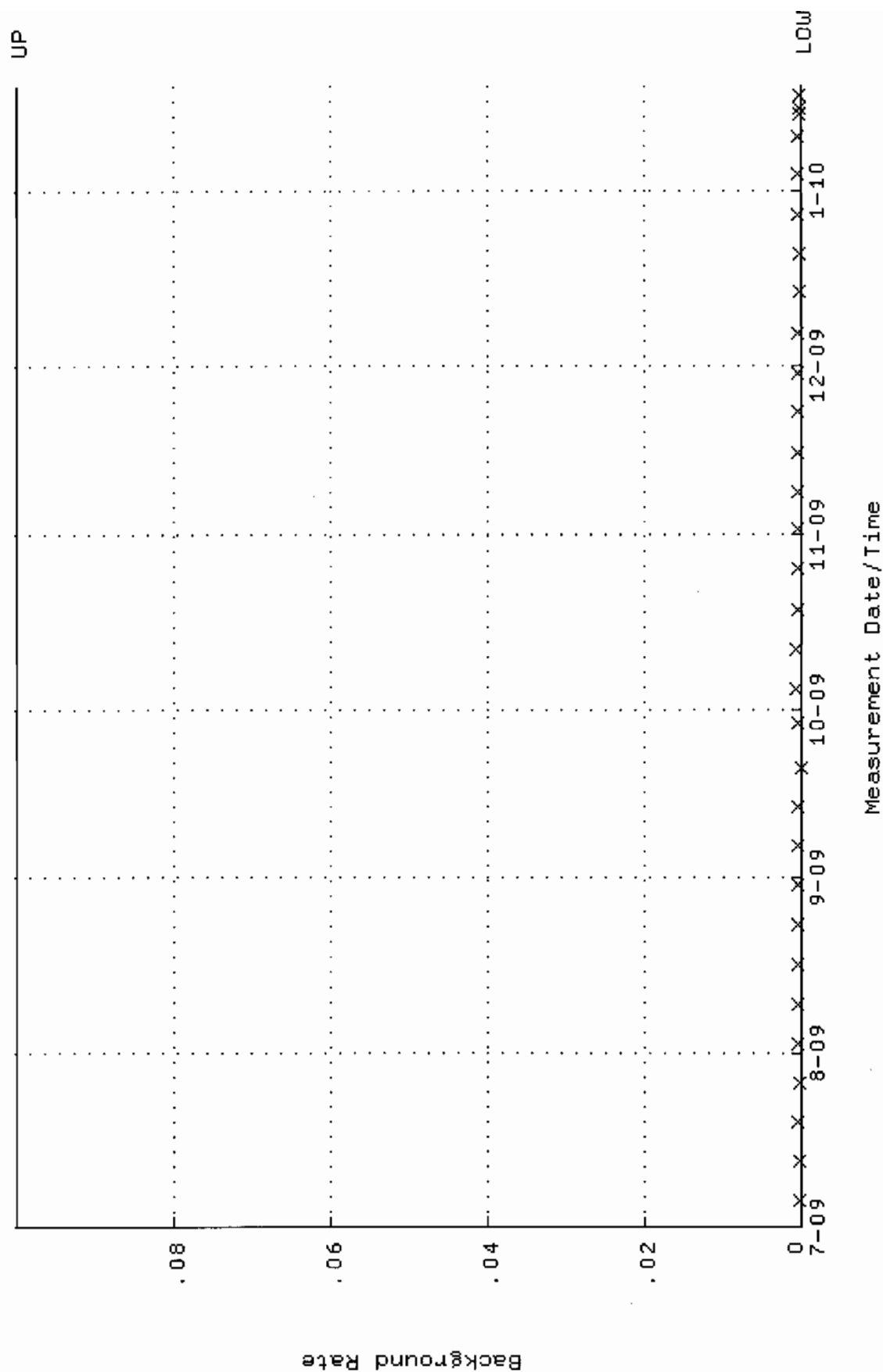
QA filename : DKA100:[ENV\_ALPHA.QA.W]w127.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:11:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.237773 through 0.257773

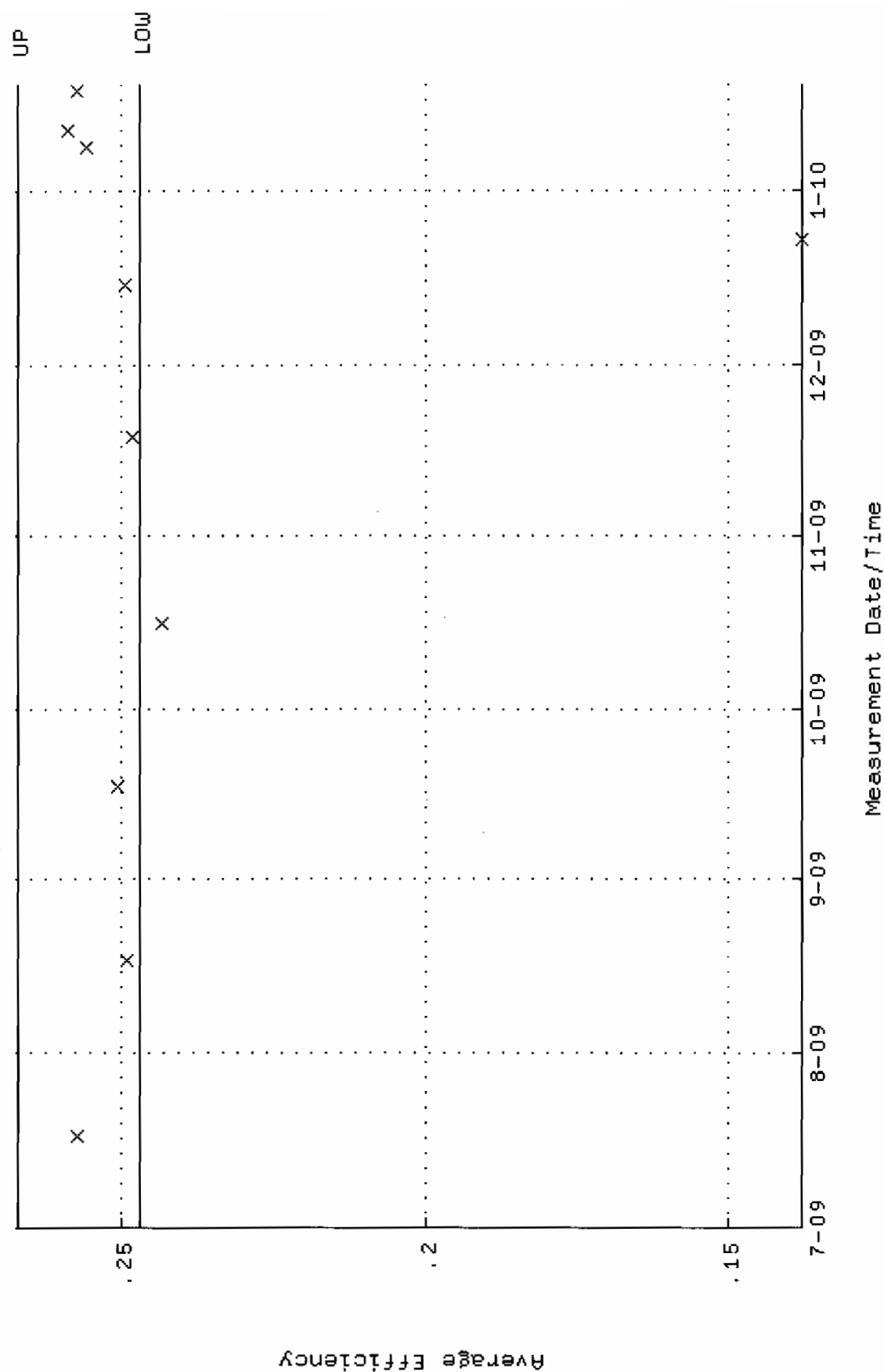


QA filename : DKA100:[ENV\_ALPHA.QA.W]W127.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:11:52 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 90.4503 through 99.9713

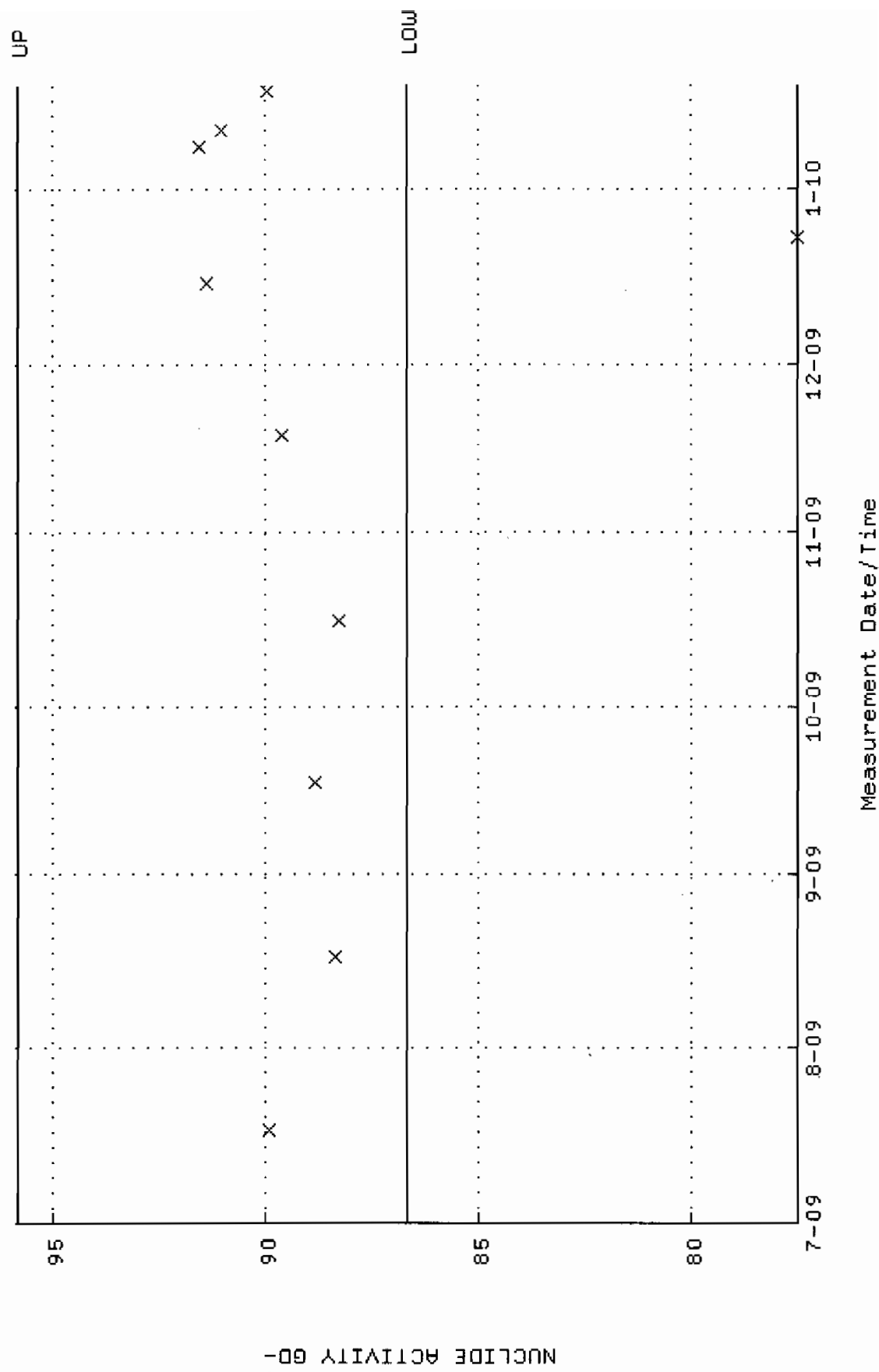


QA filename : OKA100:[ENV\_ALPHA.QA.B]B127.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:55:55 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000

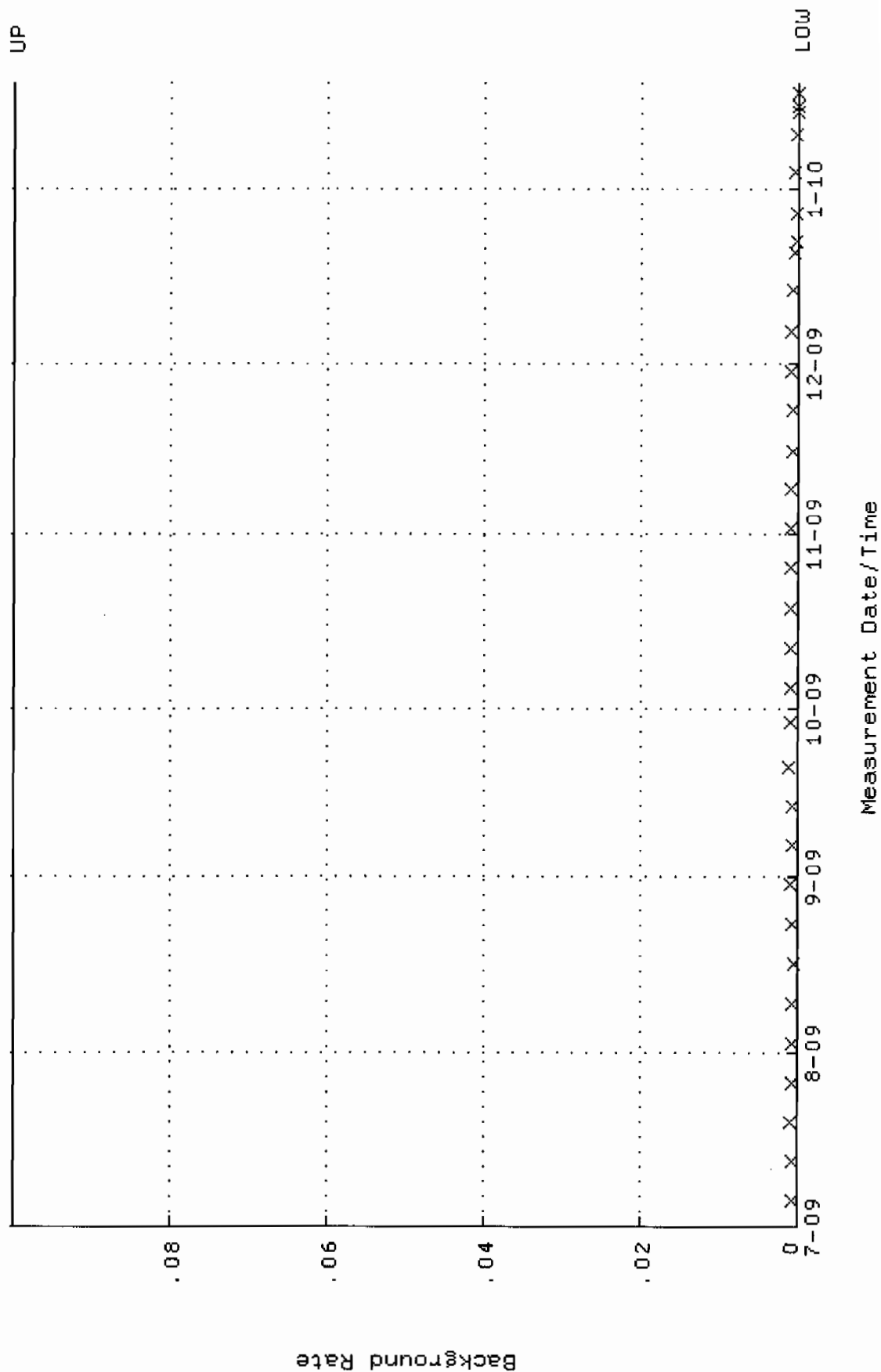




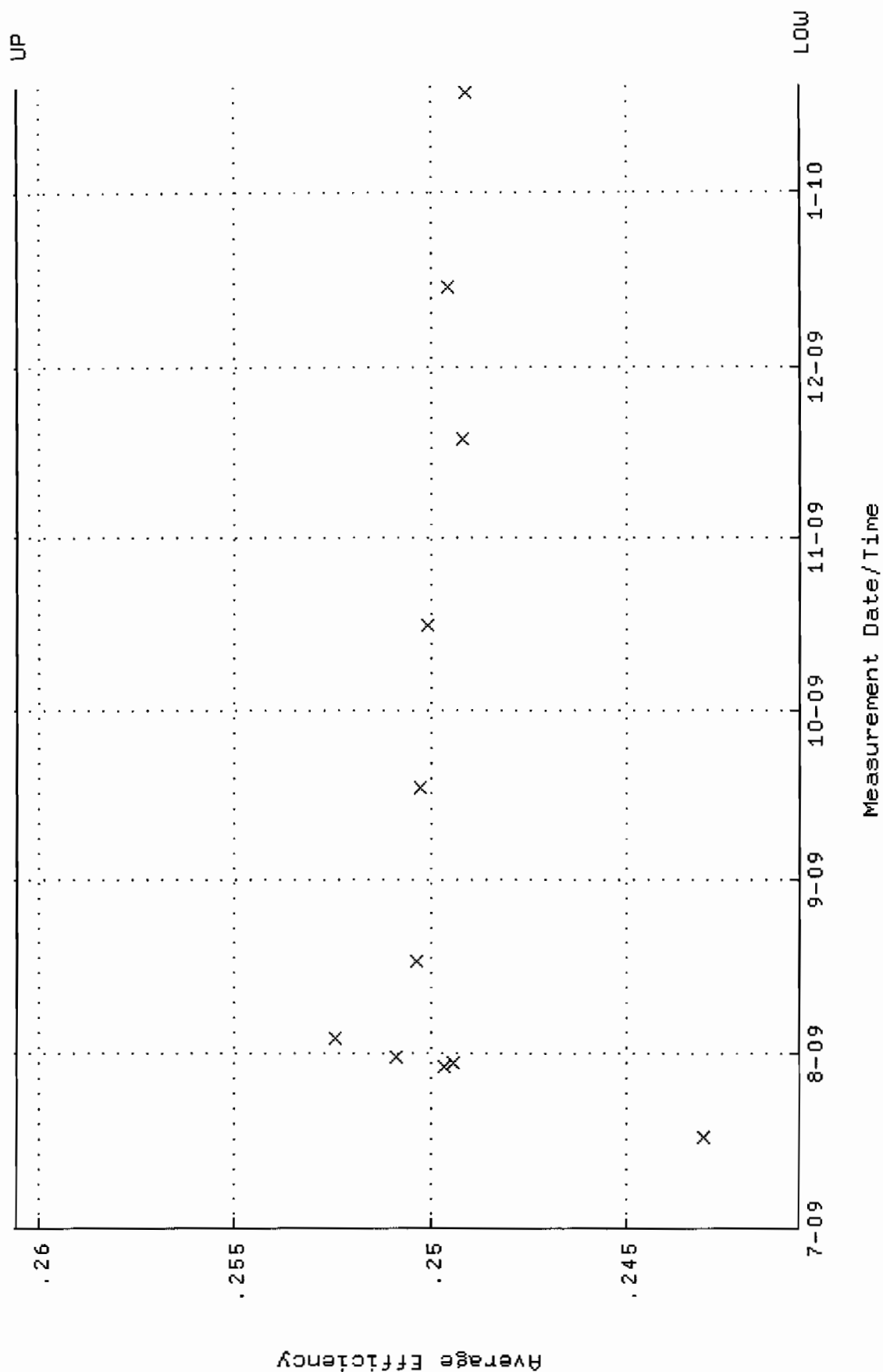
QA filename : DKA100:[ENV\_ALPHA.QA.W]w131.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:12:11 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 86.7058 through 95.8328



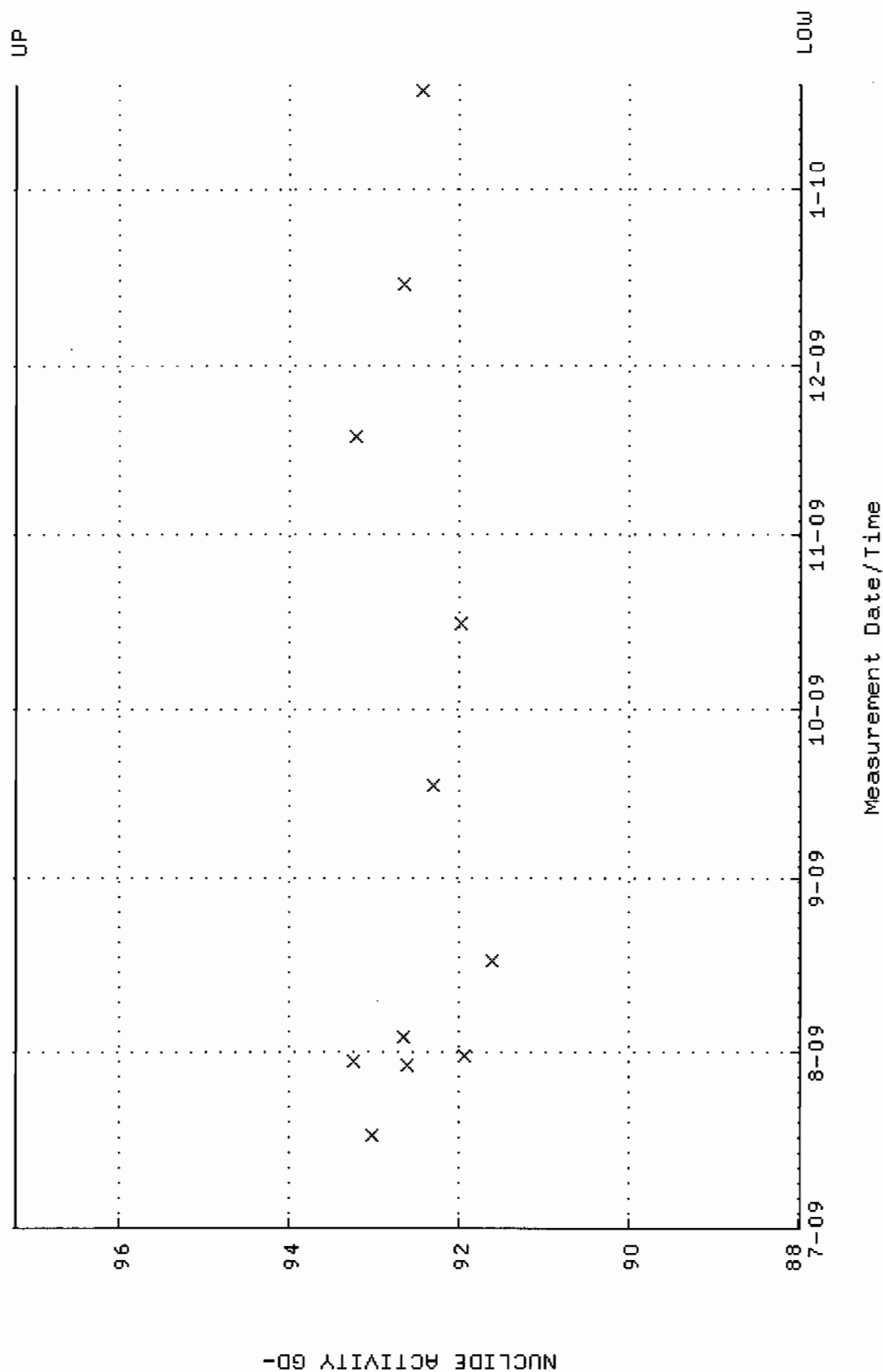
QA filename : DKA100:[ENV\_ALPHA.QA.B]B131.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:16 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



QA filename : DKA100:[ENV\_ALPHA.QA.W]W132.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 17-JUL-2009 09:12:16 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.240573 through 0.260573

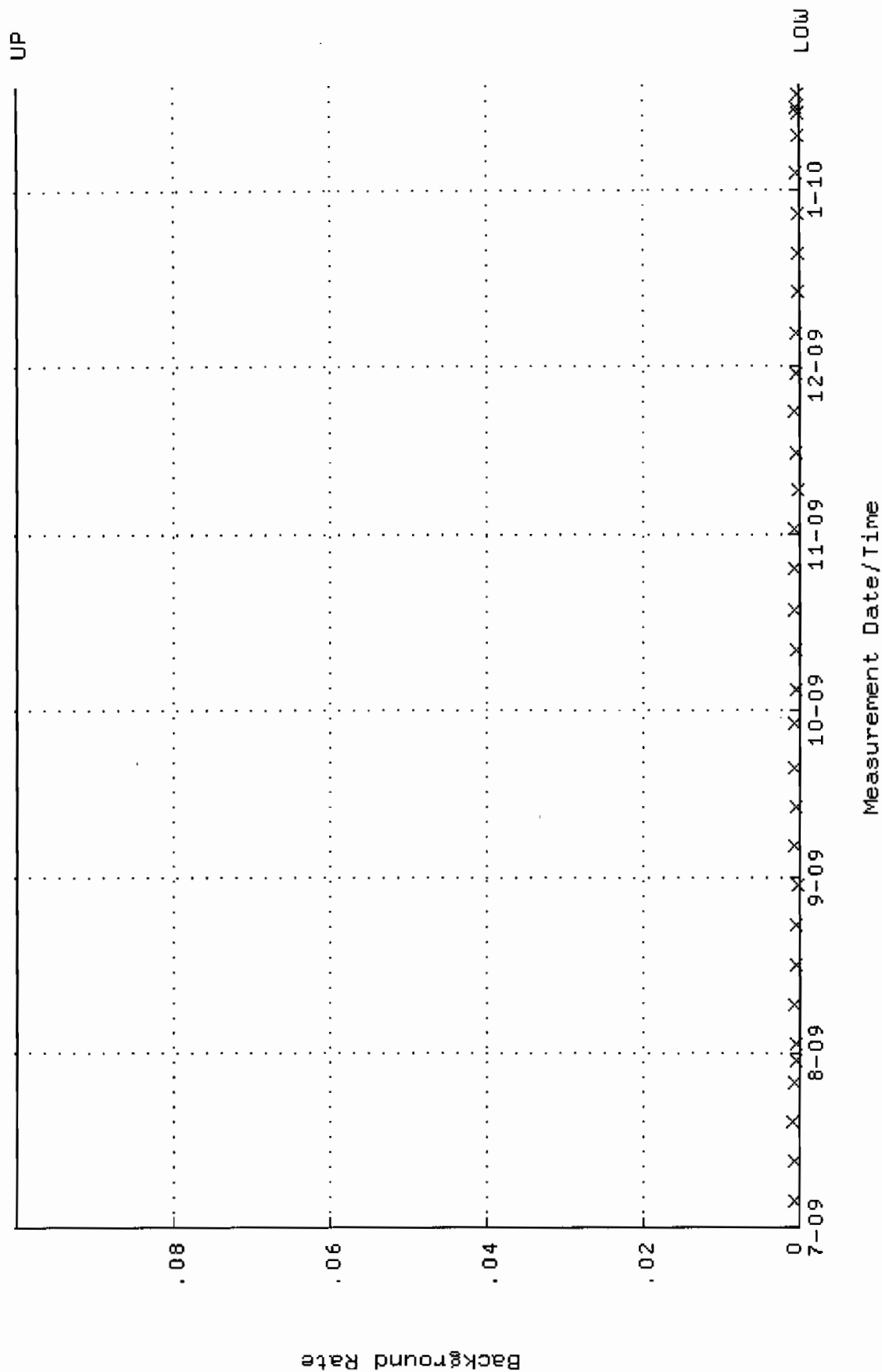


QA filename : DKA100:[ENV-ALPHA.QA.W]W132.QAF;1  
 Parameter Name : NLAIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 17-JUL-2009 09:12:16 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 87.9674 through 97.2272

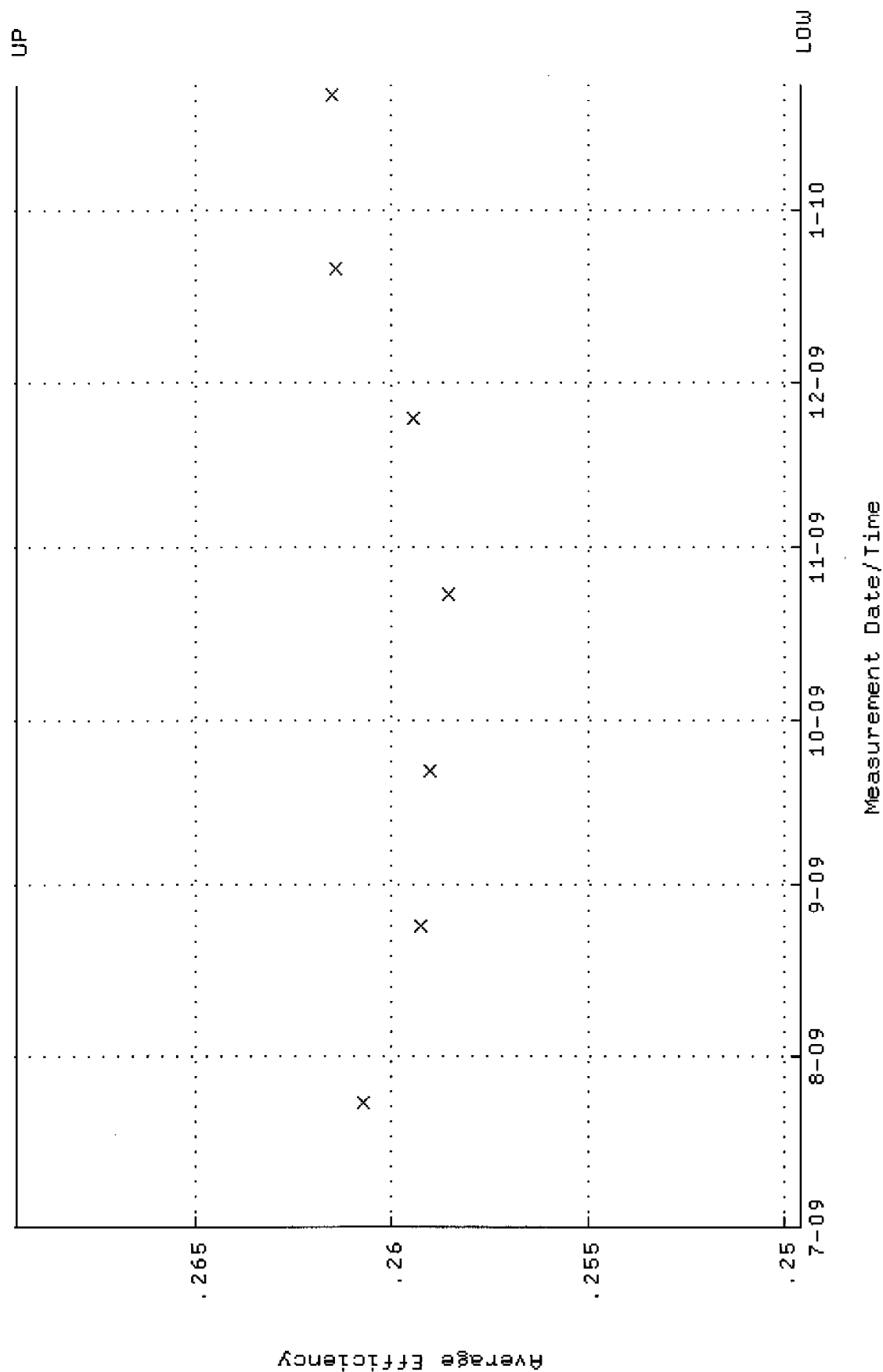




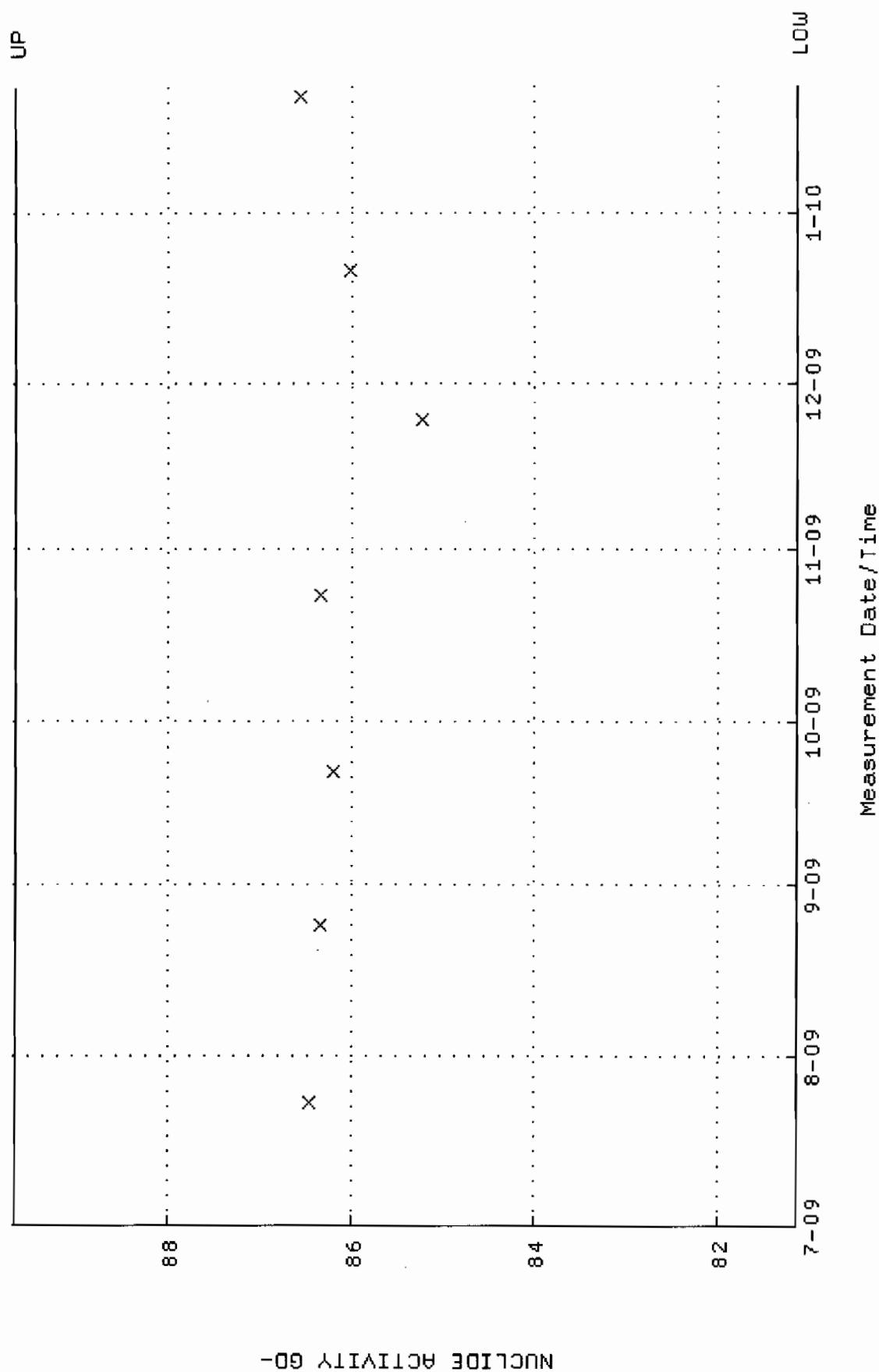
QA filename : DKA100:[ENV\_ALPHA.QA.B]B132.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 14:56:21 through 19-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



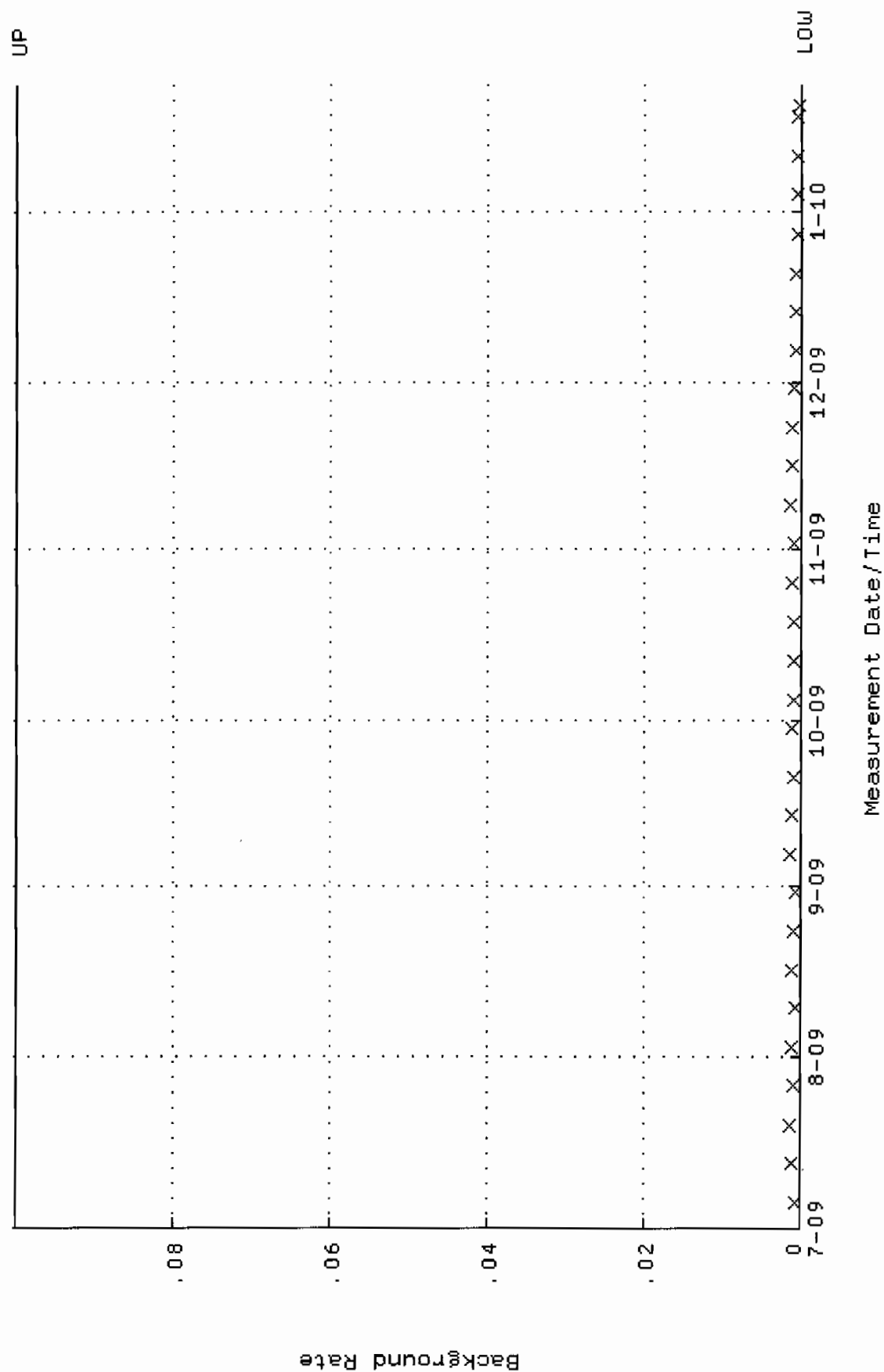
QA filename : DKA100:[ENV\_ALPHA.QA.W]W201.QAF;1  
 Parameter Name : AVRGEFF (Average Efficiency)  
 Start/End Dates : 23-JUL-2009 07:58:10 through 23-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.249568 through 0.269568



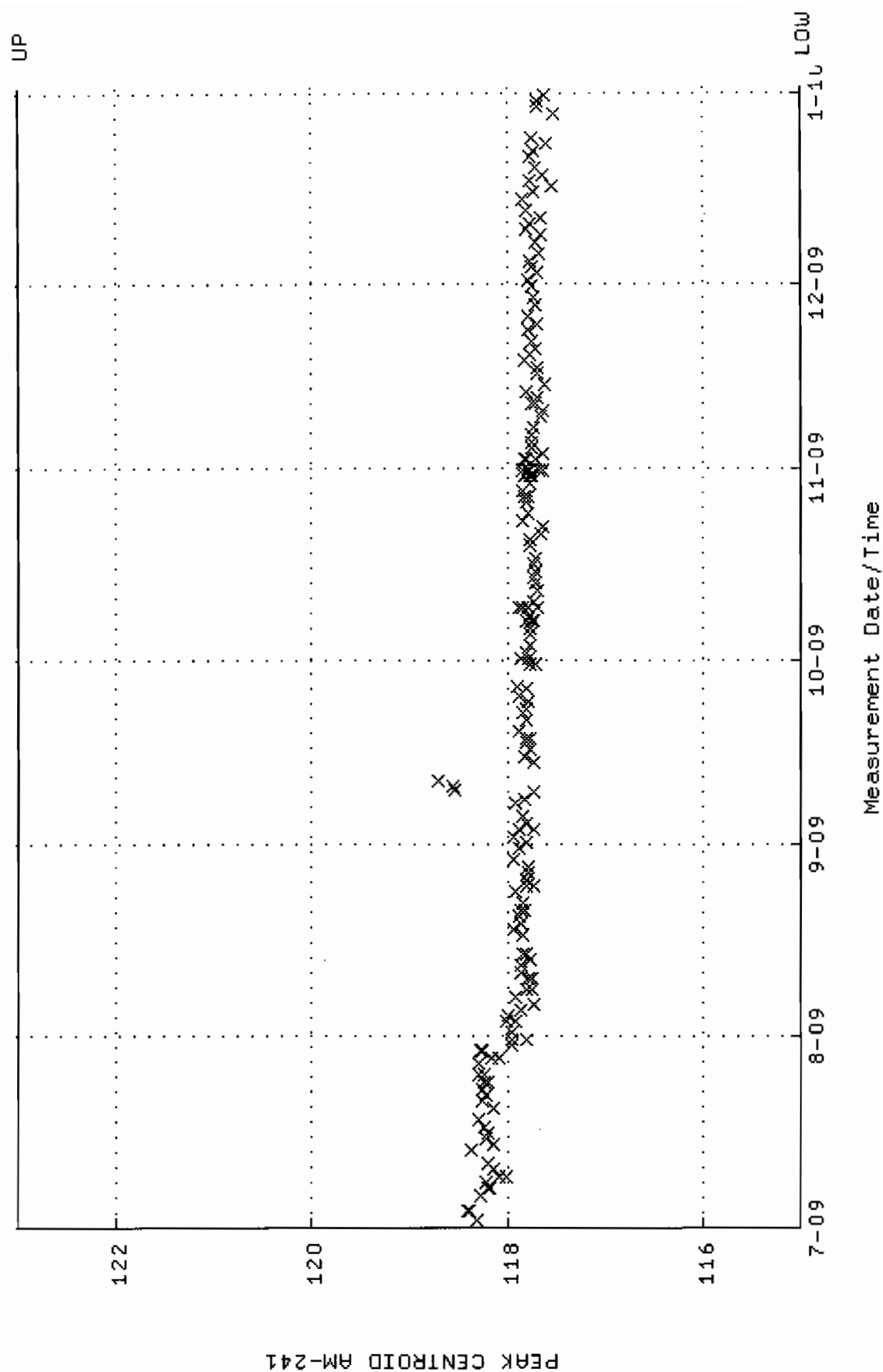
QA filename : DKA100:[ENV\_ALPHA.QA.W]W201.QAF;1  
 Parameter Name : NLACTIVITY-GD148 (NUCLIDE ACTIVITY GD-148)  
 Start/End Dates : 23-JUL-2009 07:58:10 through 23-JAN-2010 12:00:00  
 Lower/Upper Lmts: 81.1299 through 89.6699



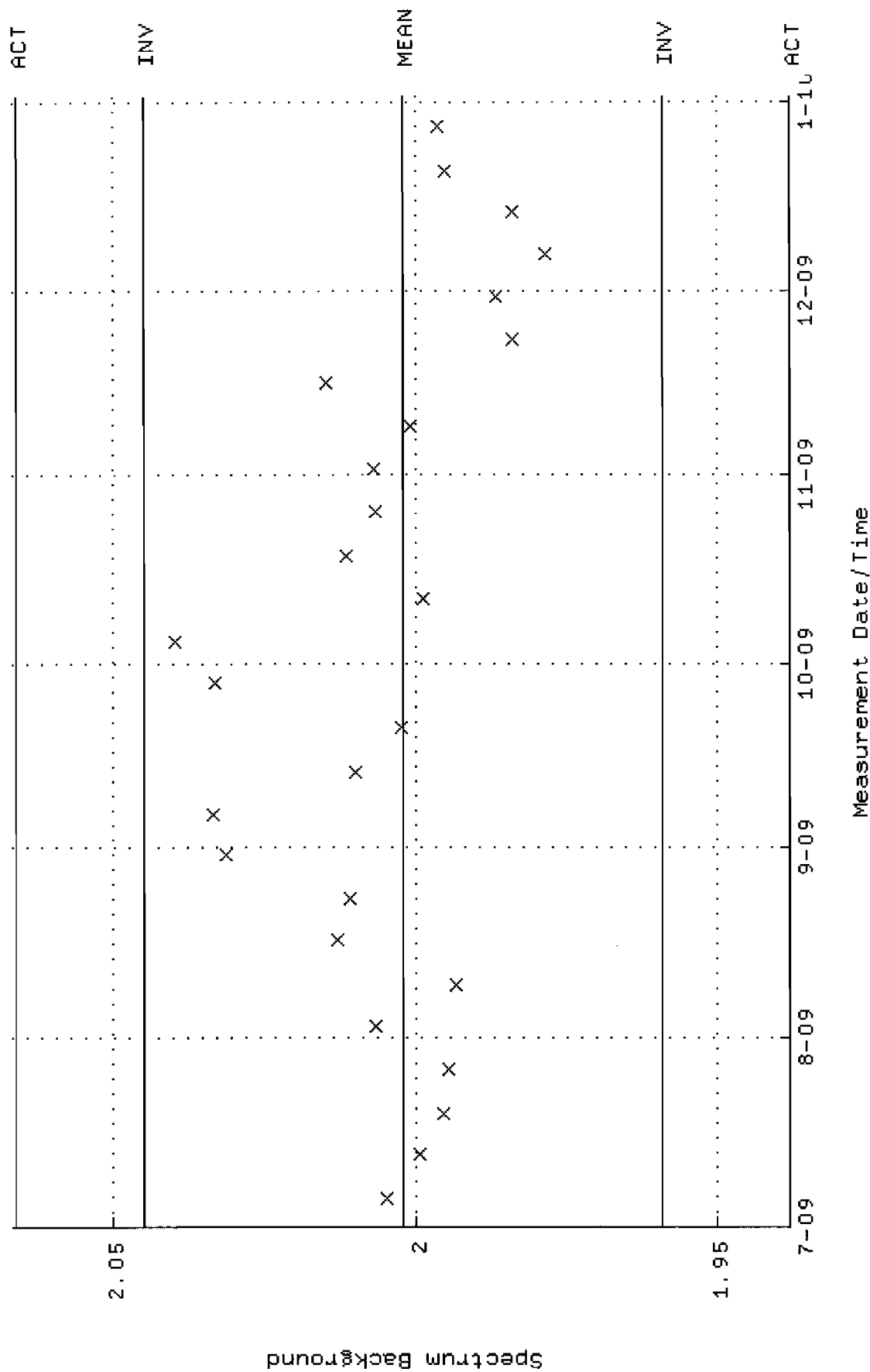
QA filename : DKA100:[ENV\_ALPHA.QA.B]B201.QAF;1  
 Parameter Name : BACKRATE (Background Rate)  
 Start/End Dates : 5-JUL-2009 15:02:46 through 23-JAN-2010 12:00:00  
 Lower/Upper Lmts: 0.000000E+00 through 0.100000



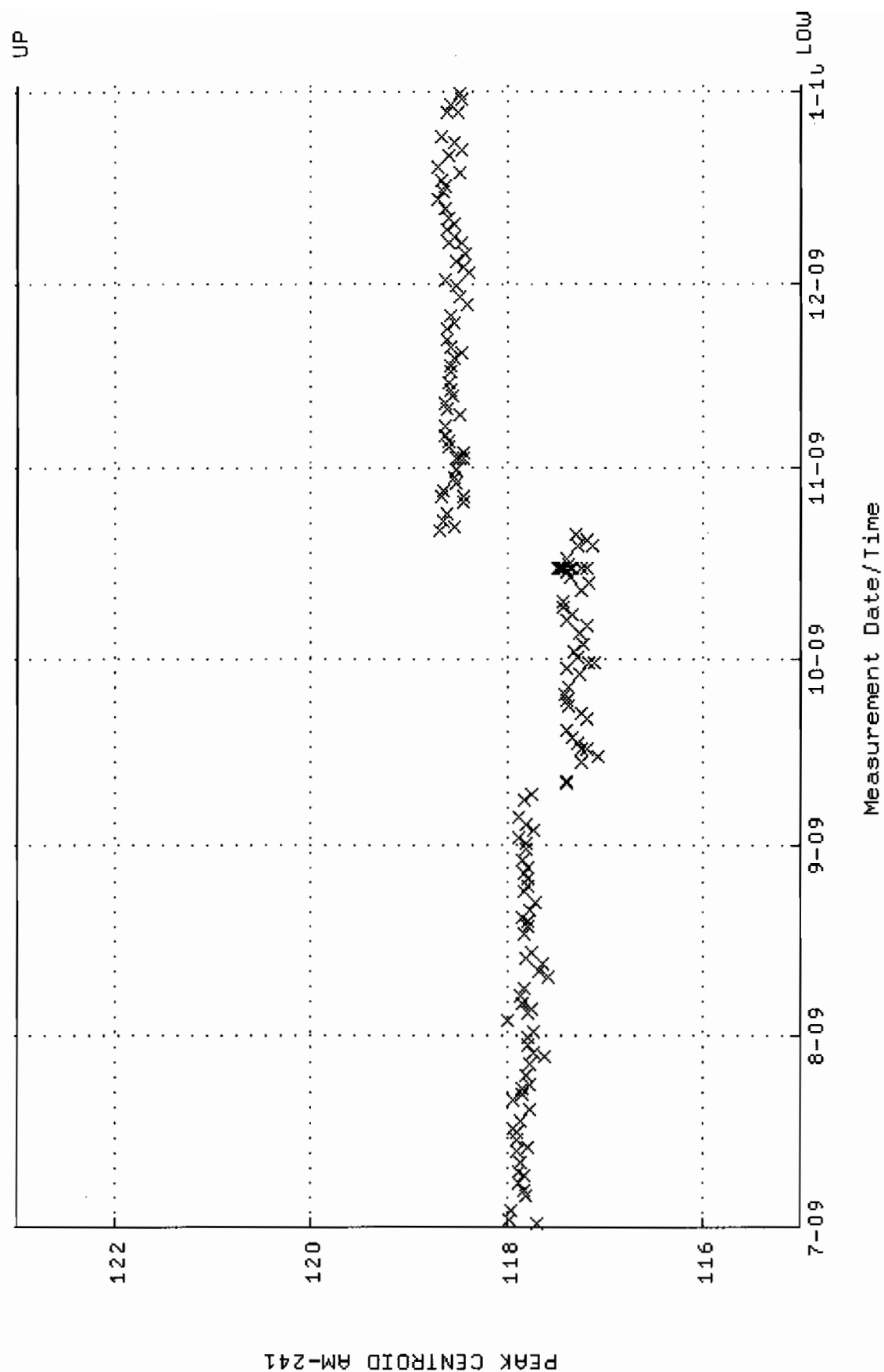
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM02-CAN.QAF;1  
Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
Start/End Dates : 2-JUL-2009 04:58:43 through 1-JAN-2010 12:00:00  
Lower/Upper Lmts: 115.000 through 123.000



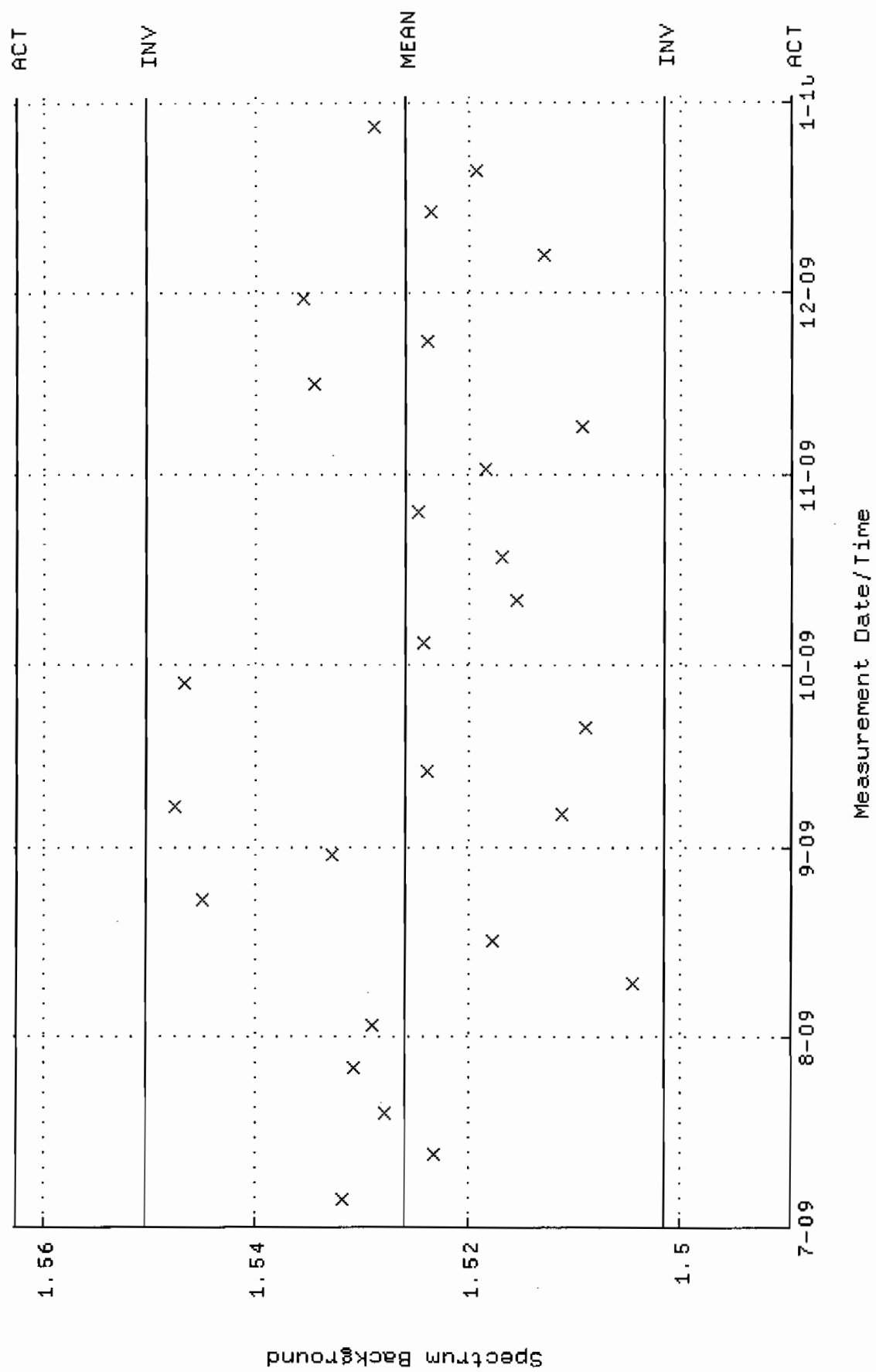
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM02.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:49:39 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 2.00226 +- 2.139827E-02 (1.07 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM06\_500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 1-JUL-2009 14:30:59 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

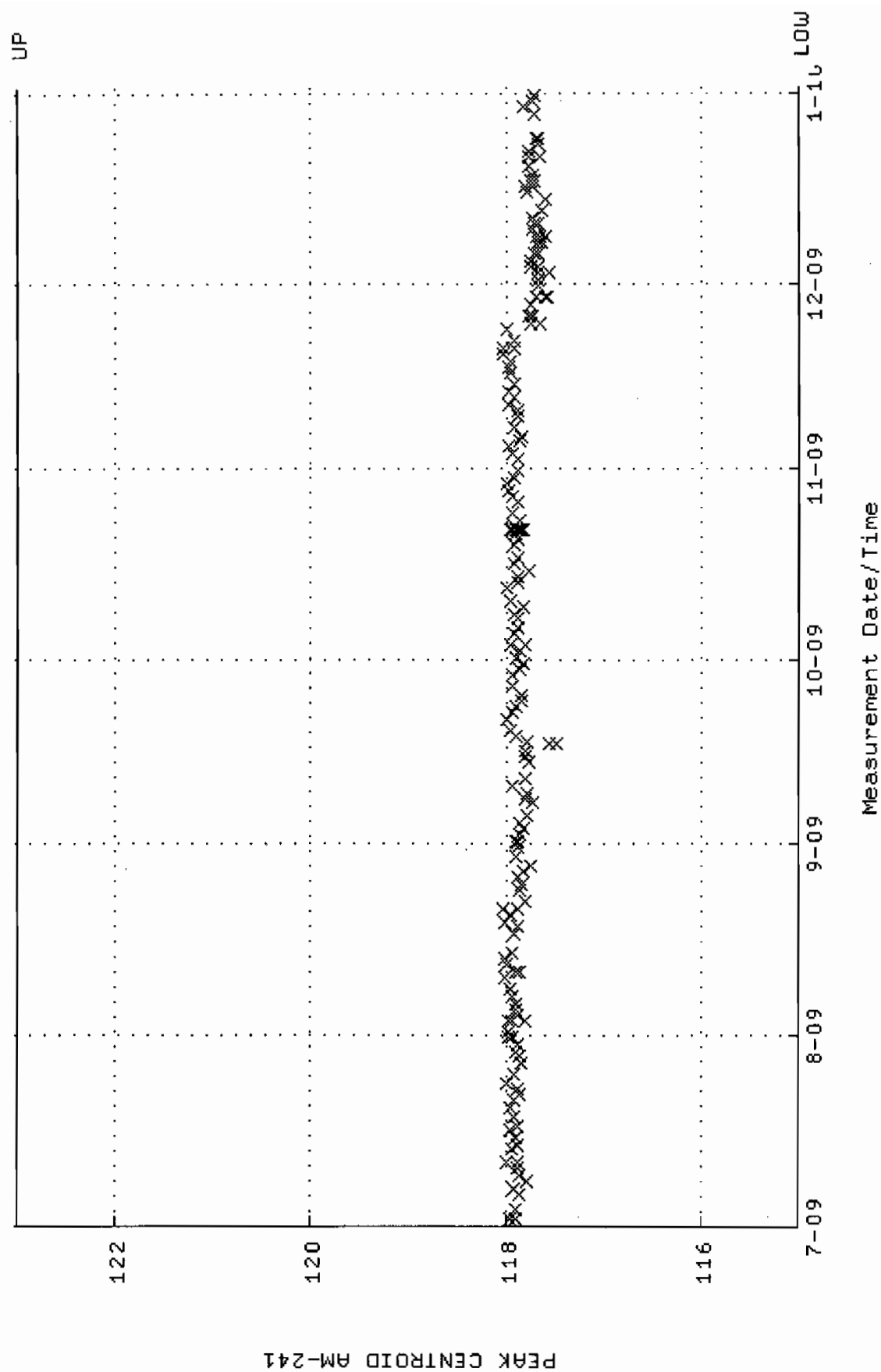


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM06.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:50:15 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.52603 +- 1.215987E-02 (0.80 %)

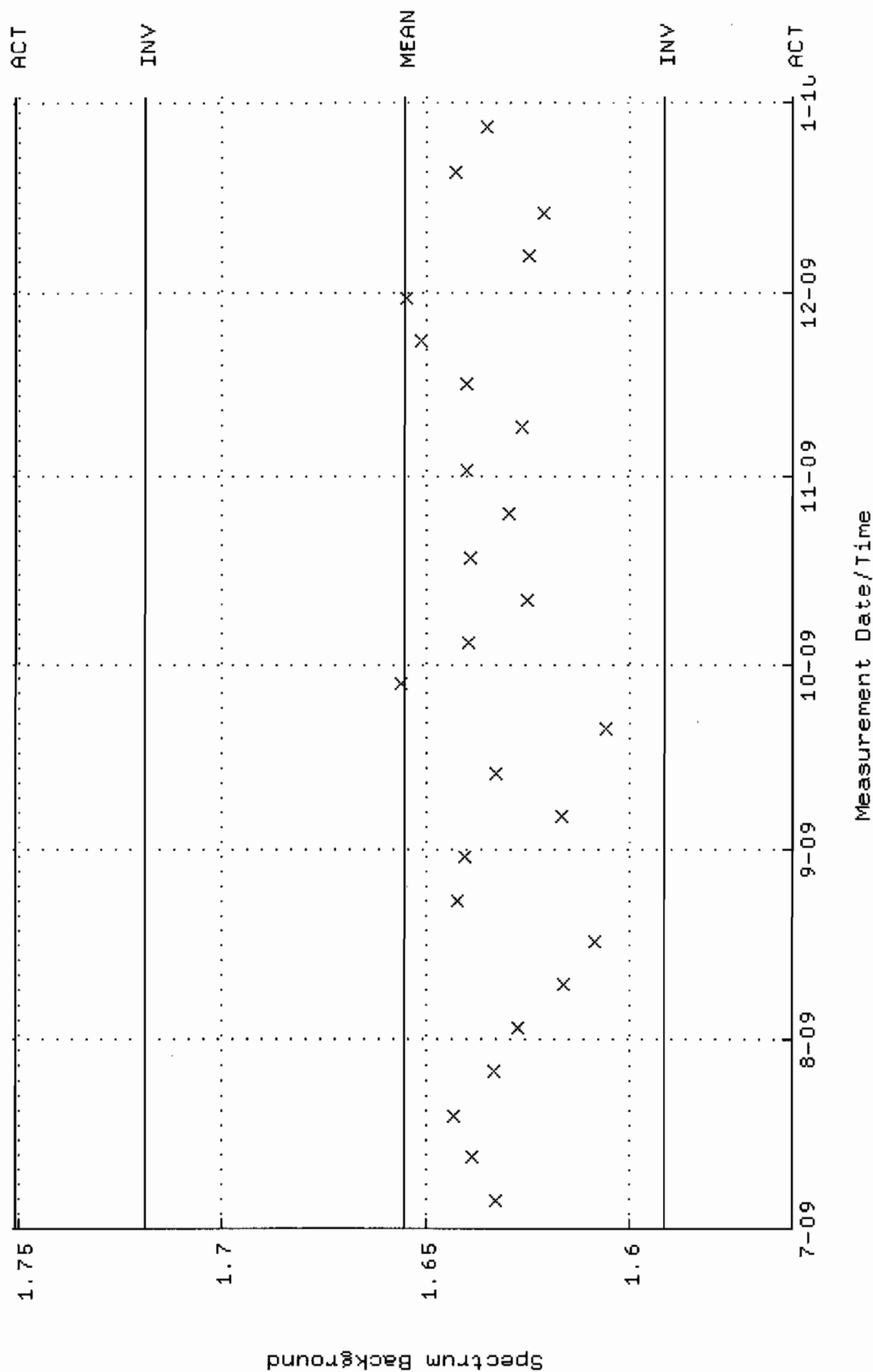




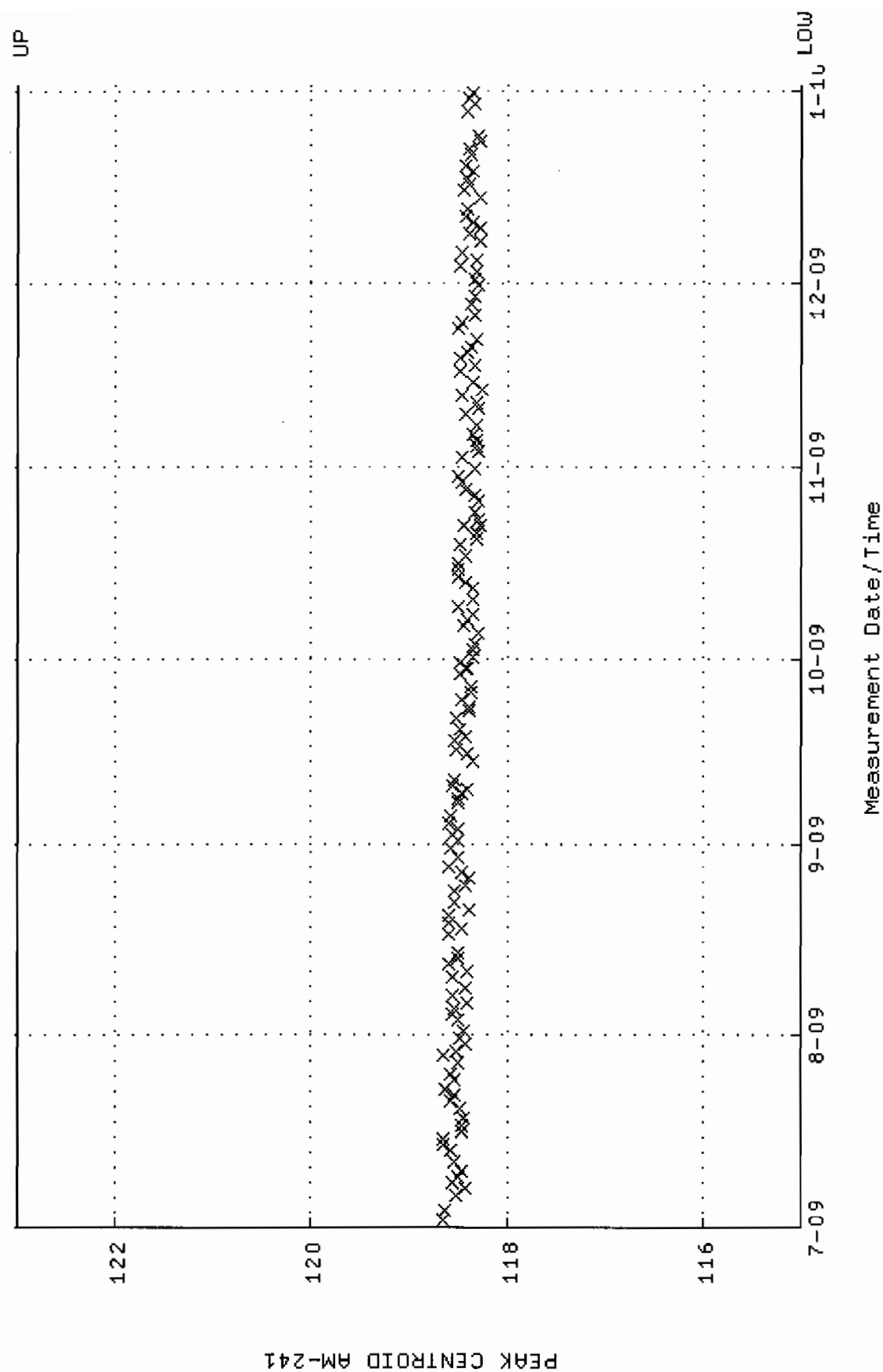
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM11-JAR.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:04 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



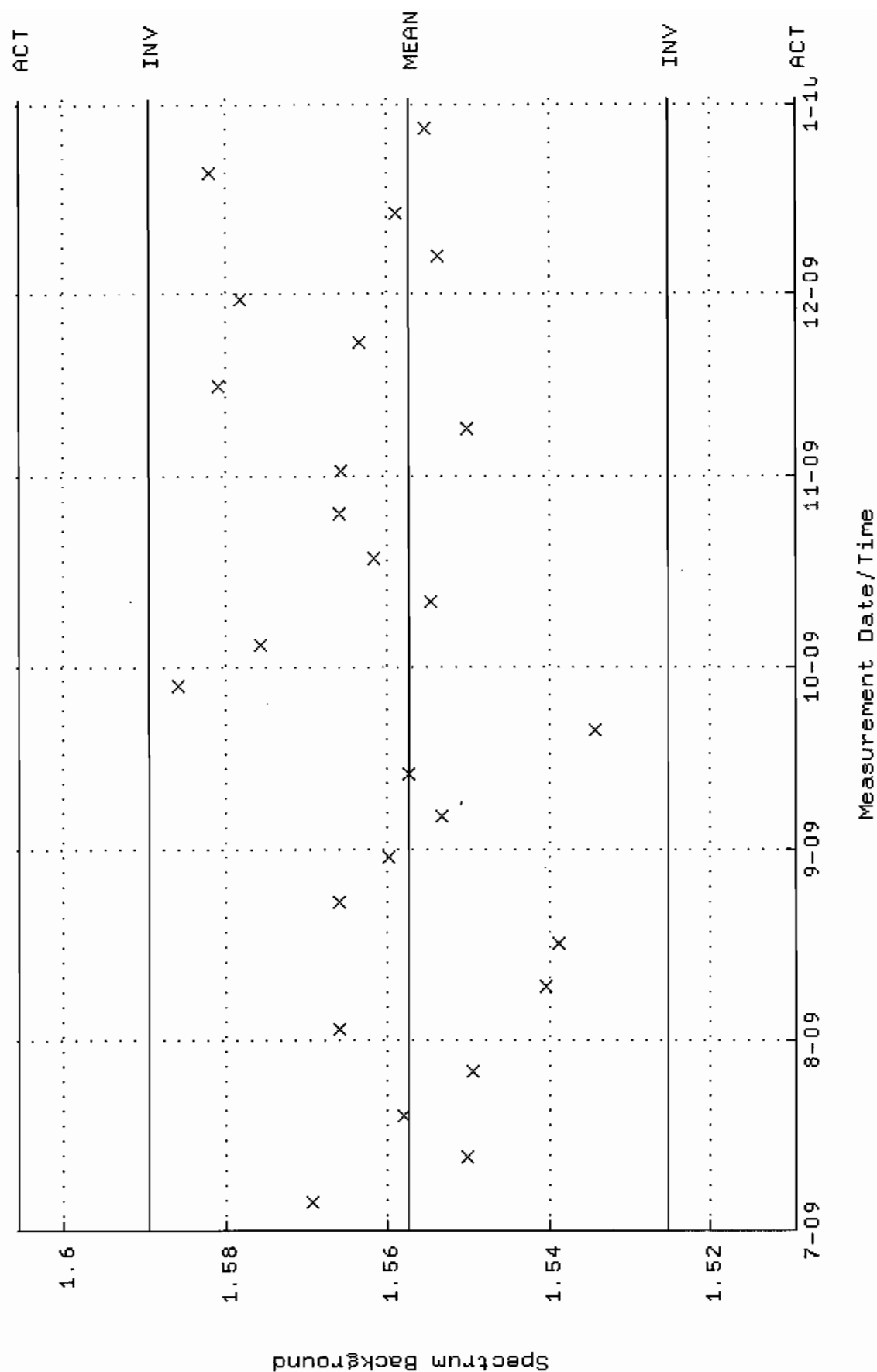
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM11.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:51:39 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.65552 +- 3.175806E-02 (1.92 %)



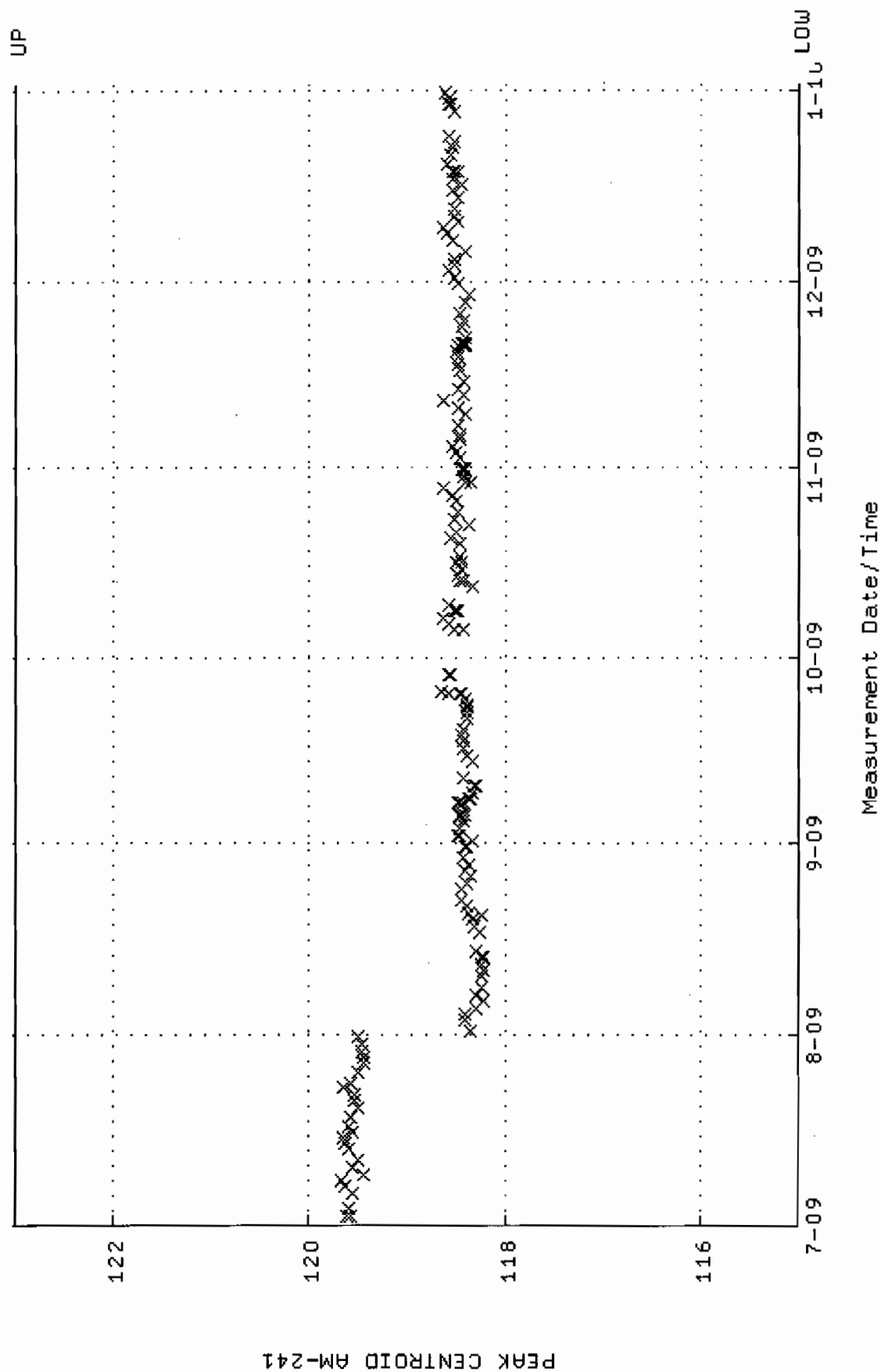
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM12\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:11 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



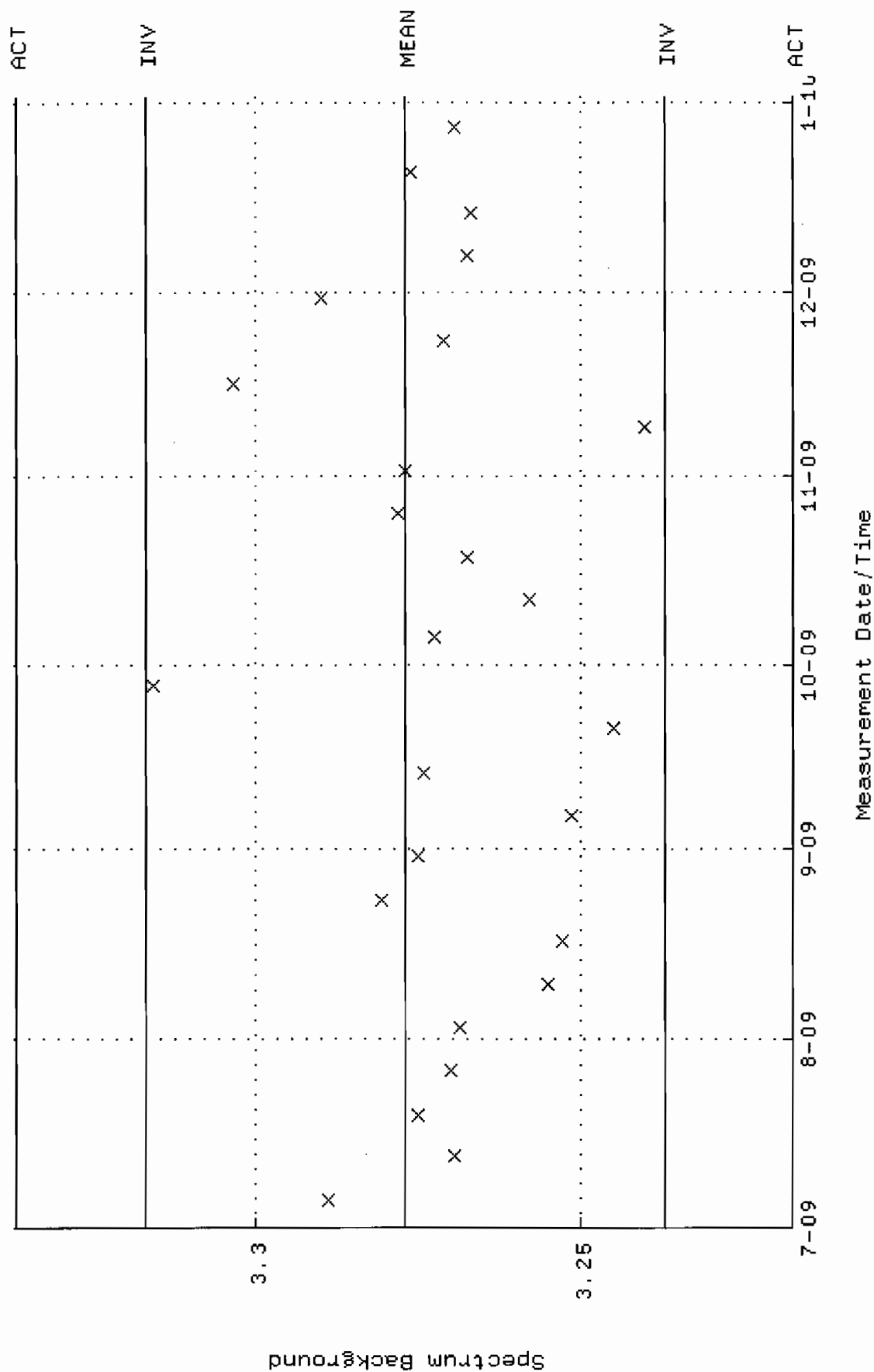
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM12.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:04 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.55746 +- 1.601675E-02 (1.03 %)



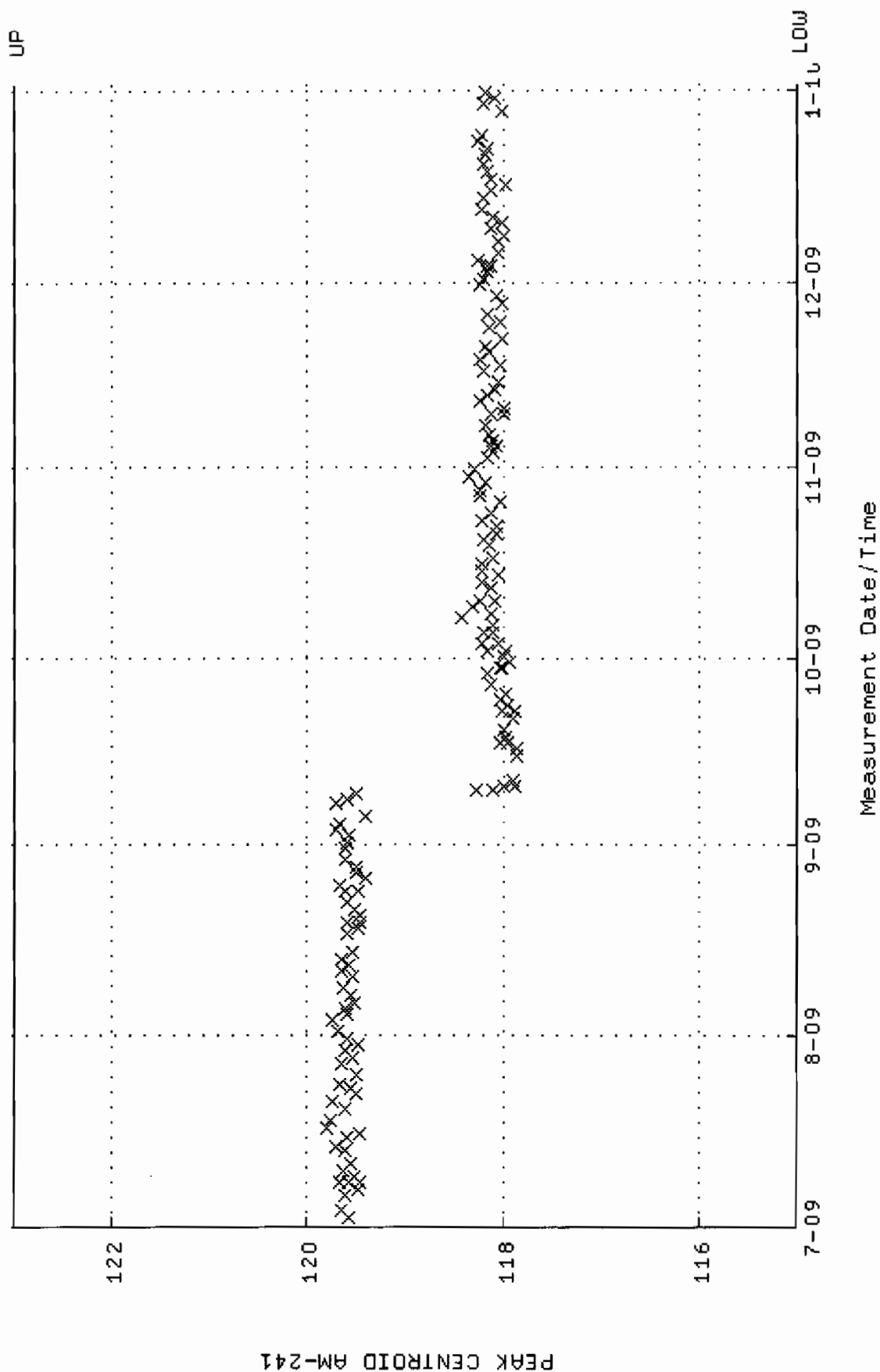
QA filename : DKA100:[CANNBERRA.GAMMA.SCUSR.QA]QCC-GAM13-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:30 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



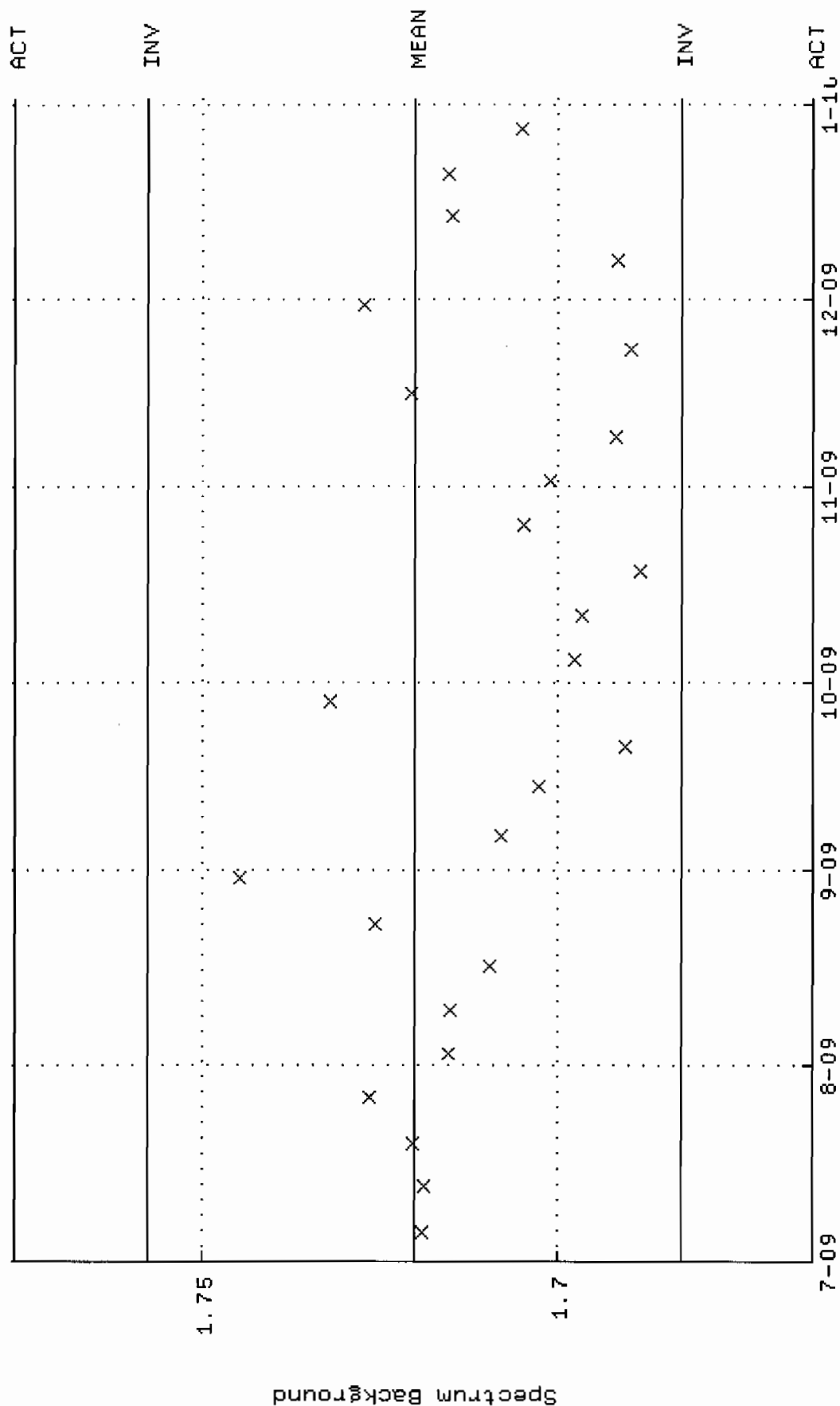
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC-GAM13.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:16 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 3.27712 +- 1.999120E-02 (0.61 %)



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC\_GAM15\_CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 10:47:40 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000

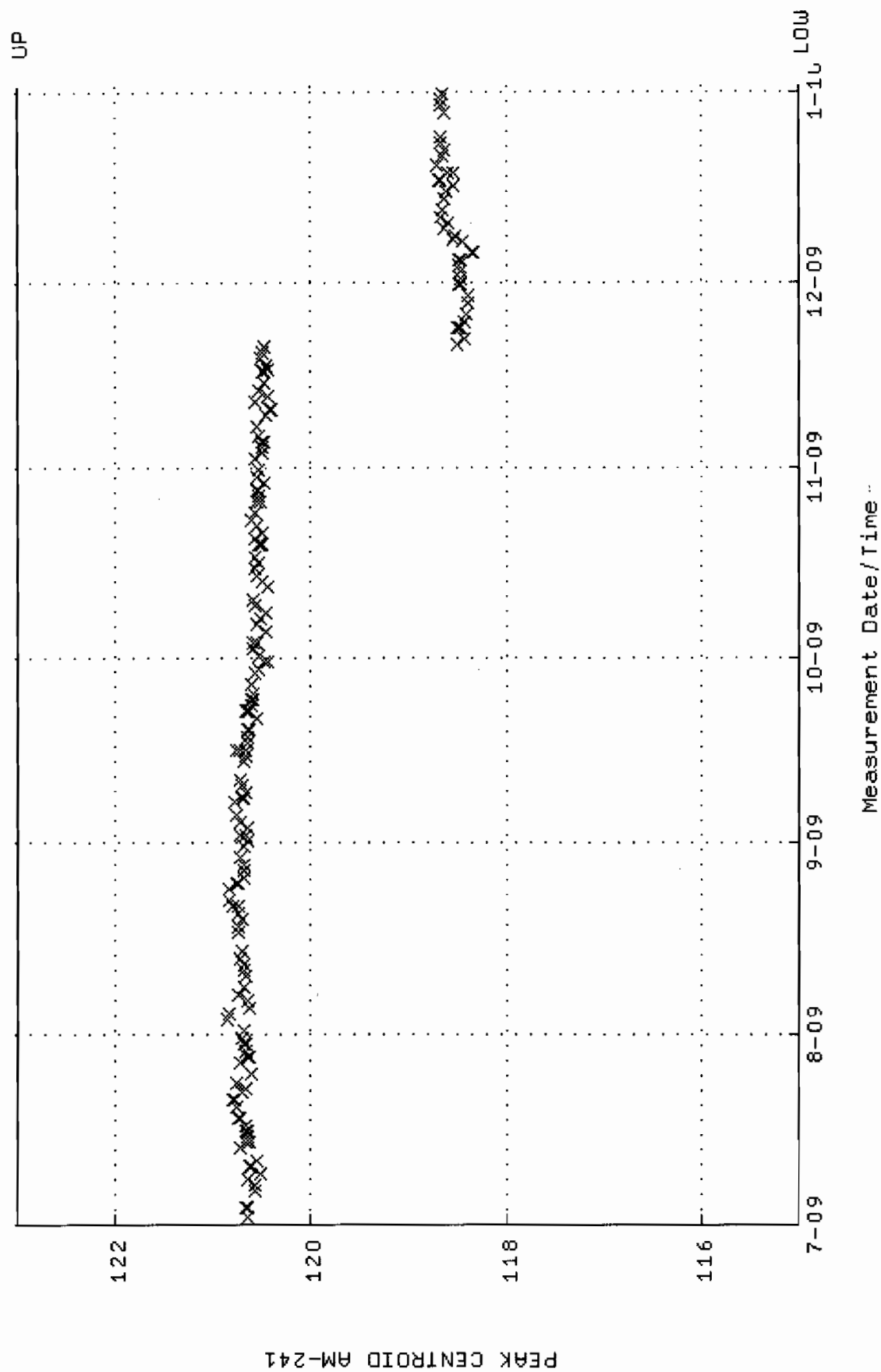


QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM15.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:52:45 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.72024 +- 1.875820E-02 (1.09 %)

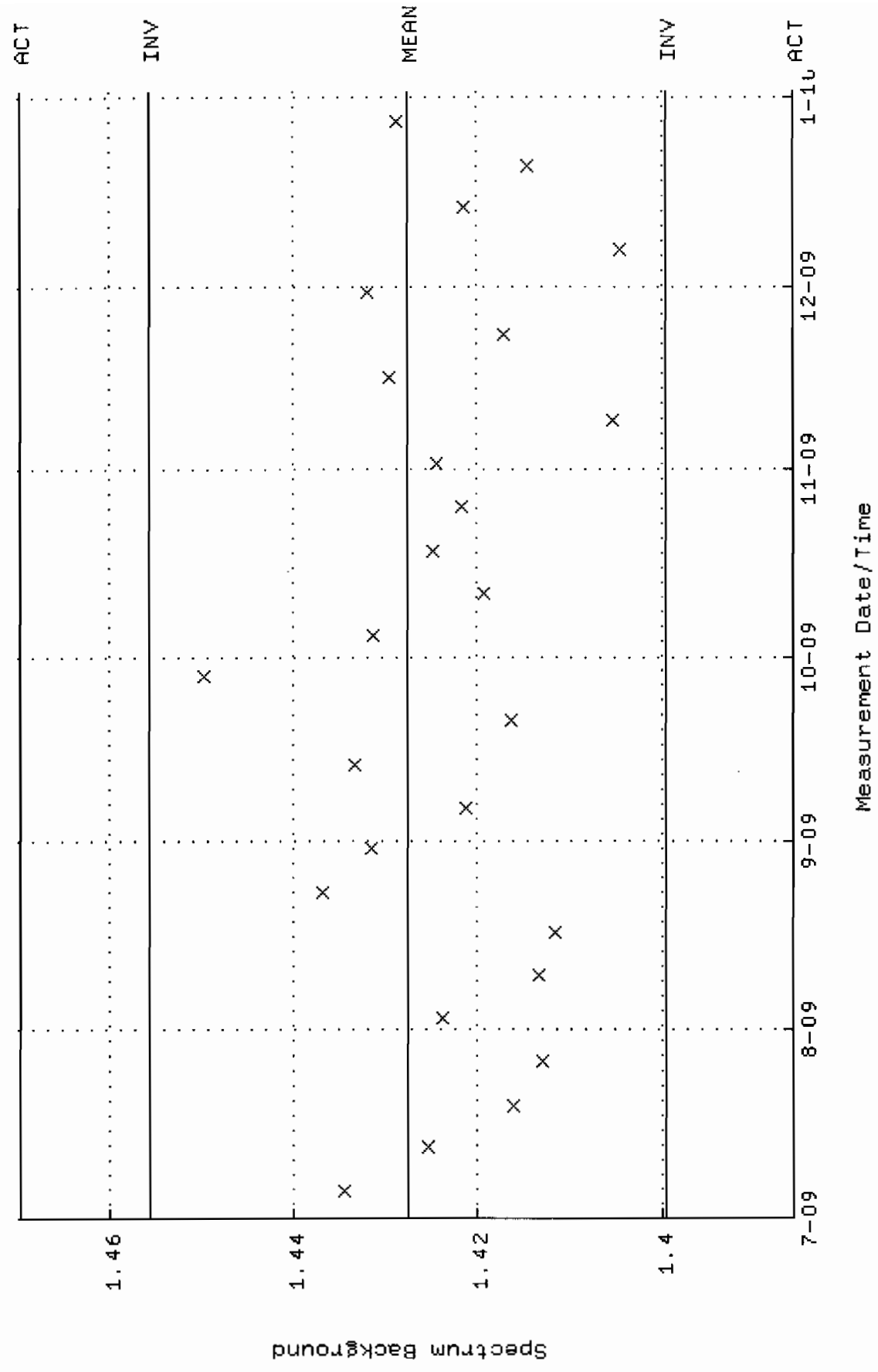




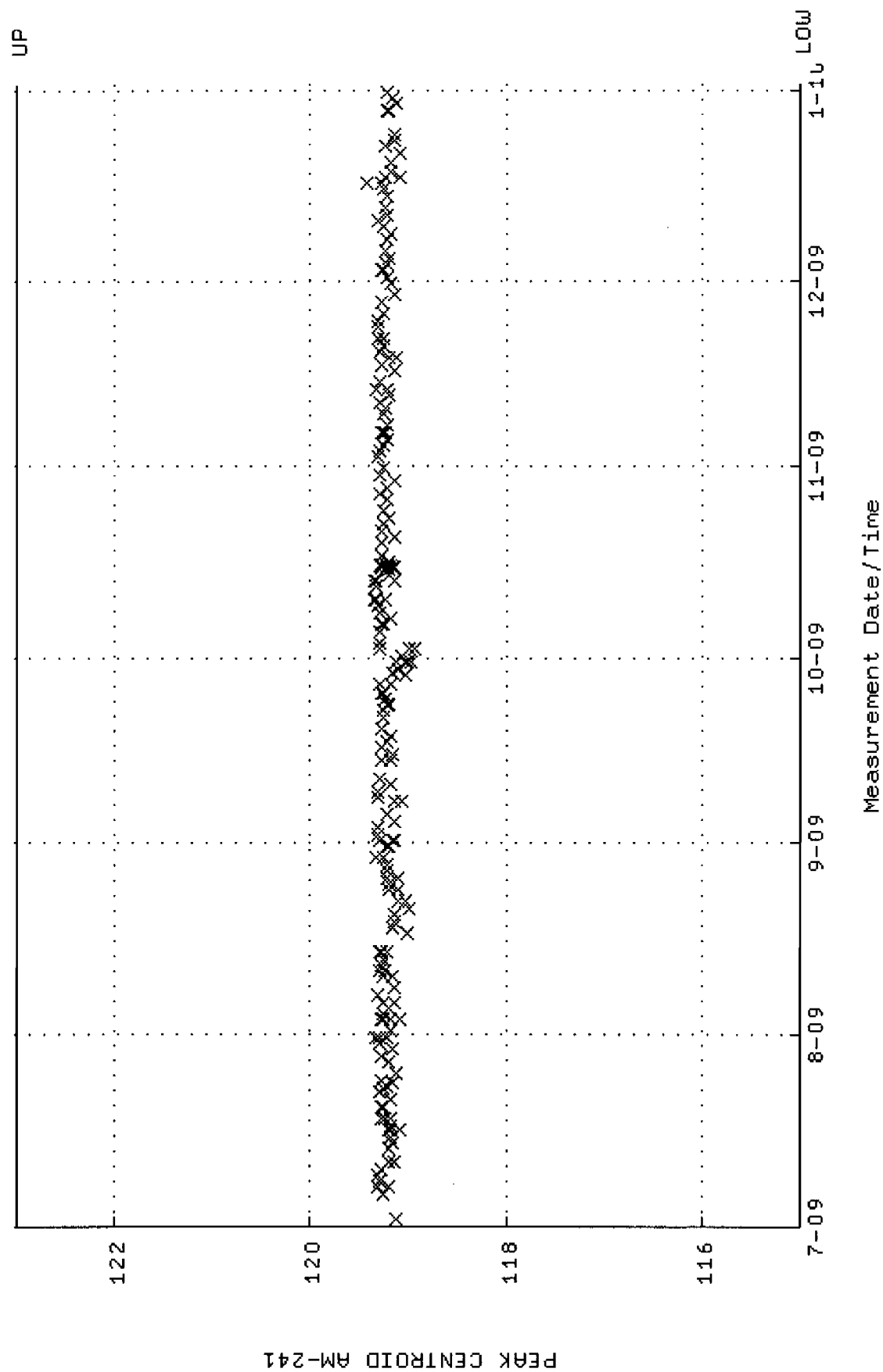
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]QCC-GAM17-CAN.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:26 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



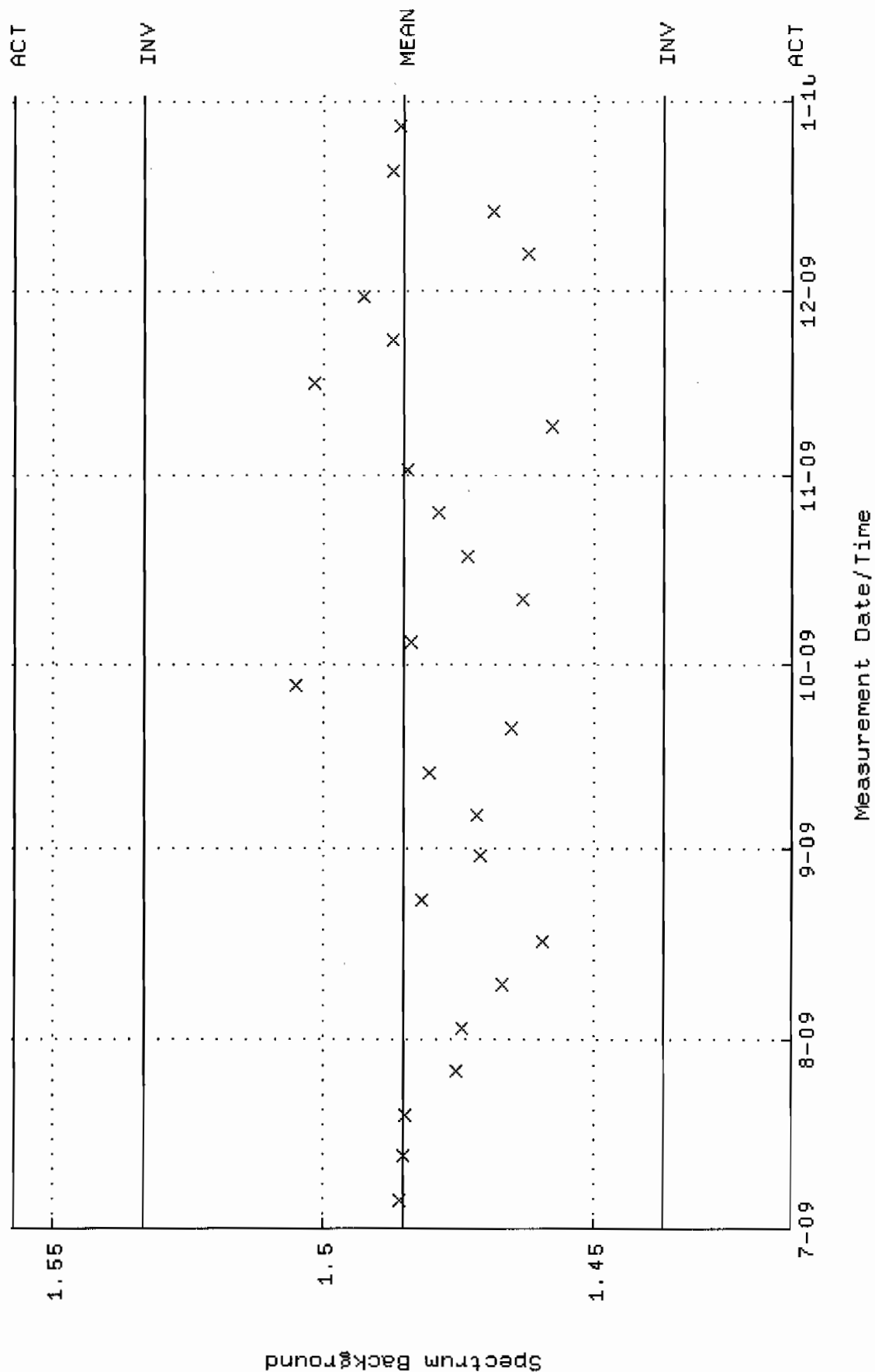
QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM17.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:11 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.42766 +- 1.396974E-02 (0.98 %)



QA filename : DKA100:[CANBERRA,GAMMA,SCUSR,QA]QCC-GAM20-500MLMB.QAF;1  
 Parameter Name : PSCENTRD-241 (PEAK CENTROID AM-241)  
 Start/End Dates : 2-JUL-2009 05:29:34 through 1-JAN-2010 12:00:00  
 Lower/Upper Lmts: 115.000 through 123.000



QA filename : DKA100:[CANBERRA.GAMMA.SCUSR.QA]LBC\_GAM20.QAF;1  
 Parameter Name : BACKRATE (Spectrum Background Rate)  
 Start/End Dates : 5-JUL-2009 13:53:49 through 1-JAN-2010 12:00:00  
 Mean +- Std Dev : 1.48527 +- 2.388665E-02 (1.61 %)



# STANDARDS DATA

1032

## CERTIFICATE OF CALIBRATION

### Standard Radionuclide Source

74047-278

5 mL Liquid in Flame Sealed Vial

This standard radionuclide source was prepared using aliquots measured gravimetrically from master radionuclide solution sources. The Am-241 was calibrated by 4 pi alpha liquid scintillation counting. All other radionuclides were calibrated using a germanium gamma spectrometer system. Calibration and purity were checked using a germanium gamma spectrometer system. At the time of calibration no interfering gamma-ray emitting impurities were detected. The gamma-ray emission rates for the most intense gamma-ray lines are given. Analytics maintains traceability to the National Institute of Standards and Technology through a Measurements Assurance Program as described in USNRC Regulatory Guide 4.15, Rev. 1, February, 1979.

Calibration date: October 1, 2006 12:00 EST

ISOTOPE	GAMMA-RAY ENERGY	HALF-LIFE	GAMMA-RAYS PER SECOND	TOTAL UNCERTAINTY %
Am-241	59.5	432 y	3339	3.0
Cd-109	88	462.6 d	4815	3.3
Co-57	122	271.79 d	2409	3.0
Ce-139	166	137.6 d	3408	2.8
Hg-203	279	46.61 d	7522	2.7
Sn-113	392	115.1 d	4728	2.6
Cs-137	662	30.07 y	2973	3.0
Y-88	898	106.6 d	11600	2.6
Co-60	1173	5.2714 y	5780	2.7
Co-60	1332	5.2714 y	5783	2.6
Y-88	1836	106.6 d	12260	2.6

5.31725 grams 4M HCl solution.  
P O NUMBER 2734RD, Item 1

SOURCE PREPARED BY:

M. Dimitrova  
M. Dimitrova, Radiochemist

Q A APPROVED:

J.M. [Signature] 11-28-06

This standard will expire one year after the calibration date.

rec'd 11/30/06  
RC-S-045-073-0

1380 Seaboard Industrial Blvd.  
 Atlanta, Georgia 30318

Tel 404-352-8677

Fax 404-352-2837

www.analytiscinc.com

## ANALYSIS OF UNCERTAINTY FOR MIXED GAMMA STANDARDS BATCH 127

### CALIBRATION DATE: October 1, 2006 12:00 EST

Isotope	Energy (keV)	Calibration Method <sup>1</sup>	Statistics <sup>2</sup>	Calibration <sup>2</sup>	Peak Fitting <sup>2</sup>	Geometry <sup>2</sup>	Impurities <sup>2</sup>	Weighing	Combined Standard Uncertainty	Relative Expanded Uncertainty (k=2)
Cd-109	88	HPGe	0.16	1.1	0.88	0.8	0	0.2	1.64	3.3
Co-57	122	HPGe	0.23	1.1	0.71	0.7	0	0.2	1.52	3.0
Ce-139	166	HPGe	0.17	1.0	0.58	0.7	0	0.2	1.38	2.8
Hg-203	279	HPGe	0.11	1.1	0.34	0.7	0	0.2	1.37	2.7
Sn-113	392	HPGe	0.21	1.0	0.35	0.7	0	0.2	1.30	2.6
Cs-137	662	HPGe	0.36	1.1	0.60	0.7	0	0.2	1.49	3.0
Y-88	898	HPGe	0.19	1.0	0.33	0.7	0	0.2	1.29	2.6
Co-60	1173	HPGe	0.31	.97	0.45	0.7	0	0.2	1.33	2.7
Co-60	1332	HPGe	0.33	.93	0.48	0.7	0	0.2	1.32	2.6
Y-88	1836	HPGe	0.24	1.0	0.35	0.7	0	0.2	1.31	2.6

#### Optional Additional Isotopes

Pb-210	46.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Am-241	59.5	4π LS	0.33	1.1	0	0.9	0.30	0.2	1.50	3.0
Sr-85	514	IC	0.30	1.1	0	0.7	0.17	0.2	1.36	2.7
Cs-134	605	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Cs-134	796	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Mn-54	835	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7
Zn-65	1116	IC	0.30	1.0	0	0.8	0.17	0.2	1.34	2.7

#### Calibration Methods:

4π LS (4 pi Liquid Scintillation Counting)

HPGe (High Purity Germanium Gamma Ray Spectrometer)

IC (Gamma Ray Ionization Chamber)

<sup>2</sup>As Percent (%) from counting data

No interfering gamma emitting impurities were detected during calibration. Depending on the resolution and energy dispersion (keV/channel) of the measuring system, the following spectral conflicts may occur: (1) between the 88 keV gamma-ray and the X-rays emitted in the decay of Hg-203, (2) between the 1333 keV gamma-ray and the 1325 keV single escape peak from the 1836 keV gamma-ray.



# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1032	Isotope:	Mixed Gamma
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	4 M HCL	Prep Date:	11/30/2006
Reference Date:	10/01/2006	Verification Date:	12/02/2009
Ampoule Mass (g):	5.31725 g	Expiration Date:	12/02/2010
Uncertainty:	+/- 2.81 %	Primary Code:	1032-A
LogBook No:	RC-S-045-073	Dilution(mL):	100 mL
		Mass of Parent(g):	5.2579 g
		Density(g/mL):	1.0611
		Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (dpm)}) * (\text{conversion dpm to dpm}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2163.7461 \text{ dpm/mL}$
$(5.2579 \text{ g}) * (218817 \text{ dpm}) * (1 \text{ dpm/dpm}) / (1.0611 \text{ g/mL}) / (5.31725 \text{ g} * 100 \text{ mL}) = 2039.2400 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC  
Version 1.0 9/18/2000



# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Am-241

Isotope	Result	pCi/L - Var. IAR-1
Mixed Gamma N1	2534	pCi/L
Mixed Gamma N2	2510	pCi/L
Mixed Gamma N3	2413	pCi/L

Mean Value (Counting) = 2485.67  
Stdev = 64.065  
Pass  
Rule 3 (Pass/Fail)

Certificate Value =  
Lower Limit =  
Upper Limit =  
Rule 1 (Pass/Fail)  
Two sigma =  
10 % of Mean =  
Rule 2 (Pass/Fail)

2485.68018  
2357.536524  
2613.796809  
Pass  
128.1301422  
248.5666667  
Pass

pCi/L  
pCi/L  
pCi/L

M. Stamps  
12/2/09  
mixed gamma  
12/2/09

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Cs-137

Isotope	Result	pCi/L - Ver. Jar. 1
Mixed Gamma N1	854.2	pCi/L
Mixed Gamma N2	907.6	pCi/L
Mixed Gamma N3	898.9	pCi/L

Mean Value (Counting) = 886.90  
Stdev = 28.651  
Pass  
Rule 3 (Pass/Fail)

Certificate Value = 933.44144  
Lower Limit = 829.597644  
Upper Limit = 944.202356  
Rule 1 (Pass/Fail) Pass  
Two sigma = 57.30235597  
10 % of Mean = 88.69000000  
Rule 2 (Pass/Fail) Pass

pCi/L  
pCi/L  
pCi/L

*12/2/09  
M. Stamps  
12/2/09*

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# Verification for Mixed Gamma Standard 1032-A

M. Stamps  
12/2/2009

Co-60 (1332.5)

Isotope	Result	pCi/L - VER-1ae-5
Mixed Gamma N1	1572	pCi/L - VER-1ae-2
Mixed Gamma N2	1495	pCi/L - VER-1ae-3
Mixed Gamma N3	1501	

Mean Value (Counting) = 1522.67 Pass  
Stdev = 42.829 Rule 3 (Pass/Fail)

Certificate Value = 1545.8378 pCi/L  
Lower Limit = 1437.008431 pCi/L  
Upper Limit = 1608.324902 pCi/L  
Rule 1 (Pass/Fail) Pass  
Two sigma = 85.65823564  
10 % of Mean = 152.26666667  
Rule 2 (Pass/Fail) Pass

*M. Stamps issued 12/2/09*

## Verification Rules

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

# 0244-A Characterization

Sample #	Uranium-233/234 Result (pCi/g)	Uranium-238 Result (pCi/g)	Thorium-230 Result (pCi/g)
0244-A 1	6.59	6.12	25.3
0244-A 2	6.36	6.07	28.5
0244-A 3	5.78	5.53	26.5
0244-A 4	6.48	5.97	25.5
0244-A 5	5.65	5.59	26.2
0244-A 6	6.96	5.78	27.0
0244-A 7	5.95	5.75	24.2
0244-A 8	5.29	5.67	27.2
0244-A 9	5.51	6.05	24.3
0244-A 10	6.37	5.57	25.6
0244-A 11	6.50	5.80	25.8
0244-A 12	6.13	5.42	22.4
0244-A 13	5.49	5.24	24.7
0244-A 14	6.19	5.21	26.9
0244-A 15	6.50	6.27	27.6
0244-A 16	6.50	5.24	24.9
0244-A 17	6.25	6.05	24.7
0244-A 18	6.14	6.00	25.4
0244-A 19	6.19	6.14	26.4
0244-A 20	5.67	5.61	23.2
Mean Value	6.13	5.75	25.62
1 sigma	0.439	0.325	1.493
2 sigma	0.878	0.650	2.986
75% Limit	4.60	4.31	19.22
125% Limit	7.66	7.19	32.03
Expected Result	6.2 +/- 4.0	6.0 +/- 4.0	24.5 +/- 0.6
Achieved Results	6.13 +/- 0.439	5.75 +/- 0.325	25.62 +/- 1.493

REFERENCE DATE 4/11/2000 *fit c held 12/1/04*

*angela d. johnson 12/3/04*

TRM

Invoice:

5 boxes of TRM-1  
 10 " " TRM-2 and 3  
 5 " each of NRM-1 through 6  
 7 " baghouse dirt

use 1/4 gm x 10 samples with together  
 for TRM-2

Table 7. Recommended Concentrations of Tailings Reference Materials (pCi/g)

	TRM-1	TRM-2	TRM-3	TRM-4
U-238	99 ± 6	6.0 ± 4.0	19.6 ± 1.4	44.9 ± 1.6
U-234	105 ± 6	6.2 ± 4.0	19.6 ± 1.9	44.6 ± 1.2
Th-230	471 ± 11	24.5 ± 0.6	58.5 ± 2.1	44.0 ± 1.6
Ra-226	489 ± 17	25.4 ± 0.9	60.3 ± 2.3	42.9 ± 1.2
Pb-210	425 ± 24	22.1 ± 1.2	56.0 ± 2.1	38.9 ± 2.0



### 0244-B Characterization

Sample #	Plutonium-239 Result (pCi/g)	Plutonium-238 Result (pCi/g)	Americium-241 Result (pCi/g)
0244-B 1	39.9	7.88	38.4
0244-B 2	44.1	7.97	40.6
0244-B 3	45.8	6.56	31.8
0244-B 4	43.6	7.69	31.5
0244-B 5	43	7.9	40.2
0244-B 6	43.5	7.84	29.4
0244-B 7	41.3	7.67	36
0244-B 8	44.3	6.95	33.2
0244-B 9	42.7	7.2	29.2
0244-B 10	44.9	7.69	30
0244-B 11	41.4	7.22	30.2
0244-B 12	41.3	7.74	36
0244-B 13	39.2	6.65	33.8
0244-B 14	39.6	7.78	31.1
0244-B 15	45.3	8.41	37.3
0244-B 16	38.1	6.74	33.6
0244-B 17	48.5	8.51	30.5
0244-B 18	36.5	7.23	38.6
0244-B 19	35.3	6.98	30.9
0244-B 20	37.4	8.55	31.3
Mean Value	41.79	7.56	33.68
1 sigma	3.418	0.596	3.724
2 sigma	6.835	1.193	7.448
75% Limit	30.75	6.02	24.38
125% Limit	51.25	10.04	40.63
Expected Result	41.0 +/- 3.0	8.03 +/- 0.37	32.5 +/- 1.1
Achieved Results	41.79 +/- 3.418	7.56 +/- .596	33.68 +/- 3.724

REFERENCE DATE 4/14/2000

Amanda L. Lehn 4/30/04  
lett & dated 5/1/04

## PREPARATION AND CHARACTERIZATION OF THE PERFORMANCE EVALUATION SOIL SAMPLE PEM-1

### INTRODUCTION

Rust Geotech (Rust) was contracted by Los Alamos National Laboratory (LANL) to prepare and characterize a soil performance evaluation sample designated PEM-1. This report describes sample preparation, homogeneity assessment, and determination of the concentrations of 28 elements and radioactive isotopes in the sample.

### SAMPLE PREPARATION

Rust received nine five-gallon buckets of soil from LANL. The soils were dried overnight in ovens at 103 °C. The large pieces of leaves and sticks were removed and the soils were ground with ceramic-plate grinders to a particle size that passed through a 325 mesh screen. The samples were blended at the proportions specified by LANL for 48 hours in a 3-cubic-foot cross-flow blender. The sample identifications and the amounts used are listed in Table 1.

Table 1. Sample Identifications and Amounts Used to Prepare PEM-1

LANL Sample ID	Amount Used (kg)
AAA 1592	1.7
AAA 2505-1	10.9
AAA 2505-2	12.8
AAA 2750-1	8.4
AAA 2750-2	8.4
AAA 3205	12.6
AAA 8581	4.2
AAB 3417	12.8
AAB 3475	12.6

The blended sample was transferred to three five-gallon plastic containers. While the sample was being transferred, 10 samples were taken at pre-determined time intervals to be used for homogeneity assessment and sample characterization. These samples are believed to be representative of the bulk material.



Slater At 6 EL  
Not For Lead

Internal Lab  
Batch No.

**ANALYSIS REQUEST AND CHAIN OF CUSTODY**

SARMWR No.	N/A	Press F1 for Instructions for each
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AR/COC-602945

## CHAIN OF CUSTODY

Dept. No./Mail Stop: 7132 / 1042  
 Project/Task Manager: PAM PUISSANT  
 Project Name:  
 Record Center Code: N/A  
 Logbook Ref. No.: N/A  
 Service Order No.:

Date Samples Shipped: 11-16-99 SMO USE  
 Carrier/Vehicle No.: 226799  
 Lab Contact: EDIE KENT  
 Lab Destination: G.I.E.L.  
 SMO Contact/Phone: Doug Salimi / 844-3110  
 Send Report to SMO: Suzi Jensen/844-3184

Contract No.: AJ-2480A  
 Case No.: 10204 13  
 SMO Authorization: [Signature]  
 Bill to: Sandia National Laboratories  
 Supplier Services, Dept. \_\_\_\_\_  
 P.O. Box 5800 MS 0154

Contract No.: AJ-2490A  
Case No.: 10204 13  
SMO Authorization: *[Signature]*  
Bill to: Sandia National Laboratories  
Supplier Services, Dept. \_\_\_\_\_  
P.O. Box 5800 MS 0154

Date Samples Shipped: 11-16-98 SMO USE  
 Carrier/Whse/Job No. 3261994  
 Lab Contact: EDIE KENT  
 Lab Destination: G.E.L.  
 SMO Contact/Phone: Doug Salimi / 844-3110  
 Send Report to SMO: Suzi Jensen/844-3184

Dept. No./Mail Stop: 7132 / 1042  
Project/Task Manager: PAM PUISSANT  
Project Name:  
Record Center Code: N/A  
Logbook Ref. No.: N/A  
Service Order No.:

Reference LOV (available at SMO)

No.		
Fl		

Location	Tech Area VI
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[illegible]

RMMA <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Ref. No.	Sample Tracking (For Enviro Use)		Special Instructions/QC Requirements EDD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Raw data package <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>These "samples" are well characterized and provide being sent to GEL for beta and Hach Micro-</i>	Abnormal/ Conditions on Receipt/As use
Sample Disposal <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by lab		Date Entered (mm/dd/yyyy)			
Turnaround Time <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Rush Required	Report Date	Entered By	QC Initials		
Name Douglas E. Perry Signature: <i>Douglas E. Perry</i>		Init	Company/Organization/Phone Weston / 7577 / 845-0887		
Sample Team					
Members					Please list as separate report

1. Relinquished by	Org.	Date	Time	4. Relinquished by	Org.	Date
1. Relinquished by	Org. <td>Date <td>Time <td>4. Relinquished by</td> <td>Org. <td>Date</td> </td></td></td>	Date <td>Time <td>4. Relinquished by</td> <td>Org. <td>Date</td> </td></td>	Time <td>4. Relinquished by</td> <td>Org. <td>Date</td> </td>	4. Relinquished by	Org. <td>Date</td>	Date
2. Relinquished by	Org. <td>Date <td>Time <td>5. Relinquished by</td> <td>Org. <td>Date</td> </td></td></td>	Date <td>Time <td>5. Relinquished by</td> <td>Org. <td>Date</td> </td></td>	Time <td>5. Relinquished by</td> <td>Org. <td>Date</td> </td>	5. Relinquished by	Org. <td>Date</td>	Date
3. Relinquished by	Org. <td>Date <td>Time <td>6. Relinquished by</td> <td>Org. <td>Date</td> </td></td></td>	Date <td>Time <td>6. Relinquished by</td> <td>Org. <td>Date</td> </td></td>	Time <td>6. Relinquished by</td> <td>Org. <td>Date</td> </td>	6. Relinquished by	Org. <td>Date</td>	Date
3. Received by	Org. <td>Date <td>Time <td>5. Received by</td> <td>Org. <td>Date</td> </td></td></td>	Date <td>Time <td>5. Received by</td> <td>Org. <td>Date</td> </td></td>	Time <td>5. Received by</td> <td>Org. <td>Date</td> </td>	5. Received by	Org. <td>Date</td>	Date

Original	To Accompany Samples, Laboratory Copy (White)	1 <sup>st</sup> Copy	To Accompany Samples, Return to SMO (Blue)	2 <sup>nd</sup> Copy	SMO Suspense Copy (Yellow)	3 <sup>rd</sup> Copy	Field Copy (Pink)



THE LEAK TEST(S) INDICATED BY THE CHECKED BOX(ES) WAS(WERE) APPLIED TO  
DETERMINE THE INTEGRITY OF THE SOURCE DESCRIBED ON THE FRONT SIDE

☒ 1. STANDARD WIPE TEST

The source is wiped over its entire surface with a moistened filter paper disk. After drying, the disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 2. SOAK TEST

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for a minimum of four hours. After removal of the source, the liquid is a) checked for activity using a liquid scintillation counter, or b) evaporated in a planchet and the residue is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 3. SOAK TEST -- BERYLLIUM WINDOW

The source is immersed in distilled water and maintained at  $50 \pm 10^\circ \text{C}$  for 20 minutes. The entire surface of the source is then wiped with a moistened cotton swab or filter paper disk. After drying, the swab or disk is checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 4. GAS SOURCE TEST (Radioactive Gas)

The source is placed in a vacuum desiccator and maintained at a pressure of less than 1 mm Hg for not less than 12 hours. The activity is checked by introducing air into the desiccator and monitoring the air with an end-window G.M. tube. Activity levels exceeding 1000 cpm are cause for rejection of the source.

☒ 5. OTHER LEAK TEST

The ampoule is kept in an inverted position on a filter paper disk for a minimum of 16 hours. The filter paper disk is then checked for activity using a windowless proportional counter or end-window G.M. tube. Activity levels exceeding 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha are cause for rejection of the source.

☐ 6. LEAK TEST NOT APPLICABLE

The active area of this source is uncovered or is protected by a very thin coating. Although the deposit is adherent, it is not designed or certified to pass a standard leak test. The inactive portions of the source have been checked using the standard wipe test. Levels of removable activity did not exceed 0.001  $\mu\text{Ci}$  beta-gamma or 0.0001  $\mu\text{Ci}$  alpha at the time of shipment.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	445-96-2
Prepared By:	Genie Bost
Carrier Conc:	2M HNO3
Reference Date:	01/01/1994
Ampoule Mass (g):	5.3739 g
Uncertainty:	+/- 3 %
LogBook No:	RC S 005 032

A Solution Material Info	
Isotope:	Americium-243
Prepared By:	Angela Johnson
Prep Date:	01/05/1994
Verification Date:	05/11/2009
Expiration Date:	05/11/2010
Primary Code:	445-96-2-A
Dilution(mL):	100 mL
Mass of Parent(g):	5.3419 g
Density(g/mL):	1.0785
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (uCi/g)}) * (\text{conversion dpm to uCi}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (100 \text{ mL}) = 2234238.9912 \text{ dpm/mL}$
$(5.3419 \text{ g}) * (18.84 \text{ uCi/g}) * (2220000 \text{ dpm/uCi}) / (1.0785 \text{ g/mL}) / (100 \text{ mL}) = 2071617.0528 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
01/05/1994	Genie Bost	.0058	100	445-96-2-B	120.1 dpm/ml	01/05/1995	01/05/1996
09/10/2004	Amanda Fehr	.0325	1000	445-96-2-BB	67.328 dpm/mL	09/10/2005	09/10/2006
01/05/1994	Genie Bost	.0025	100	445-96-2-C	51.77 dpm/ml	01/05/1995	01/05/1996
05/27/2005	Brenda Burke	.000246	100	445-96-2-CC	5.10613 dpm/mL	05/31/2005	05/31/2006
03/25/1994	Genie Bost	.0064	100	445-96-2-D	132.53 dpm/ml	01/05/1995	01/05/1996
08/16/2005	Brenda Burke	.001224	500	445-96-2-DD	5.07144 dpm/mL	08/18/2007	08/18/2008
08/04/1994	Genie Bost	.0094	100	445-96-2-E	194.65 dpm/ml	01/05/1995	01/05/1996
10/13/2005	Brenda Burke	.0017	500	445-96-2-EE	7.0435 dpm/mL	11/15/2005	11/15/2006
08/04/1994	Genie Bost	.0046	100	445-96-2-F	95.25 dpm/ml	01/05/1995	01/05/1996
10/14/2005	Mary Aders	.0141	500	445-96-2-FF	58.4196 dpm/mL	10/14/2005	10/14/2006
09/01/1994	Genie Bost	.0031	100	445-96-2-G	64.19 dpm/ml	01/05/1995	01/05/1996
05/10/2006	Mary Aders	2.0753	1000	445-96-2-GG	4299.227 dpm/mL	09/30/2008	09/30/2009
10/17/1994	Genie Bost	.0969	100	445-96-2-H	2006.52 dpm/ml	01/05/1995	01/05/1996
06/07/2006	Mary Aders	.0365	1000	445-96-2-HH	75.614 dpm/mL	06/19/2006	06/19/2007
02/06/1995	Genie Bost	.0043	100	445-96-2-I	89.04 dpm/ml	01/05/1995	01/05/1996
05/11/2006	Brenda Burke	.000009739	100	445-96-2-II	.201761 dpm/mL	07/26/2006	07/26/2007
07/20/1995	Theresa Austin	.0041	100	445-96-2-J	84.9 dpm/ml	01/05/1995	01/05/1996
05/01/2007	Daniel Roy	.0352	1000	445-96-2-JJ	72.9209 dpm/ml	04/30/2008	04/30/2009
08/10/1995	Garret Ray	.0952	100	445-96-2-K	1971.32 dpm/ml	01/05/1995	01/05/1996
06/12/2007	Julie Strock	.01038	250	445-96-2-KK	22.1496 dpm/mL	05/28/2008	05/28/2009

09/11/1995	Theresa Austin	1.0525	100	445-96-2-L	21794.23 dpm/ml	01/05/1995	01/05/1996
09/11/1995	Theresa Austin	.5107	100	445-96-2-L-1	111.3 dpm/ml	01/05/1995	01/05/1996
04/28/1998	Richard Kinney	.1264	100	445-96-2-M	2617.4 dpm/ml	04/28/1998	04/28/1999
11/01/2007	Eric Williamson	.001274	500	445-96-2-MM	5.27945 dpm/mL	04/06/2008	04/06/2010
10/12/1998	Gregory Smith	.1348	100	445-96-2-N	2791.32 dpm/mL	01/05/1995	01/05/1996
01/25/1999	Gregory Smith	1.9382	100	445-96-2-N-1	50.16 dpm/ml	01/05/1995	01/05/1996
04/19/2008	Daniel Roy	.0424	1000	445-96-2-NN	87.8366 dpm/ml	04/16/2009	04/16/2010
04/21/1999	Greg Smith	.1645	100	445-96-2-O	3406.32 dpm/mL	04/21/1999	04/21/2000
07/27/1999	Gregory Smith	1.567	100	445-96-2-O-2	50.56 dpm/ml	05/13/1999	05/13/2000
10/12/1999	Richard Kinney	1.5589	100	445-96-2-O-3	50.31 dpm/mL	05/13/1999	05/13/2000
04/21/1999	Greg Smith	1.5309	100	445-96-2-O-1	49.4 dpm/mL	04/21/1999	04/21/2000
11/10/1999	Joe Davis	.1809	100	445-96-2-P	3745.92 dpm/mL	05/13/1999	05/13/2000
01/04/2008	Julie Strock	.00001005	100	445-96-2-PP	.20819 dpm/mL	12/29/2008	12/29/2009
01/28/2000	Angela Johnson	.0354	1000	445-96-2-Q	73.3 dpm/mL	02/08/2001	02/08/2002
09/29/2008	Julie Strock	.0025219	250	445-96-2-QQ	20.8977 dpm/mL	09/30/2008	09/29/2009
04/18/2000	Robert Timm	.429	250	445-96-2-R	3553.34 dpm/mL	04/18/2000	04/18/2001
04/23/2009	Tina Schoneman	.001251	500	445-96-2-RR	4.8075 dpm/mL	04/23/2009	04/23/2010
04/13/2001	Angela Johnson	.1869	100	445-96-2-S	3870.16 dpm/mL	04/13/2001	04/13/2002
05/08/2009	Mary Aders	.0141	1000	445-96-2-SS	29.2098 dpm/ml	05/11/2009	05/11/2010
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-103	4153.225 dpm/mL	07/03/2002	07/03/2003
07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-203	4153.225 dpm/mL	07/03/2002	07/03/2003

07/03/2001	Lonnie Morris	2.0057	1000	445-96-2-T-303	4153.225 dpm/mL	07/03/2002	07/03/2003
06/03/2009	Julie Strock	.00000927	100	445-96-2-TT	.1923 dpm/mL	06/05/2009	06/03/2010
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-103	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-203	80.34 dpm/mL	08/23/2001	08/23/2002
08/23/2001	Angela Johnson	.0194	500	445-96-2-U-303	80.34 dpm/ml	08/23/2001	08/23/2002
06/02/2009	Mary Aders	2.1177	1000	445-96-2-UU	4385.1449 dpm/ml	06/04/2009	06/04/2010
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-103	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-203	81.586 dpm/mL	08/27/2002	08/27/2003
08/27/2001	Angela Johnson	.0394	1000	445-96-2-V-303	81.586 dpm/mL	08/27/2002	08/27/2003
03/17/2003	Angela Johnson	2.1108	1000	445-96-2-W	4370.857 dpm/mL	03/14/2006	03/14/2007
04/14/2003	Lonnie Morris	.0315	1000	445-96-2-X	65.2559 dpm/mL	04/14/2004	04/14/2005
05/03/2003	Tim Chandler	.0103	1000	445-96-2-Y	21.3376 dpm/mL	05/05/2003	05/05/2004
05/05/2003	Eric Williamson	.011	1000	445-96-2-Z	22.7877 dpm/mL	04/03/2007	04/03/2008

GEL Laboratories LLC  
Version 1.0 9/18/2000

## Verification for Am-243 Standard 445-96-2-SS

M. Aders 5/15/2009	Isotope	Value	Uncertainty
	445-96-2-SS #1	1.360	0.1690
	445-96-2-SS #2	1.370	0.1690
	445-96-2-SS #3	1.290	0.1590
Mean Value (Counting) =	1.340	101.99	Pass
Stdev =	0.043588989	Rule 3 (Pass/Fail)	
Target =	1.314		
Lower Limit =	1.252822021		
Upper Limit =	1.427177979		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.087177979		
10 % of Mean =	0.134		
Rule 2 (Pass/Fail)	Pass		

The analyst prepared three standard verification sources for standard **445-96-2-SS** using 0.1 mL for each source. Each standard was combined with 0.1 mL of **Cm-244** standard **0533-O** and 50 micrograms of neodymium carrier in a disposable centrifuge tube. Each standard was diluted with 4 mL of 2 M HCl and 6 mL of DI Water. Two mL of 48% HF was added to precipitate Nd (and Americium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Am-243 were calculated by comparison to Am-241 certified values.

- Rule 1 = The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements
- Rule 2 = The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.
- Rule 3 = The determined mean value shall be within 5% of the certificate value.

*Mary G. Aders 5/15/09*  
*Taheri*  
 07509





# National Institute of Standards & Technology Certificate

## Standard Reference Material 4334H Plutonium-242 Radioactivity Standard

This Standard Reference Material (SRM) consists of radioactive plutonium-242 nitrate and nitric acid dissolved in 5 mL of distilled water. The solution is contained in a flame-sealed NIST borosilicate-glass ampoule. The SRM is intended for the calibration of alpha-particle counting instruments and for the monitoring of radiochemical procedures.

**Radiological Hazard:** The SRM ampoule contains plutonium-242 with a total activity of approximately 150 Bq. Plutonium-242 decays by alpha-particle emission. None of the alpha particles escape from the SRM ampoule. During the decay process, X-rays and gamma rays with energies from 10 keV to 160 keV are also emitted. Most of these photons escape from the SRM ampoule but their intensities are so small that they do not represent a radiation hazard. Approximate unshielded dose rates at several distances (as of the reference time) are given in note [a]\*. The SRM should be used only by persons qualified to handle radioactive material.

**Chemical Hazard:** The SRM ampoule contains nitric acid ( $\text{HNO}_3$ ) with a concentration of 3 moles per liter of water. The solution is corrosive and represents a health hazard if it comes in contact with eyes or skin. If the ampoule is to be opened to transfer the solution, the recommended procedure is given on page 2. The ampoule should be opened only by persons qualified to handle both radioactive material and strong acid solution.

**Storage and Handling:** The SRM should be stored and used at a temperature between 5 °C and 65 °C. The solution in an unopened ampoule should remain stable and homogeneous until at least January 2015. The ampoule (or any subsequent container) should always be clearly marked as containing radioactive material. If the ampoule is transported it should be packed, marked, labeled, and shipped in accordance with the applicable national, international, and carrier regulations. The solution in the ampoule is a dangerous good (hazardous material) both because of the radioactivity and because of the strong acid.

**Preparation:** This Standard Reference Material was prepared in the Physics Laboratory, Ionizing Radiation Division, Radioactivity Group, M.P. Unterweger, Acting Group Leader. The overall technical direction and physical measurements leading to certification were provided by L.L. Lucas of the Radioactivity Group. The support aspects involved in the preparation, certification, and issuance of this SRM were coordinated through the Standard Reference Materials Program.

RECEIVED  
12/31

Lisa R. Karam, Acting Chief  
Ionizing Radiation Division

Gaithersburg, Maryland 20899  
January 2005

Robert L. Watters, Jr., Chief  
Measurement Services Division

### **Recommended Procedure for Opening the SRM Ampoule**

- 1) If the SRM solution is to be diluted, it is recommended that the diluting solution have a composition comparable to that of the SRM solution.
- 2) Wear eye protection, gloves, and protective clothing and work over a tray with absorbent paper in it. Work in a fume hood. In addition to the radioactive material, the solution contains strong acid and is corrosive.
- 3) Shake the ampoule to wet all of the inside surface of the ampoule. Return the ampoule to the upright position.
- 4) Check that all of the liquid has drained out of the neck of the ampoule. If necessary, gently tap the neck to speed the process.
- 5) Holding the ampoule upright, score the narrowest part of the neck with a scribe or diamond pencil.
- 6) Lightly wet the scored line. This reduces the crack propagation velocity and makes for a cleaner break.
- 7) Hold the ampoule upright with a paper towel, a wiper, or a support jig. Position the scored line away from you. Using a paper towel or wiper to avoid contamination, snap off the top of the ampoule by pressing the narrowest part of the neck away from you while pulling the tip of the ampoule towards you.
- 8) Transfer the solution from the ampoule using a pycnometer or a pipet with dispenser handle. NEVER PIPETTE BY MOUTH.
- 9) Seal any unused SRM solution in a flame-sealed glass ampoule, if possible, to minimize the evaporation loss.

See also reference [4]\*.

PROPERTIES OF SRM 4334H

Certified values

Radionuclide	Plutonium-242
Reference time	1200 EST, 07 June 1994 [b]*
Massic activity of the solution [c]	26.31 Bq·g <sup>-1</sup>
Relative expanded uncertainty (k=2)	0.72% [d] [e]
Solution density	(1.105 ± 0.002) g·mL <sup>-1</sup> at 20 °C [f]

Uncertified values

Physical Properties:			
Source description	Liquid in flame-sealed NIST borosilicate-glass ampoule		
Ampoule specifications	Body outside diameter	(16.5 ± 0.5) mm	
	Wall thickness	(0.60 ± 0.04) mm	
	Barium content	Less than 2.5%	
	Lead-oxide content	Less than 0.02%	
	Other heavy elements	Trace quantities	
Solution mass	Approximately 5.5 g		
Chemical Properties:			
Solution composition	Chemical Formula	Concentration (mol·L <sup>-1</sup> )	Mass Fraction (g·g <sup>-1</sup> )
	H <sub>2</sub> O	50	0.81
	HNO <sub>3</sub>	3.2	0.19
	<sup>242</sup> Pu <sup>+6</sup>	8 × 10 <sup>-7</sup>	2 × 10 <sup>-7</sup>
Radiological Properties:			
Alpha-particle-emitting impurities	None detected [g] [h]. See table on page 5.		
Beta-particle-emitting impurities	Plutonium-241: (0.092 ± 0.018) Bq·g <sup>-1</sup> [f] [h]		
Photon-emitting impurities	None detected [j]		
Half lives used	Plutonium-242: (373 500 ± 1100) a [j] [5] Plutonium-241: (14.35 ± 0.10) a [j] [5] Americium-241: (432.2 ± 0.7) a [j] [5]		
Calibration method and measuring instrument(s)	Three 4π $\alpha$ liquid-scintillation counters, a calibrated germanium detector system, and a silicon surface-barrier detector		

**EVALUATION OF THE UNCERTAINTY OF THE MASSIC ACTIVITY [d] [e]\***

Input Quantity $x_i$ , the source of uncertainty  (and individual uncertainty components where appropriate)	Method Used To Evaluate $u(x_i)$ , the standard uncertainty of $x_i$ (A) denotes evaluation by statistical methods (B) denotes evaluation by other methods	Relative Uncertainty Of Input Quantity, $u(x_i)/x_i$ , (%) [k]	Relative Sensitivity Factor, $ \partial y/\partial x_i  \cdot$ ( $x_i/y$ ) [m]	Relative Uncertainty Of Output Quantity, $u_i(y)/y$ , (%) [n]
Massic alpha-particle emission rate, corrected for background and decay	Standard deviation of the mean for 80 sets of $4\pi\alpha$ liquid- scintillation measurements (A)	0.05	1.0	0.05
Half life of Pu-242	Standard uncertainty of the half life (A)	0.32 [p]	0.00001 [q]	0.000003
Decay-scheme data	Standard uncertainty of the probability of decay by alpha- particle emission (A)	0.001	1.0	0.001
Extrapolation of alpha- particle-count-rate- versus-energy to zero energy	Estimated (B)	0.25	1.0	0.25
Gravimetric measurements	Estimated (B)	0.10	1.0	0.10
Live time [r]	Estimated (B)	0.10	1.0	0.10
Alpha-particle detection efficiency of scintillators	Estimated (B)	0.15	1.0	0.15
Alpha-particle-emitting impurities	Limit of detection (B) [s]	100.	0.001	0.10
Photon-emitting impurities	Limit of detection (B) [s]	100.	0.001	0.10
Relative Combined Standard Uncertainty of the Output Quantity, $u_c(y)/y$ , (%)				0.36
Coverage Factor, $k$				<u>2</u>
Relative Expanded Uncertainty of the Output Quantity, $U/y$ , (%)				0.72

RELATIVE ACTIVITIES OF RADIONUCLIDIC IMPURITIES AT THE REFERENCE TIME [b]

Radionuclide	Half Life (years) [j] [5]	Relative Activity As Determined By	
		LLNL	NIST
Plutonium-242	373 500 ± 1100	1.000 000	1.000 000
Plutonium-241	14.35 ± 0.10	- -	0.0035 ± 0.0004 [t]
Plutonium-240	6 564 ± 11	<sup>239</sup> Pu + <sup>240</sup> Pu <0.000 001 [u]	<sup>239</sup> Pu + <sup>240</sup> Pu 0.000 020 ± 0.000 021 [v]
Plutonium-239	24 110 ± 30		
Plutonium-238	87.7 ± 0.1	<sup>238</sup> Pu + <sup>241</sup> Am <0.000 016 [u]	0.000 009 ± 0.000 016 [v]
Americium-241	432.2 ± 0.7		0.000 000 assumed [t]

NOTES

- [a] The Sievert is the SI unit for dose equivalent. See reference [1]. One  $\mu\text{Sv}$  is equal to 0.1 mrem.  
Distance from Ampoule (cm): 1 30 100  
Approximate Dose Rate ( $\mu\text{Sv/h}$ ): <0.1 - -
- [b] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994.
- [c] **Massic activity** is the preferred name for the quantity activity divided by the total mass of the sample. See reference [1].
- [d] The reported value,  $y$ , of massic activity (activity per unit mass) at the reference time was not measured directly but was derived from measurements and calculations of other quantities. This can be expressed as  $y = f(x_1, x_2, x_3, \dots, x_n)$ , where  $f$  is a mathematical function derived from the assumed model of the measurement process. The value,  $x_i$ , used for each input quantity  $i$  has a **standard uncertainty**,  $u(x_i)$ , that generates a corresponding uncertainty in  $y$ ,  $u_i(y) = |\partial y / \partial x_i| \cdot u(x_i)$ , called a **component of combined standard uncertainty** of  $y$ . The **combined standard uncertainty** of  $y$ ,  $u_c(y)$ , is the positive square root of the sum of the squares of the components of combined standard uncertainty. The combined standard uncertainty is multiplied by a **coverage factor** of  $k = 2$  to obtain  $U$ , the **expanded uncertainty** of  $y$ .

Since it can be assumed that the possible estimated values of the massic activity are approximately normally distributed with approximate standard deviation  $u_c(y)$ , the unknown value of the massic activity is believed to lie in the interval  $y \pm U$  with a level of confidence of approximately 95 percent.

For further information on the expression of uncertainties, see references [2] and [3].

- [e] The value of each component of combined standard uncertainty, and hence the value of the expanded uncertainty itself, is a best estimate based upon all available information, but is only approximately known. That is to say, the "uncertainty of the uncertainty" is large and not well known. This is true for uncertainties evaluated by statistical methods (e.g., the relative standard deviation of the standard deviation of the mean for the massic response is approximately 50%) and for uncertainties evaluated by other methods (which could easily be over estimated or under estimated by substantial amounts). The unknown value of the expanded uncertainty is believed to lie in the interval  $U/2$  to  $2U$  (i.e., within a factor of 2 of the estimated value).
- [f] The stated uncertainty is two times the standard uncertainty.
- [g] Estimated limits of detection for alpha-particle-emitting impurities, expressed as massic alpha-particle emission rates (numbers of alpha particles per second per gram), are:  
 $0.003 \text{ s}^{-1}\text{g}^{-1}$  for energies less than 3.1 MeV,  
 $0.03 \text{ s}^{-1}\text{g}^{-1}$  for energies between 3.1 and 4.4 MeV, and  
 $0.003 \text{ s}^{-1}\text{g}^{-1}$  for energies greater than 5.0 MeV.
- [h] The plutonium-242 master solution was chemically purified at 1200 EST, 07 June 1994. Americium-241, the daughter of plutonium-241, was removed but has been growing in since that time.
- [i] Estimated limits of detection for photon-emitting impurities, expressed as massic photon emission rates (numbers of photons per second per gram), are:  
 $5 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 19 and 39 keV,  
 $7 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 49 and 92 keV,  
 $2 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 106 and 507 keV,  
 $1 \times 10^{-5} \text{ s}^{-1}\text{g}^{-1}$  for energies between 515 and 1456 keV, and  
 $5 \times 10^{-6} \text{ s}^{-1}\text{g}^{-1}$  for energies between 1465 and 2750 keV,  
provided that the photons are separated in energy by 4 keV or more from photons emitted in the decay of plutonium-242, plutonium-241, or americium-241.
- [j] The stated uncertainty is the standard uncertainty.
- [k] Relative standard uncertainty of the input quantity  $x_i$ .
- [m] The relative change in the output quantity  $y$  divided by the relative change in the input quantity  $x_i$ . If  $|\partial y / \partial x_i| \cdot (x_i / y) = 1.0$ , then a 1% change in  $x_i$  results in a 1% change in  $y$ . If  $|\partial y / \partial x_i| \cdot (x_i / y) = 0.05$ , then a 1% change in  $x_i$  results in a 0.05% change in  $y$ .
- [n] Relative component of combined standard uncertainty of output quantity  $y$ , rounded to two significant figures or less. The relative component of combined standard uncertainty of  $y$  is given by  $u_i(y)/y \equiv |\partial y / \partial x_i| \cdot u(x_i)/y = |\partial y / \partial x_i| \cdot (x_i / y) \cdot u(x_i)/x_i$ . The numerical values of  $u(x_i)/x_i$ ,  $|\partial y / \partial x_i| \cdot (x_i / y)$ , and  $u_i(y)/y$ , all dimensionless quantities, are listed in columns 3, 4, and 5, respectively. Thus, the value in column 5 is equal to the value in column 4 multiplied by the value in column 3. The input quantities are independent, or very nearly so. Hence the covariances are zero or negligible.

- [p] The relative standard uncertainty of  $\lambda \cdot t$  is determined by the relative standard uncertainty of  $\lambda$  (i.e., of the half life). The relative standard uncertainty of  $t$  is negligible.
- [q]  $|\partial y / \partial x_i| \cdot (x_i / y) = |\lambda \cdot t|$
- [r] The live time is determined by counting the pulses from a gated crystal-controlled oscillator.
- [s] The standard uncertainty for each undetected impurity that might reasonably be expected to be present is estimated to be equal to the estimated limit of detection for that impurity, i.e.  $u(x_i) / x_i = 100\%$ .  $|\partial y / \partial x_i| \cdot (x_i / y) = \{(\text{response per Bq of impurity}) / (\text{response per Bq of Pu-242})\} \cdot \{(\text{Bq of impurity}) / (\text{Bq of Pu-242})\}$ . Thus  $u_i(y) / y$  is the relative change in  $y$  if the impurity were present with a massic activity equal to the estimated limit of detection.
- [t] The stated uncertainty is the standard uncertainty. The plutonium-241 activity was calculated from a gamma-ray measurement of the americium-241 ingrowth as of 25 November 1998, assuming that americium-241 was completely removed at the time of chemical purification.
- [u] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The value shown is an estimated upper limit based upon background and counting statistics. Measurements were made at the Lawrence Livermore National Laboratory (LLNL) in July of 1994.
- [v] Using alpha-particle spectrometry, no alpha-particle emission was detected that could reliably be ascribed to these radionuclides. The stated uncertainty is the standard uncertainty. Measurements were made at the National Institute of Standards and Technology (NIST) in June and July of 1999.

#### REFERENCES

- [1] International Organization for Standardization (ISO), *ISO Standards Handbook - Quantities and Units*, 1993. Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [2] International Organization for Standardization (ISO), *Guide to the Expression of Uncertainty in Measurement*, 1993 (corrected and reprinted, 1995). Available from Global Engineering Documents, 12 Inverness Way East, Englewood, CO 80112, U.S.A. Telephone 1-800-854-7179.
- [3] B.N. Taylor and C.E. Kuyatt, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, NIST Technical Note 1297, 1994. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20407, U.S.A.
- [4] National Council on Radiation Protection and Measurements Report No. 58, *A Handbook of Radioactivity Measurements Procedures*, Second Edition, 1985. Available from the National Council on Radiation Protection and Measurements, 7910 Woodmont Avenue, Bethesda, MD 20814 U.S.A.
- [5] Evaluated Nuclear Structure Data File (ENSDF), January 2005.

# Standard Traceability Log Rad

Source Material Info	
Parent Code:	1374
Prepared By:	Mary Aders
Carrier Conc:	0.5M HNO3
Reference Date:	06/07/1994
Ampoule Mass (g):	5.5 g
Uncertainty:	+/- .72 %
LogBook No:	RC-S-051-093

A Solution Material Info	
Isotope:	Plutonium-242
Prepared By:	Ashley Drochter
Prep Date:	12/02/2009
Verification Date:	12/08/2009
Expiration Date:	12/08/2010
Primary Code:	1374-A
Dilution(mL):	250 mL
Mass of Parent(g):	5.3616 g
Density(g/mL):	1.0136
Balance ID:	38080204

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / (\text{Dilution Vol}) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq/g)}) * (\text{conversion dpm to Bq}) / \text{Density (g/mL)} / (\text{Dilution Vol}) = \text{Parent Activity (dpm/g)}$
$(5.3616 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (250 \text{ mL}) = 33.8553 \text{ dpm/mL}$
$(5.3616 \text{ g}) * (26.31 \text{ Bq/g}) * (60 \text{ dpm/Bq}) / (1.0136 \text{ g/mL}) / (250 \text{ mL}) = 33.4010 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
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GEL Laboratories LLC  
Version 1.0 9/18/2000



## Verification for Pu-242 Standard 1374-A

A.Drochter 12/8/2009	Isotope	Value	Uncertainty
	1374-A	1.610	0.2480
	1374-A	1.580	0.2510
	1374-A	1.530	0.2440
Mean Value (Counting) =	1.573	103.17	Pass
Stdev =	0.040414519		Rule 3 (Pass/Fail)
Target =	1.52		
Lower Limit =	1.492504296		
Upper Limit =	1.654162371		
Rule 1 Pass/Fail	Pass		
Two sigma =	0.080829038		
10 % of Mean =	0.157333333		
Rule 2 (Pass/Fail)	Pass		

**Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

**Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

**Rule 3 =** The determined mean value shall be within 5% of the certificate value.

The analyst prepared three standard verification sources for standard 1374-A using 0.1 mL for each source. Each standard was combined with 0.1 mL of Pu239 standard 0338-BB and 50 micrograms of neodymium carrier in a disposable centrifuge tube containing 4 mL of 2 M HCl and 6 mL of DI water. Four drops of 25% Hydrazine dihydrochloride were added to each centrifuge tube and swirled. Two mL of 49% HF was added to precipitate neodymium (and plutonium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for Pu-242 were calculated by comparison to Pu-239 certified values.

*Handwritten:* Not called  
12/11/09  
12/9/09  
12/9/09



Eckert & Ziegler

Analytics

1380 Seaboard Industrial Blvd.  
Atlanta, Georgia 30318  
Tel 404-352-8677  
Fax 404-352-2837  
www.analyticsinc.com

CERTIFICATE OF CALIBRATION  
Standard Radionuclide Source

78747-278

1283

U-232 5 mL Liquid in Flame Sealed Vial

Customer: GEL Laboratories, LLC  
P.O. No.: 7319 RD, Item 1

This standard radionuclide source was prepared gravimetrically from a calibrated master solution. The master solution was calibrated using a germanium gamma spectrometer system.

Radionuclide purity and calibration were checked using a germanium gamma spectrometer system. The nuclear decay rate and assay date for this source are given below.

ANALYTICS maintains traceability to the National Institute of Standards and Technology through Measurements Assurance Programs as described in USNRC Reg. Guide 4.18, Revision 1.

Isotope:	U-232
Activity (Bq):	3.754 E3
Half-Life:	68.9 years
Calibration Date:	December 9, 2008 12:00 EST
Relative Expanded Uncertainty (k=2):	5.0%

Comments:

Impurities: U-233 <0.3%, Am-241 <0.15%  
5.20453 grams 1M HNO<sub>3</sub> solution.

Source Prepared By:

W. Mao  
W. Mao, Radiochemist

QA Approved:

D. M. Montgomery  
D. M. Montgomery, QA Manager

Date: 12-11-08

# Standard Traceability Log Rad

Source Material Info		A Solution Material Info	
Parent Code:	1283	Isotope:	Uranium-232
Prepared By:	Daniel Roy	Prepared By:	Daniel Roy
Carrier Conc:	1M HNO3	Prep Date:	12/16/2008
Reference Date:	12/09/2008	Verification Date:	12/30/2008
Ampoule Mass (g):	5.20453 g	Expiration Date:	12/30/2009
Uncertainty:	+/- 5 %	Primary Code:	1283-A
LogBook No:	RC-S-051-002	Dilution(mL):	100 mL
		Mass of Parent(g):	5.0245 g
		Density(g/mL):	1.0285
		Balance ID:	

## Calculations Converting parent activity to dpm/mL|dpm/g

$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / (\text{Ampoule Mass(g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/mL)}$
$(\text{Mass of parent(g)}) * (\text{Parm Activity (Bq)}) * (\text{conversion dpm to Bq}) / \text{Density} / (\text{Ampoule Mass (g)} * (\text{Dilution Vol})) = \text{Parent Activity (dpm/g)}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2174.4872 \text{ dpm/mL}$
$(5.0245 \text{ g}) * (3754 \text{ Bq}) * (60 \text{ dpm/Bq}) / (1.0285 \text{ g/mL}) / (5.20453 \text{ g} * 100 \text{ mL}) = 2114.1700 \text{ dpm/g}$

## Secondary Standards

Prep Date	Preparer	Mass Primary	Dilution (mL)	Code	Conc dpm/mL	Verification Date	Expiration Date
12/16/2008	Daniel Roy	25.1813	1000	1283-B	53.2375 dpm/ml	12/16/2008	12/16/2009
12/30/2008	Tina Schoneman	2.05	250	1283-C	17.336 dpm/mL	12/30/2008	12/30/2009
12/30/2008	Tina Schoneman	.49	250	1283-D	4.1438 dpm/mL	01/09/2009	01/09/2010
01/14/2009	Mary Aders	25.0528	1000	1283-E	52.9659 dpm/ml	01/15/2009	01/15/2010
12/02/2009	Julie Strock	2.076	250	1283-F	17.5561 dpm/mL	01/09/2009	12/30/2009
12/02/2009	Julie Strock	.517	250	1283-G	4.3721 dpm/mL	01/09/2009	12/30/2009
12/09/2009	Ashley Drochter	21.56	1000	1283-H	45.58 dpm/mL	12/09/2009	12/09/2010

GEL Laboratories LLC

Version 1.0 9/18/2000

## Verification for Uranium-232 Standard 1283-H

<b>Analyst: A. Drochter</b>	<b>Serial #</b>	<b>Value</b>	<b>Uncertainty</b>					
<b>Date: 12/10/09</b>	1283-H N1	2.020	pCi/L	0.238	pCi/L			
	1283-H N2	2.000	pCi/L	0.234	pCi/L			
	1283-H N3	2.060	pCi/L	0.242	pCi/L			
<b>Mean Value (Counting) =</b>	2.027	pCi/L	<b>99.66904</b>	<b>Pass</b>				
<b>Stdev =</b>	0.030550505	pCi/L	<b>Rule 3 (Pass/Fail)</b>					
<b>Target =</b>	2.033	pCi/L						
<b>Lower Limit =</b>	1.965565657	pCi/L						
<b>Upper Limit =</b>	2.087767676	pCi/L						
<b>Rule 1 Pass/Fail</b>	<b>Pass</b>							
<b>Two sigma =</b>	0.061101009							
<b>10 % of Mean =</b>	0.202666667							
<b>Rule 2 (Pass/Fail)</b>	<b>Pass</b>							

**Rule 1 =** The certificate value (NOT including any uncertainty) shall lie within the 95% confidence interval determined from the mean and two sigma standard deviation of the three measurements

**Rule 2 =** The two sigma value used for the 95% confidence interval shall not exceed 10% of the mean value of the three verification measurements.

**Rule 3 =** The determined mean value shall be within 10% of the certificate value.

The analyst prepared three standard verification sources for standard 1283-H using 0.1 mL for each source. Each standard was combined with 0.1 mL of U-238 standard 1163-G and was diluted to 10 mL with DI water. 50 micrograms of neodymium carrier and 1ml of Titanium Chloride were added. The solution was allowed to sit for 30 seconds. One mL of 49% HF was then added to precipitate neodymium (and uranium) fluoride. After 30 minutes, each sample was filtered following routine procedures for alpha spectroscopy source preparation. Each source was counted using routine alpha spec procedures. DPM values for U-238 were calculated by comparison to U-232 certified values.

*A. Drochter*  
12/14/09

# RUNLOGS

# Instrument Run Log

Instrument Type: GAMMA SPECTROMETER

Batch ID:941242

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244231001	SAMPLE	MXR1	GAM02	21-JAN-10 09:01	DONE	CAN	29-OCT-09 00:00
244231002	SAMPLE	MXR1	GAM06	21-JAN-10 09:01	DONE	CAN	04-FEB-09 00:00
244231003	SAMPLE	MXR1	GAM11	21-JAN-10 09:02	DONE	CAN	18-NOV-09 00:00
244231004	SAMPLE	MXR1	GAM12	21-JAN-10 09:02	DONE	CAN	10-FEB-09 00:00
244231005	SAMPLE	MXR1	GAM13	21-JAN-10 09:03	DONE	CAN	02-FEB-09 00:00
244231006	SAMPLE	MXR1	GAM20	21-JAN-10 09:03	DONE	CAN	26-AUG-09 00:00
244515001	SAMPLE	MXR1	GAM15	21-JAN-10 09:17	DONE	CAN	16-FEB-09 00:00
244515002	SAMPLE	MXR1	GAM17	21-JAN-10 09:17	DONE	CAN	06-JAN-10 00:00
244515003	SAMPLE	MXR1	GAM19	21-JAN-10 09:18	DONE	CAN	12-MAR-09 00:00
244515004	SAMPLE	MXR1	GAM25	21-JAN-10 09:18	DONE	CAN	07-OCT-09 00:00
244515005	SAMPLE	MXR1	GAM18	21-JAN-10 09:27	DONE	CAN	23-APR-09 00:00
244515006	SAMPLE	MXR1	GAM21	21-JAN-10 09:28	DONE	CAN	28-JUL-09 00:00
244515007	SAMPLE	MXR1	GAM05	21-JAN-10 09:59	DONE	CAN	11-JUN-09 00:00
244515008	SAMPLE	MXR1	GAM22	21-JAN-10 10:00	DONE	CAN	02-DEC-09 00:00
1202014513	MB	MXR1	GAM02	21-JAN-10 11:03	DONE	CAN	29-OCT-09 00:00
1202014515	LCS	MXR1	GAM13	21-JAN-10 11:09	DONE	CAN	02-FEB-09 00:00
1202014514	DUP	MXR1	GAM17	21-JAN-10 11:24	DONE	CAN	06-JAN-10 00:00

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID:941346

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244231001	SAMPLE	MXE1	1025	20-JAN-10 16:41	DONE		
244231002	SAMPLE	MXE1	1026	20-JAN-10 16:41	DONE		
244231003	SAMPLE	MXE1	1027	20-JAN-10 16:41	DONE		
244231004	SAMPLE	MXE1	1028	20-JAN-10 16:41	DONE		
244231005	SAMPLE	MXE1	1029	20-JAN-10 16:41	DONE		
244231006	SAMPLE	MXE1	1030	20-JAN-10 16:41	DONE		
244515001	SAMPLE	MXE1	1031	20-JAN-10 16:41	DONE		
244515002	SAMPLE	MXE1	1033	20-JAN-10 16:41	DONE		
244515003	SAMPLE	MXE1	1035	20-JAN-10 16:41	DONE		
244515004	SAMPLE	MXE1	1036	20-JAN-10 16:41	DONE		
244515005	SAMPLE	MXE1	1037	20-JAN-10 16:41	DONE		
244515006	SAMPLE	MXE1	1038	20-JAN-10 16:41	DONE		
244515007	SAMPLE	MXE1	1039	20-JAN-10 16:41	DONE		
244515008	SAMPLE	MXE1	1040	20-JAN-10 16:41	DONE		
244519003	SAMPLE	MXE1	1041	20-JAN-10 16:41	DONE		
1202014794	MB	MXE1	1042	20-JAN-10 16:41	DONE		
1202014795	DUP	MXE1	1065	20-JAN-10 16:41	DONE		
1202014796	LCS	MXE1	1066	20-JAN-10 16:41	DONE		

# Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID: 941353

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
244231001	SAMPLE	MXE1	1071	19-JAN-10 19:34	DONE		
244231002	SAMPLE	MXE1	1072	19-JAN-10 19:34	DONE		
244231003	SAMPLE	MXE1	1073	19-JAN-10 19:34	DONE		
244231004	SAMPLE	MXE1	1074	19-JAN-10 19:34	DONE		
244231005	SAMPLE	MXE1	1075	19-JAN-10 19:34	DONE		
244231006	SAMPLE	MXE1	1076	19-JAN-10 19:34	DONE		
244515001	SAMPLE	MXE1	1077	19-JAN-10 19:34	DONE		
244515002	SAMPLE	MXE1	1078	19-JAN-10 19:34	DUSE		
244515003	SAMPLE	MXE1	1079	19-JAN-10 19:34	DONE		
244515004	SAMPLE	MXE1	1080	19-JAN-10 19:34	DONE		
244515005	SAMPLE	MXE1	1081	19-JAN-10 19:34	DONE		
244515006	SAMPLE	MXE1	1082	19-JAN-10 19:34	DONE		
244515007	SAMPLE	MXE1	1083	19-JAN-10 19:34	DONE		
244515008	SAMPLE	MXE1	1084	19-JAN-10 19:34	DONE		
244519003	SAMPLE	MXE1	1085	19-JAN-10 19:34	DONE		
1202014797	MB	MXE1	1086	19-JAN-10 19:34	DONE		
1202014798	DUP	MXE1	1087	19-JAN-10 19:34	DONE		
1202014799	LCS	MXE1	1088	19-JAN-10 19:34	DONE		
244515002	SAMPLE	MXE1	1247	20-JAN-10 20:16	DONE		



## Instrument Run Log

Instrument Type: ALPHA SPECTROMETER

Batch ID:941354

Sample ID	Sample Type	Analyst	Instrument	Run Date	Status	Geometry	Calibration Date
1202014802	LCS	MXE1	1201	20-JAN-10 13:15	DONE		
244231001	SAMPLE	MXE1	1113	20-JAN-10 20:14	DONE		
244231002	SAMPLE	MXE1	1114	20-JAN-10 20:14	DONE		
244231003	SAMPLE	MXE1	1115	20-JAN-10 20:14	DONE		
244231004	SAMPLE	MXE1	1117	20-JAN-10 20:14	DONE		
244231005	SAMPLE	MXE1	1118	20-JAN-10 20:15	DONE		
244231006	SAMPLE	MXE1	1119	20-JAN-10 20:15	DONE		
244515001	SAMPLE	MXE1	1120	20-JAN-10 20:15	DONE		
244515002	SAMPLE	MXE1	1123	20-JAN-10 20:15	DONE		
244515003	SAMPLE	MXE1	1124	20-JAN-10 20:15	DONE		
244515004	SAMPLE	MXE1	1125	20-JAN-10 20:15	DONE		
244515005	SAMPLE	MXE1	1126	20-JAN-10 20:15	DONE		
244515006	SAMPLE	MXE1	1127	20-JAN-10 20:15	DONE		
244515007	SAMPLE	MXE1	1128	20-JAN-10 20:15	DONE		
244515008	SAMPLE	MXE1	1129	20-JAN-10 20:15	DONE		
244519003	SAMPLE	MXE1	1130	20-JAN-10 20:15	DONE		
1202014800	MB	MXE1	1131	20-JAN-10 20:15	DONE		
1202014801	DUP	MXE1	1132	20-JAN-10 20:15	DONE		